Appendix G
Transportation Data

SURVEY OF DGS EMPLOYEES TO BE RELOCATED TO RICHARDS OFFICE BUILDING

Note: Survey responses aggregated into three distinct groups. Weighting factors applied to account for relative sampling rates for each group to yield weighted sample that is representative of entire population of interest.
Approximatley 32% of all surveyed employees responded.

CURRENT MODE OF TRAVEL TO WORK

	Group A	Group B	Group C	Weighted
Drive alone and park	92.06%	52.18%	88.34%	76.40%
Carpool	5.84%	21.02%	5.48%	11.38%
Vanpool	0.00%	0.71%	0.70%	0.43%
Bus	0.70%	13.81%	2.39%	5.96%
Light Rail	0.47%	9.45%	1.40%	4.02%
Cap Corridor	0.00%	0.12%	0.14%	0.08%
Ridehail	0.23%	0.12%	0.00%	0.14%
Bicycle/Bikeshare	0.47%	1.30%	0.84%	0.86%
Walk	0.23%	1.30%	0.70%	0.74%

MODE OF TRAVEL TO RICHARDS OFFICE BUILDING

	Group A	Group B	Group C	Weighted
Drive alone and park at site	72.42%	58.64%	70.97%	66.97%
Drive alone and park in vicinity and TNC/Bike to site	2.32%	4.29%	4.15%	3.48%
Carpool and park at site	8.25%	17.15%	5.90%	11.00%
Vanpool and park at site	0.52%	0.88%	1.75%	0.94%
Bus	2.58%	5.55%	4.63%	4.16%
Light rail to site	10.57%	10.59%	7.81%	9.93%
Light rail to Downtown and Uber/Lyft/Bike to site	1.55%	0.76%	1.12%	1.15%
Capitol Corridor	0.26%	0.38%	0.80%	0.43%
Ridehailing Service (e.g., Uber, Lyft, etc.)	0.26%	0.25%	0.00%	0.20%
Bicycle/Bikeshare	1.29%	1.26%	2.71%	1.61%
Walk	0.00%	0.25%	0.16%	0.13%

MODE OF TRAVEL TO RICHARDS OFFICE BUILDING IF DRIVE ALONE NOT OPTION

	Group A	Group B	Group C	Weighted
Drive alone and park at site	0.00%	0.00%	0.00%	0.00%
Drive alone and park in vicinity and TNC/Bike to site	24.42%	27.62%	29.24%	26.74%
Carpool and park at site	26.27%	23.76%	23.98%	24.80%
Vanpool and park at site	8.29%	3.59%	6.14%	6.04%
Bus	10.60%	17.40%	9.65%	12.90%
Light rail to site	21.20%	20.44%	19.59%	20.54%
Light rail to Downtown and Uber/Lyft/Bike to site	0.46%	1.10%	4.09%	1.55%
Capitol Corridor	1.84%	1.38%	0.88%	1.44%
Ridehailing Service (e.g., Uber, Lyft, etc.)	5.53%	1.93%	2.34%	3.45%
Bicycle/Bikeshare	0.92%	2.49%	3.51%	2.11%
Walk	0.46%	0.28%	0.58%	0.42%

AM PEAK HOUR ARRIVAL TIME TO WORK

	Group A	Group B	Group C	Weighted
500	0.00%	0.11%	0.00%	0.04%
515	0.00%	0.23%	0.00%	0.08%
530	0.00%	0.34%	0.14%	0.16%
545	0.00%	1.71%	0.28%	0.70%
600	1.15%	3.31%	0.83%	1.88%
615	1.38%	2.85%	1.25%	1.90%
630	3.69%	6.61%	4.72%	5.02%
645	5.07%	10.60%	3.61%	6.78%
700	11.52%	22.92%	13.89%	16.30%
715	4.38%	7.98%	3.61%	5.53%
730	16.82%	14.82%	13.75%	15.36%
745	11.75%	5.02%	8.33%	8.45%
800	18.43%	11.40%	20.69%	16.36%
815	3.69%	3.19%	3.06%	3.36%
830	13.13%	6.16%	13.06%	10.53%
845	1.15%	0.57%	1.25%	0.96%
900	6.68%	1.60%	9.31%	5.41%
915	0.46%	0.34%	0.69%	0.47%
930	0.69%	0.00%	0.69%	0.44%
945	0.00%	0.00%	0.14%	0.03%
1000	0.00%	0.23%	0.69%	0.25%

PM PEAK HOUR DEPARTURE TIME TO WORK

	Group A	Group B	Group C	Weighted
200	0.00%	0.00%	0.29%	0.07%
215	0.00%	0.00%	0.14%	0.03%
230	0.48%	1.80%	0.29%	0.92%
245	0.00%	0.12%	0.14%	0.08%
300	1.43%	2.40%	1.14%	1.72%
315	0.00%	0.84%	0.29%	0.38%
330	5.70%	12.22%	5.15%	7.99%
345	1.90%	2.04%	1.00%	1.74%
400	14.96%	13.89%	16.74%	14.98%
415	1.19%	2.87%	1.29%	1.84%
430	18.76%	27.54%	16.88%	21.58%
500	34.20%	24.91%	28.47%	29.41%
515	3.33%	3.71%	5.01%	3.86%
530	9.03%	3.71%	10.59%	7.42%
545	0.95%	0.48%	1.29%	0.85%
600	6.18%	2.16%	6.87%	4.85%
615	0.00%	0.24%	0.72%	0.26%
630	1.43%	0.24%	1.43%	0.99%
645	0.24%	0.12%	0.72%	0.31%
700	0.24%	0.60%	1.43%	0.65%
715	0.00%	0.12%	0.14%	0.08%

NUMBER OF DAYS PER WEEK TYPICALLY TRAVELING OFF-SITE FOR WORK IN A PRIVATE VEHICLE

	Group A	Group B	Group C	Weighted
Daily	1.39%	2.17%	2.07%	1.84%
2 -4 times per week	5.08%	1.72%	4.70%	3.74%
Once per week	6.24%	1.37%	4.70%	4.07%
Once every two weeks	9.01%	3.66%	5.95%	6.31%
Once a month	35.33%	19.34%	30.01%	28.15%
Never	42.96%	71.74%	52.56%	55.89%

HOW CLOSE PARK TO WORKSITE DURING WORKDAY

	Group A	Group B	Group C	Weighted
On-site	99.24%	62.93%	90.63%	83.75%
1 block away	0.51%	12.13%	4.85%	5.84%
2 blocks away	0.00%	9.15%	0.65%	3.55%
3 blocks away	0.25%	5.26%	0.81%	2.24%
4 blocks away	0.00%	4.12%	0.97%	1.76%
5 or more blocks away	0.00%	6.41%	2.10%	2.87%

HOW MUCH PER MONTH CURRENTLY PAY TO PARK AT WORKSITE

	Group A	Group B	Group C	Weighted
$0	98.98%	14.49%	92.38%	66.11%
$1 to $25	0.26%	1.69%	0.17%	0.77%
$26 to $50	0.26%	5.31%	0.33%	2.15%
$51 to $75	0.00%	49.52%	0.99%	18.59%
$76 to $100	0.00%	4.11%	0.66%	1.68%
$101 to $125	0.26%	7.49%	0.83%	3.07%
$126 to $150	0.26%	7.00%	4.14%	3.67%
$176 to $200	0.00%	6.76%	0.33%	2.59%
Over $200	0.00%	3.62%	0.17%	1.38%

AVERAGE VEHICLE OCCUPANCY OF CARPOOLS

	Group A	Group B	Group C	Weighted
AVO	2.04	2.12	2.06	2.07

RECEIVE A MONTHLY PARKING DISCOUNT FOR CARPOOLING

	Group A	Group B	Group C	Weighted
Yes	4.00%	49.02%	11.76%	22.52%
No	96.00%	50.98%	88.24%	77.48%

HOW LIKELY TO DRIVE ALONE TO WORK IF COST FOR PARKING INCREASED TO $150 PER MONTH

	Group A	Group B	Group C	Weighted
Very likely	36.40%	36.51%	40.19%	37.33%
Somewhat likely	26.05%	24.04%	20.58%	24.02%
Somewhat unlikely	15.71%	17.01%	18.16%	16.77%
Very unlikely	21.84%	22.45%	21.07%	21.88%

HOW LIKELY TO DRIVE ALONE TO WORK IF COST FOR PARKING INCREASED TO $200 PER MONTH

	Group A	Group B	Group C	Weighted
Very likely	28.96%	26.88%	28.29%	28.03%
Somewhat likely	22.39%	17.08%	19.02%	19.63%
Somewhat unlikely	10.42%	14.12%	13.90%	12.61%
Very unlikely	38.22%	41.91%	38.78%	39.72%

HOW LIKELY TO DRIVE ALONE TO WORK IF CLOSEST PARKING SEVERAL BLOCKS AWAY

	Group A	Group B	Group C	Weighted
Very likely	34.24%	35.68%	40.68%	36.29%
Somewhat likely	31.91%	30.00%	31.96%	31.21%
Somewhat unlikely	17.51%	16.59%	12.35%	15.96%
Very unlikely	16.34%	17.73%	15.01%	16.54%

HOW LIKELY TO DRIVE ALONE TO WORK IF HELPED TO FIND CARPOOL/VANPOOL MATCHES

	Group A	Group B	Group C	Weighted
Very likely	25.48%	28.97%	33.25%	28.60%
Somewhat likely	29.34%	25.98%	25.18%	27.12%
Somewhat unlikely	20.46%	20.00%	16.14%	19.27%
Very unlikely	24.71%	25.06%	25.43%	25.01%

HOW LIKELY TO DRIVE ALONE TO WORK IF MONTHLY TRANSIT PASS SUBSIDY INCREASED FROM $65 TO $100

	Group A	Group B	Group C	Weighted
Very likely	34.11%	34.94%	35.63%	34.77%
Somewhat likely	24.03%	19.77%	24.08%	22.46%
Somewhat unlikely	18.99%	17.47%	17.20%	18.01%
Very unlikely	22.87%	27.82%	23.10%	24.76%

HOW LIKELY TO DRIVE ALONE TO WORK IF SAFETY ON TRANSIT WAS IMPROVED

	Group A	Group B	Group C	Weighted
Very likely	35.29%	34.49%	37.35%	35.48%
Somewhat likely	29.02%	24.31%	24.57%	26.23%
Somewhat unlikely	17.25%	19.91%	17.94%	18.40%
Very unlikely	18.43%	21.30%	20.15%	19.90%

HOW LIKELY TO DRIVE ALONE TO WORK IF MORE FREQUENT TRANSIT SERVICE

	Group A	Group B	Group C	Weighted
Very likely	34.51%	34.43%	36.86%	35.03%
Somewhat likely	28.63%	21.70%	21.87%	24.47%
Somewhat unlikely	17.65%	19.10%	18.92%	18.49%
Very unlikely	19.22%	24.76%	22.36%	22.01%

HOW LIKELY TO DRIVE ALONE TO WORK IF TRANSIT SERVICE PROVIDED LATER INTO EVENING

	Group A	Group B	Group C	Weighted
Very likely	33.07%	35.63%	36.23%	34.76%
Somewhat likely	22.96%	17.93%	22.33%	20.95%
Somewhat unlikely	22.96%	17.70%	17.62%	19.75%
Very unlikely	21.01%	28.74%	23.82%	24.54%

HOW LIKELY TO DRIVE ALONE TO WORK IF COMMUTER BUS SERVICE WAS AVAILABLE

	Group A	Group B	Group C	Weighted
Very likely	30.50%	35.55%	35.21%	33.48%
Somewhat likely	27.41%	19.50%	22.25%	23.26%
Somewhat unlikely	18.92%	15.14%	16.38%	16.92%
Very unlikely	23.17%	29.82%	26.16%	26.34%

INITIAL MODE OF TRAVEL TO RICHARDS OFFICE BUILDING

5,853 = Total Employees

	Mode Split	Persons traveling by mode
Drive alone and park at site	66.97%	3920
Drive alone and park in vicinity and TNC/Bike to site	3.48%	204
Carpool and park at site	11.00%	644
Vanpool and park at site	0.94%	55
Bus	4.16%	244
Light rail to site	9.93%	581
Light rail to Downtown and Uber/Lyft/Bike to site	1.15%	67
Capitol Corridor	0.43%	25
Ridehailing Service (e.g., Uber, Lyft, etc.)	0.20%	11
Bicycle/Bikeshare	1.61%	94
Walk	0.13%	8
	TOTAL	5853

Employee total considers percentage of employees that are full (90%) vs. part-time (10%), with an estimated 75% of part time employees being present on site during a mid-week day.

ITERATION 1 - MODIFIED MODE OF TRAVEL TO RICHARDS OFFICE BUILDING (SHIFT AWAY FROM SOV PARKING AT SITE DUE TO LIMITED SUPPLY)

5,853 = Total Full Time Employee Equivalents

3,310 = SOVs redistributed

	Mode Split	Initial Persons by mode	Redistributed SOV's	Redistributed Person Trips	
Drive alone and park at site	66.97%	3920	0.00%	610	10.42%
Drive alone and park in vicinity and TNC/Bike to site	3.48%	204	26.74%	1089	18.60%
Carpool and park at site	11.00%	644	24.80%	1464	25.02%
Vanpool and park at site	0.94%	55	6.04%	255	4.36%
Bus	4.16%	244	12.90%	670	11.45%
Light rail to site	9.93%	581	20.54%	1261	21.55%
Light rail to Downtown and Uber/Lyft/Bike to site	1.15%	67	1.55%	119	2.03%
Capitol Corridor	0.43%	25	1.44%	73	1.25%
Ridehailing Service (e.g., Uber, Lyft, etc.)	0.20%	11	3.45%	125	2.14%
Bicycle/Bikeshare	1.61%	94	2.11%	164	2.81%
Walk	0.13%	8	0.42%	22	0.37%
	TOTAL	5853		5853	

ITERATION 1 - ON-SITE PARKING DEMAND

SOVs	610		
Carpools	707		
Vanpools	55	Demand based on redistributed modes	
Total	1372	CONTROL TOTAL TO MATCH	1370

ITERATION 1 - OFF-SITE PARKING DEMAND

Peak Parking Demand	1089

ITERATION 2 - MODIFIED MODE OF TRAVEL TO RICHARDS OFFICE BUILDING (BUS MODE CAPPED AT 4%)

5,853 = Total Full Time Employee Equivalents

436 = Bus riders redistributed

	Iter. 1 - Persons by mode	Redistributed BUS	Redistributed Person Trips
Drive alone and park at site	610	0.00%	610
Drive alone and park in vicinity and TNC/Bike to site	1089	0.00%	1089
Carpool and park at site	1464	0.00%	1464
Vanpool and park at site	255	17.94%	334
Bus	670	-	234
Light rail to site	1261	60.96%	1527
Light rail to Downtown and Uber/Lyft/Bike to site	119	4.61%	139
Capitol Corridor	73	0.00%	73
Ridehailing Service (e.g., Uber, Lyft, etc.)	125	10.23%	170
Bicycle/Bikeshare	164	6.26%	192
Walk	22	0.00%	22
TOTAL	5853		5853

Note: Redistributed bus travel assumed to proportionally be filled by vanpool and park at site, light rail to site, light rail to Downtown, Capitol Corridor, Ridehailing, and Bike. Bus cap of 4% based on current overall level of 6% bus usage for relocated employees, with additional consideration given for lack of commuter bus service to project site. Additionally, 12% of employees reside in zip codes served by three bus routes that serve project site.

ITERATION 2 - ON-SITE PARKING DEMAND

SOVs	610		
Carpools	707		
Vanpools	55	Demand based on redistributed modes	
Total	1372	CONTROL TOTAL TO MATCH	1370

ITERATION 2 - OFF-SITE PARKING DEMAND

Peak Parking Demand	1089

ITERATION 3 - MODIFIED MODE OF TRAVEL TO RICHARDS OFFICE BUILDING (OFF-SITE PARKING MATCHED TO CONTROL TOTAL)

5,853 = Total Full Time Employee Equivalents

90 = SOV off-site parkers redistributed

	Iter. 2 - Persons by mode	Redistributed Off-Site SOV	Redistributed Person Trips	
Drive alone and park at site	610	0.00%	610	10%
Drive alone and park in vicinity and TNC/Bike to site	1089	-	999	17%
Carpool and park at site	1464	0.00%	1464	25%
Vanpool and park at site	334	17.94%	350	6%
Bus	234	0.00%	234	4%
Light rail to site	1527	60.96%	1582	27%
Light rail to Downtown and Uber/Lyft/Bike to site	139	4.61%	143	2%
Capitol Corridor	73	0.00%	73	1%
Ridehailing Service (e.g., Uber, Lyft, etc.)	170	10.23%	179	3%
Bicycle/Bikeshare	192	6.26%	197	3%
Walk	22	0.00%	22	0%
TOTAL	5853		5853	

Note: Redistributed off-site SOV travel assumed to proportionally be filled by vanpool and park at site, light rail to site, light rail to Downtown, Capitol Corridor, Ridehailing, and Bike.

ITERATION 3 - ON-SITE PARKING DEMAND

SOVs	610		
Carpools	707		
Vanpools	55	Demand based on redistributed modes	
Total	1372	CONTROL TOTAL TO MATCH	1370

ITERATION 3 - OFF-SITE PARKING DEMAND

Peak Parking Demand	999	CONTROL TOTAL TO MATCH	1000

Note: Control total based on 180 on-street spaces within Railyards SP, 600 assumed available spaces in new parking garage on 5th St, and 220 available spaces north of Richards Blvd.

ITERATION 4 - MODIFIED MODE OF TRAVEL TO RICHARDS OFFICE BUILDING (LIGHT RAIL USE CAPPED AT 20%

ITERATION 4 - ON-SITE PARKING DEMAND

5,853 = Total Full Time Employee Equivalents
411 = SOV off-site parkers redistributed

	Iter. 3 - Persons by mode	Redistributed Light Rail	Redistributed Person Trips	
Drive alone and park at site	610	0.00%	610	10.42%
Drive alone and park in vicinity and TNC/Bike to site	999	0.00%	999	17.06%
Carpool and park at site	1464	0.00%	1464	25.02%
Vanpool and park at site	350	0.00%	350	5.97%
Bus	234	0.00%	234	4.00%
Light rail to site	1582	-	1171	20.00%
Light rail to Downtown and Uber/Lyft/Bike to site	143	0.00%	143	2.45%
Capitol Corridor	73	0.00%	73	1.25%
Ridehailing Service (e.g., Uber, Lyft, etc.)	179	100.00%	591	10.09%
Bicycle/Bikeshare	197	0.00%	197	3.37%
Walk	22	0.00%	22	0.37%
TOTAL	5853		5853	

SOVs	610		
Carpools	707		
Vanpools	62	Demand based on redistributed modes	
Total	1379	CONTROL TOTAL TO MATCH	1370

ITERATION 4 - OFF-SITE PARKING DEMAND

Peak Parking Demand	999	CONTROL TOTAL TO MATCH	1000

Note: Control total based on 180 on-street spaces within Railyards SP, 600 assumed available spaces in new parking garage on 5th St, and 220 available spaces north of Richards Blvd.

AM PEAK HOUR VEHICLE TRIP GENERATION

	Inbound Vehicle Trips	Outbound Vehicle Trips	Notes
Drive alone and park at site	279	45	Outbound trip estimate based on ITE in/out trips (i.e., 14% of every 100 are outbound)
Drive alone and park in vicinity and TNC/Bike to site	456		TNC vehicles likely to already be within study area; hence not new trip, but added to dwys.
Carpool and park at site	323	53	Outbound trip estimate based on ITE in/out trips (i.e., 14% of every 100 are outbound)
Vanpool and park at site	27		Vanpools assumed to park on-site
Light rail to Downtown and Uber/Lyft/Bike to site	33	33	50% assumed to use a TNC
Ridehailing Service (e.g., Uber, Lyft, etc.)	270	270	Single occupants. Each TNC creates two trip ends
Customers/Visitors	13	6	Assumes 25% of 50 visitor spaces become occupied during AM peak hour
Service/Utility/Delivery	15	5	Includes FedEx, UPS, Linen supplies, cleaning, food, shredding, furniture, security, etc.
TOTAL	1416	412	

Employees arrive at work from 7:15 to 8:15 AM	45.70%	Vehicular Trip Generation Rates	Per	AM Peak Hour
Carpool Average Vehicle Occupancy=	2.07		KSF	1.33
Average occupancy of vanpools =	6		Employee	0.30

COMPARABLE DATA STATISTIC

	Downtown Depts.	
Walk	**149**	**3%**
Van	**32**	**1%**
TNC	**5**	**0%**
LRT	**547**	**12%**
Drive Alone	**2336**	**50%**
Carpool	**739**	**16%**
CCJPA	**23**	**0%**
Bus	**632**	**13%**
Bike	**242**	**5%**

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PM PEAK HOUR VEHICLE TRIP GENERATION

	Inbound Vehicle Trips	Outbound Vehicle Trips	Notes
Drive alone and park at site	78	380	Inbound trip estimate based on ITE in/out trips (i.e., 17% of every 100 are inbound)
Drive alone and park in vicinity and TNC/Bike to site		622	TNC vehicles likely to already be within study area; hence not new trip, but added to dwys.
Carpool and park at site	90	441	Inbound trip estimate based on ITE in/out trips (i.e., 17% of every 100 are inbound)
Vanpool and park at site		36	Vanpools assumed to park on-site
Light rail to Downtown and Uber/Lyft/Bike to site	45	45	50% assumed to use a TNC
Ridehailing Service (e.g., Uber, Lyft, etc.)	368	368	Single occupants. Each TNC creates two trip ends
Customers/Visitors	25	50	Assumes 100% of 50 visitor spaces are emptied, and 50% are refilled
Service/Utility/Delivery	5	15	Includes FedEx, UPS, Linen supplies, cleaning, food, shredding, furniture, security, etc.
TOTAL	611	1957	

Employees leave work from 4:30 to 5:30 PM	62.30%	Vehicular Trip Generation Rates	Per	PM Peak Hour
Carpool Average Vehicle Occupancy=	2.07		KSF	1.87
Average occupancy of vanpools =	6		Employee	0.43

DAILY VEHICLE TRIP GENERATION

	Inbound Vehicle Trips	Outbound Vehicle Trips	Notes
Drive alone and park at site	610	610	
Drive alone and park in vicinity and TNC/Bike to site	999	999	
Carpool and park at site	707	707	
Vanpool and park at site	58	58	Vanpools assumed to park on-site
Light rail to Downtown and Uber/Lyft/Bike to site	143	143	50% assumed to use a TNC
Ridehailing Service (e.g., Uber, Lyft, etc.)	1181	1181	Single occupants. Each TNC creates two trip ends
Customers/Visitors	200	200	Based on average number of visitors per day for relocated departments
Service/Utility/Delivery	100	100	Includes FedEx, UPS, Linen supplies, cleaning, food, shredding, furniture, security, etc.
Mid-Day Employee Work Travel	325	325	Based on survey of frequency of off-site travel during workday
Mid-Day Employee Person Travel	450	450	Assumes one-third of parked vehicles are used for mid-day person errands (e.g., lunch, etc.).
TOTAL	4774	4774	

Carpool Average Vehicle Occupancy=	2.07	Vehicular Trip Generation Rates	Per	Daily
Average occupancy of vanpools =	6		KSF	6.94
			Employee	1.59

INITIAL MODE OF TRAVEL TO RICHARDS OFFICE BUILDING

5,853 = Total Employees

	Mode Split	Persons traveling by mode
Drive alone and park at site	66.97%	3920
Drive alone and park in vicinity and TNC/Bike to site	3.48%	204
Carpool and park at site	11.00%	644
Vanpool and park at site	0.94%	55
Bus	4.16%	244
Light rail to site	9.93%	581
Light rail to Downtown and Uber/Lyft/Bike to site	1.15%	67
Capitol Corridor	0.43%	25
Ridehailing Service (e.g., Uber, Lyft, etc.)	0.20%	11
Bicycle/Bikeshare	1.61%	94
Walk	0.13%	8
TOTAL		5853

Employee total considers percentage of employees that are full (90%) vs. part-time (10%), with an estimated 75% of part time employees being present on site during a mid-week day.

ITERATION 1 - MODIFIED MODE OF TRAVEL TO RICHARDS OFFICE BUILDING (SHIFT AWAY FROM SOV PARKING AT SITE DUE TO LIMITED SUPPLY)

5,853 = Total Full Time Employee Equivalents
3,310 = SOVs redistributed

	Mode Split	Initial Persons by mode	Redistributed SOV's	Redistributed Person Trips
Drive alone and park at site	66.97%	3920	0.00%	610
Drive alone and park in vicinity and TNC/Bike to site	3.48%	204	26.74%	1089
Carpool and park at site	11.00%	644	24.80%	1464
Vanpool and park at site	0.94%	55	6.04%	255
Bus	4.16%	244	12.90%	670
Light rail to site	9.93%	581	20.54%	1261
Light rail to Downtown and Uber/Lyft/Bike to site	1.15%	67	1.55%	119
Capitol Corridor	0.43%	25	1.44%	73
Ridehailing Service (e.g., Uber, Lyft, etc.)	0.20%	11	3.45%	125
Bicycle/Bikeshare	1.61%	94	2.11%	164
Walk	0.13%	8	0.42%	22
TOTAL		5853		5853

ITERATION 1 - ON-SITE PARKING DEMAND

10.42%	SOVs	610		
18.60%	Carpools	707		
25.02%	Vanpools	55	Demand based on redistributed modes	
4.36%	Total	1372	CONTROL TOTAL TO MATCH	1370
11.45%				
21.55%				
2.03%				
1.25%				
2.14%				
2.81%				
0.37%				

ITERATION 1 - OFF-SITE PARKING DEMAND

Peak Parking Demand	1089	

ITERATION 2 - MODIFIED MODE OF TRAVEL TO RICHARDS OFFICE BUILDING (BUS MODE CAPPED AT 4%)

5,853 = Total Full Time Employee Equivalents
436 = Bus riders redistributed

	Iter. 1 - Persons by mode	Redistributed BUS	Redistributed Person Trips
Drive alone and park at site	610	0.00%	610
Drive alone and park in vicinity and TNC/Bike to site	1089	0.00%	1089
Carpool and park at site	1464	0.00%	1464
Vanpool and park at site	255	17.94%	334
Bus	670	-	234
Light rail to site	1261	60.96%	1527
Light rail to Downtown and Uber/Lyft/Bike to site	119	4.61%	139
Capitol Corridor	73	0.00%	73
Ridehailing Service (e.g., Uber, Lyft, etc.)	125	10.23%	170
Bicycle/Bikeshare	164	6.26%	192
Walk	22	0.00%	22
TOTAL	5853		5853

Note: Redistributed bus travel assumed to proportionally be filled by vanpool and park at site, light rail to site, light rail to Downtown, Capitol Corridor, Ridehailing, and Bike. Bus cap of 4% based on current overall level of 6% bus usage for relocated employees, with additional consideration given for lack of commuter bus service to project site. Additionally, 12% of employees reside in zip codes served by three bus routes that serve project site.

ITERATION 2 - ON-SITE PARKING DEMAND

SOVs	610		
Carpools	707		
Vanpools	55	Demand based on redistributed modes	
Total	1372	CONTROL TOTAL TO MATCH	1370

ITERATION 2 - OFF-SITE PARKING DEMAND

Peak Parking Demand	1089

ITERATION 3 - MODIFIED MODE OF TRAVEL TO RICHARDS OFFICE BUILDING (OFF-SITE PARKING MATCHED TO CONTROL TOTAL)

5,853 = Total Full Time Employee Equivalents
90 = SOV off-site parkers redistributed

	Iter. 2 - Persons by mode	Redistributed Off-Site SOV	Redistributed Person Trips
Drive alone and park at site	610	0.00%	610
Drive alone and park in vicinity and TNC/Bike to site	1089	-	999
Carpool and park at site	1464	0.00%	1464
Vanpool and park at site	334	17.94%	350
Bus	234	0.00%	234
Light rail to site	1527	60.96%	1582
Light rail to Downtown and Uber/Lyft/Bike to site	139	4.61%	143
Capitol Corridor	73	0.00%	73
Ridehailing Service (e.g., Uber, Lyft, etc.)	170	10.23%	179
Bicycle/Bikeshare	192	6.26%	197
Walk	22	0.00%	22
TOTAL	5853		5853

Note: Redistributed off-site SOV travel assumed to proportionally be filled by vanpool and park at site, light rail to site, light rail to Downtown, Capitol Corridor, Ridehailing, and Bike.

ITERATION 3 - ON-SITE PARKING DEMAND

	SOVs	610	0.462944	
10%	Carpools	707	0.537056	
17%	Vanpools	55	Demand based on redistributed modes	
25%	Total	1372	CONTROL TOTAL TO MATCH	1370
6%				
4%				
27%				
2%				
1%				
3%				
3%				
0%				

ITERATION 3 - OFF-SITE PARKING DEMAND

Peak Parking Demand	999	CONTROL TOTAL TO MATCH	1000

Note: Control total based on 180 on-street spaces within Railyards SP, 600 assumed available spaces in new parking garage on 5th St, and 220 available spaces north of Richards Blvd.

ITERATION 4 - MODIFIED MODE OF TRAVEL TO RICHARDS OFFICE BUILDING (LIGHT RAIL USE CAPPED AT 20% and 0% PRIMARY RIDEHAILING)

5,853 = Total Full Time Employee Equivalents
411 = SOV off-site parkers r OLD #

		Iter. 3 - Persons by mode	Redistributed Light Rail	Redistributed Person Trips
Drive alone and park at site	610	610	0.00%	883
Drive alone and park in vicinity and TNC/Bike to site	999	999	0.00%	999
Carpool and park at site	1464	1464	0.00%	1782
Vanpool and park at site	350	350	0.00%	350
Bus	234	234	0.00%	234
Light rail to site	1171	1582	-	1171
Light rail to Downtown and Uber/Lyft/Bike to site	143	143	0.00%	143
Capitol Corridor	73	73	0.00%	73
Ridehailing Service (e.g., Uber, Lyft, etc.)	591	179	100.00%	0
Bicycle/Bikeshare	197	197	0.00%	197
Walk	22	22	0.00%	22
TOTAL		5853		5853

ITERATION 4 - ON-SITE PARKING DEMAND

	SOVs	883		
15.09%	Carpools	861		
17.06%	Vanpools	62	Demand based on redistributed modes	
30.44%	Total	1806	CONTROL TOTAL TO MATCH	1370
5.97%				
4.00%				
20.00%				
2.45%				
1.25%				
0.00%				
3.37%				
0.37%				

NET INCREASE NEEDED TO ELIMINATE RIDEHAIL TRIPS: 436

ITERATION 4 - OFF-SITE PARKING DEMAND

Peak Parking Demand	999	CONTROL TOTAL TO MATCH	1000

Note: Control total based on 180 on-street spaces within Railyards SP, 600 assumed available spaces in new parking garage on 5th St, and 220 available spaces north of Richards Blvd.

AM PEAK HOUR VEHICLE TRIP GENERATION

	Inbound Vehicle Trips	Outbound Vehicle Trips	Notes
Drive alone and park at site	404	66	Outbound trip estimate based on ITE in/out trips (i.e., 14% of every 100 are outbound)
Drive alone and park in vicinity and TNC/Bike to site	456		TNC vehicles likely to already be within study area; hence not new trip, but added to dwys.
Carpool and park at site	393	64	Outbound trip estimate based on ITE in/out trips (i.e., 14% of every 100 are outbound)
Vanpool and park at site	27		Vanpools assumed to park on-site
Light rail to Downtown and Uber/Lyft/Bike to site	33	33	50% assumed to use a TNC
Ridehailing Service (e.g., Uber, Lyft, etc.)	0	0	Single occupants. Each TNC creates two trip ends
Customers/Visitors	13	6	Assumes 25% of 50 visitor spaces become occupied during AM peak hour
Service/Utility/Delivery	15	5	Includes FedEx, UPS, Linen supplies, cleaning, food, shredding, furniture, security, etc.
TOTAL	1341	173	

Employees arrive at work from 7:15 to 8:15 AM	45.70%	Vehicular Trip Generation Rates	Per	AM Peak Hour
Carpool Average Vehicle Occupancy=	2.07		KSF	1.10
Average occupancy of vanpools =	6		Employee	0.25

595.9561724

PM PEAK HOUR VEHICLE TRIP GENERATION

	Inbound Vehicle Trips	Outbound Vehicle Trips	Notes
Drive alone and park at site	113	550	Inbound trip estimate based on ITE in/out trips (i.e., 17% of every 100 are inbound)
Drive alone and park in vicinity and TNC/Bike to site		622	TNC vehicles likely to already be within study area; hence not new trip, but added to dwys.
Carpool and park at site	110	536	Inbound trip estimate based on ITE in/out trips (i.e., 17% of every 100 are inbound)
Vanpool and park at site		36	Vanpools assumed to park on-site
Light rail to Downtown and Uber/Lyft/Bike to site	45	45	50% assumed to use a TNC
Ridehailing Service (e.g., Uber, Lyft, etc.)	0	0	Single occupants. Each TNC creates two trip ends
Customers/Visitors	25	50	Assumes 100% of 50 visitor spaces are emptied, and 50% are refilled
Service/Utility/Delivery	5	15	Includes FedEx, UPS, Linen supplies, cleaning, food, shredding, furniture, security, etc.
TOTAL	297	1855	

Employees leave work from 4:30 to 5:30 PM	62.30%	Vehicular Trip Generation Rates	Per	PM Peak Hour
Carpool Average Vehicle Occupancy=	2.07		KSF	1.56
Average occupancy of vanpools =	6		Employee	0.36

PROPOSED PROJECT TOTALS

AM PK HR				
In		OUT		
	1415.702412	412	1827.321	
PM PK HR				
In		OUT		
	610.6300343	1957	2567.399	

INCREASED PARKING TOTAL

AM PK HR				
In		OUT		
	1340.773807	173	1514.226	313.0952407
PM PK HR				
In		OUT		
	297	1855	2151.747	415.6521863

DAILY VEHICLE TRIP GENERATION

	Inbound Vehicle Trips	Outbound Vehicle Trips	Notes
Drive alone and park at site	883	883	
Drive alone and park in vicinity and TNC/Bike to site	999	999	
Carpool and park at site	861	861	
Vanpool and park at site	58	58	Vanpools assumed to park on-site
Light rail to Downtown and Uber/Lyft/Bike to site	143	143	50% assumed to use a TNC
Ridehailing Service (e.g., Uber, Lyft, etc.)	0	0	Single occupants. Each TNC creates two trip ends
Customers/Visitors	200	200	Based on average number of visitors per day for relocated departments
Service/Utility/Delivery	100	100	Includes FedEx, UPS, Linen supplies, cleaning, food, shredding, furniture, security, etc.
Mid-Day Employee Work Travel	325	325	Based on survey of frequency of off-site travel during workday
Mid-Day Employee Person Travel	450	450	Assumes one-third of parked vehicles are used for mid-day person errands (e.g., lunch, etc.).
TOTAL	4019	4019	

Carpool Average Vehicle Occupancy=	2.07	Vehicular Trip Generation Rates	Per	Daily
Average occupancy of vanpools =	6		KSF	5.85
			Employee	1.34

FEHR PEERS

FINAL TECHNICAL MEMORANDUM

Date: January 17, 2019

To: Stephanie Coleman – DGS
Elizabeth Boyd & Christina Erwin - ESA

From: John Gard – Fehr & Peers

Subject: ***Richards Boulevard Office Complex Trip Generation Estimates***

RS18-3723

This memorandum presents the expected trip generation of the proposed Richards Boulevard Office Complex ("proposed project"). The DEIR's transportation chapter will include a more robust discussion of analysis methods. We request that this brief memo be reviewed, and any comments or questions be provided to us no later than close of business on Thursday, January 10, 2019.

Project Description

For analysis purposes, the proposed project would consist of 6,000 employees and 1,375,000 gross square feet of office floor space (including space for employees as well as on-site amenities). The site would provide 1,420 parking spaces, including 50 spaces being designated for visitors/customers.

Approach

The project's unique physical characteristics and surrounding transportation conditions necessitated a tailored approach for estimating its trip generation that did not rely upon nationally-developed trip rates from the *Trip Generation Manual* (Institute of Transportation Engineers, 2017). Thus, questions contained in an online employee commute survey formed the basis of the project trip generation estimates, and the resulting vehicle trips and trip rates were compared against applicable trip rates from the *Trip Generation Manual* for general reasonableness.

Overview of Analysis Methodology

Due to the proposed project's size, employee density, supply of parking, and types of available travel modes in its vicinity, a decision was made to survey existing employees that work at State agencies and departments in the Sacramento region, with a focus on those agencies planned for relocation to the new office complex. This online survey, which was administrated in December 2018 and January 2019, was completed by 2,038 of the approximately 6,400 employees that were surveyed, which represents a 32 percent response rate.

Appendix A summarizes the key survey questions targeted toward understanding travel behavior and responses received in the survey. Employees were asked what travel mode they currently use to get to work, and what mode of travel they would choose if they instead worked at three different hypothetical worksites. As shown below, the first hypothetical worksite was the proposed project site.

You will now be asked several hypothetical 'what if' questions about your travel preferences if you were to work at a different worksite.

- Hypothetical worksite #1 is located at the intersection of Richards Boulevard and 7th Street in the River District, just north of Downtown Sacramento (see map below).
- Transit options would include the following:
  - An adjacent Green Line light rail station. Blue or Gold line passengers would be required to transfer. The transfer would occur in Downtown Sacramento and could require walking to a different station or waiting several minutes for a Green Line train.
  - Three bus routes that extend into parts of Natomas, Rio Linda, and Downtown.
  - Commuter express bus from outlying areas would not be provided.
- Monthly parking costs you $100. The worksite would provide on-site parking for some employees planning to drive.
- The State will continue to cover up to $65 of your monthly bus, light rail, or Capitol Corridor transit pass cost (a monthly pass for light rail costs $100).
- The State will continue to offer its Guaranteed Ride Home program (for emergency reasons).
- The site will be equipped with a complementary on-site State employee-only bikeshare program.



Under this hypothetical scenario, which primary mode of transportation would you most likely choose to travel from home to work?

- ◯ Drive alone and park at site
- ◯ Drive alone and park in site vicinity and Uber/Lyft/Bike to site
- ◯ Carpool and park at site
- ◯ Vanpool and park at site
- ◯ Bus
- ◯ Light rail to site
- ◯ Other (please specify)
- ◯ Light rail to Downtown and Uber/Lyft/Bike to site
- ◯ Capitol Corridor
- ◯ Ridehailing Service (e.g., Uber, Lyft, etc.)
- ◯ Bicycle/Bikeshare
- ◯ Walk

For those respondents that indicated that they would drive alone and park at the project site, the following question was then posed:

If you were not able to drive alone and park at the site, which primary mode of transportation would you most likely choose to travel from home to work?

- ◯ Drive alone and park in site vicinity and Uber/Lyft/Bike to site
- ◯ Carpool and park at site
- ◯ Vanpool and park at site
- ◯ Bus
- ◯ Light rail to site
- ◯ Other (please specify)
- ◯ Light rail to Downtown and Uber/Lyft/Bike to site
- ◯ Capitol Corridor
- ◯ Ridehailing Service (e.g., Uber, Lyft, etc.)
- ◯ Bicycle/Bikeshare
- ◯ Walk

The above two questions were complemented by several other travel behavior questions relating to typical work arrival and departure times, carpool vehicle occupancy, and stated preference questions regarding strategies that would discourage/encourage certain modes of travel.

The following specific factors associated with the proposed project and surrounding site vicinity would influence the project's travel characteristics:

- On-Site Parking Supply – The proposed on-site parking supply (one space for every 4.4 employees) suggests that not all employees who may wish to park on-site would be able to do so. The above survey question addresses how the project's proposed parking supply would influence travel mode.
- Off-Site Parking Supply – Field surveys were performed to identify locations where off-site parking by employees could occur. Approximately 1,000 off-site spaces (generally located within ½ to ¾ of a mile of the project) are expected to be available in the near-term to accommodate employee parking demand associated with the project.
- Bus Mode Split – The project site is served by three Sacramento Regional Transit (SacRT) bus routes from parts of Natomas, Del Paso Heights, Rio Linda, and Downtown Sacramento. According to the survey, about 12 percent of relocated employees indicated that their home residence is in one of the eight ZIP codes served by these routes. Unlike Downtown Sacramento, commuter bus service from the greater Sacramento region (e.g., Placer County Transit, e-Tran, Yuba-Sutter Transit, etc.) is not provided to the project site or immediate vicinity. The survey found that 6 percent of employees currently use the bus to commute to

work. The percentage of employees who indicated that they would use the bus for their work commute to and from the proposed project site decreased to 4 percent. However, when the respondents who indicated that they would drive alone and park at the project site were informed (via the survey) that they could not travel to the project site in that manner, the percentage of employees who indicated that they would use the bus for their work commute increased back to 6 percent. Despite the survey responses, due to the limited geographic coverage, frequency, and capacity of bus service available near the site, the bus mode split was capped at 4 percent for analysis of the proposed project.

- Light Rail Mode Split – With on-site parking, off-site parking, and access to the site by bus at capacity or capped, access to the site by light rail became an attractive means for accommodating the remaining employees who could not be served by these other modes. However, initial estimates of light rail mode split exceeded 25 percent, which is twice the level of existing transit use for Downtown State office employees. Therefore, it was concluded that light rail usage should be capped at 20 percent. This level of usage is considered reasonable because SacRT has the flexibility to increase the number of cars per train on the Green Line (which stops at the project site) in response to increased demand. Additionally, a new light rail station is planned along the Blue Line on 16th Street near Richards Boulevard, which would be about ¾ of a mile from the site.

Given the lack of any other available viable travel modes, the initially estimated excess amount of light rail riders would be expected to instead rely on ridehailing (i.e., Transportation Network Companies such as Uber or Lyft) to access the proposed project. Some of the most heavily cited employee home residence ZIP codes are situated in close proximity to the site, which could enable some employees to use Uber or Lyft to travel from home to work. Alternatively, some may choose to drive to/from their residence to an intermediate location (e.g., park-and-ride lot) and then use ridehailing for their "first/last mile" of travel to the project site.

The effect of travel to and from a destination via a TNC is that each pick-up and drop-off generates two trip ends (e.g., the inbound morning peak hour trip to drop-off an employee immediately followed by an empty trip leaving the site).

Table 1 shows the existing (i.e., to their current worksite) mode split of employees likely to relocate. This table also shows the mode split of an iterative process, in which various modal or parking capacity constraints, resulted in changes in employee mode split. Refer to Appendix A for detailed calculations.

TABLE 1
RICHARDS BOULEVARD OFFICE COMPLEX - EMPLOYEE MODE SPLIT

Mode of Travel	Existing Employee Split [1]	Proposed Project		
		Initial Employee Mode Split Preference [2]	Adjusted Employee Mode Split Preference (Based on Proposed On-Site Parking Supply) [3]	Final Employee Mode Splits [4]
Drive alone and park at site	76.4%	67.0%	10.4%	10.4%
Drive alone and park in vicinity and TNC/Bike to site	N / A	3.5%	18.8%	17.1%
Carpool and park at site	11.4%	11.0%	25.0%	25.0%
Vanpool and park at site	0.4%	0.9%	4.4%	6.0%
Bus	6.0%	4.2%	11.5%	4.0%
Light rail to site	4.0%	9.9%	21.6%	20.0%
Light rail to Downtown and Uber/Lyft/Bike to site	N / A	1.2%	2.0%	2.5%
Capitol Corridor	0.1%	0.4%	1.3%	1.3%
Ridehailing Service (e.g., Uber, Lyft, etc.)	0.1%	0.2%	2.1%	10.1%
Bicycle/Bikeshare	0.9%	1.6%	2.8%	3.4%
Walk	0.7%	0.1%	0.4%	0.4%
Number of Vehicle Trips per 100 Person Trips [5]	82	79	50	66

Notes:

[1] Based on online survey of existing travel modes by employees that would relocate to Richards Boulevard Office Complex.

[2] Represents the initial commute travel mode preferences of relocated employees without any limitations.

[3] Represents modified employee commute mode preferences due solely to the proposed on-site parking supply. Resulting on-site parking (both drive alone and carpool) results in effective full utilization of on-site parking facilities and excess demand for parking instead substituted by other modes.

[4] Final mode split builds upon initial mode split adjustments by considering effects of available off-site parking supply and bus and light rail mode split caps (see previous page text).

[5] This is a measure of relative transportation efficiency across different mode split estimates. Fewer vehicle trips per hundred person trips implies a more transportation efficient mode split.

SOURCE: Fehr & Peers, 2019.

Table 1 indicates that relocated employees would have substantially different travel modes than today for the reasons described below.

- The majority of relocated employees currently work in suburban settings. Among the more than three-quarters of relocated employees that currently drive alone and park, the vast majority park on-site for free. In contrast, the proposed project would have paid parking that is highly sought after. In fact, to accommodate the total number of employees willing to carpool (if not permitted to drive alone and park on-site), more than half of the site's on-site parking should be reserved for carpools.

- The number of employees that would choose to park off-site and walk, Uber/Lyft, or take some other form of transportation to the site would also be substantial, creating an off-site parking demand of nearly 1,000 spaces (in areas located within ¾ of a mile from the site).

Trip Generation Estimates

Table 2 displays the project's estimated weekday AM peak hour, PM peak hour, and daily vehicular trip generation. These trips represent the total number of vehicles that would enter/exit the study area (i.e., area generally bounded by Interstate 5 on the west, the American River on the north, SR 160 on the east, and the UPRR railroad tracks on the south). Vehicle trips entering/exiting the project site would be somewhat lower because only a limited number of employees could park on-site.

These estimates apply only to the baseline plus project scenario. A different trip generation estimate will be prepared for cumulative conditions that considers planned transit service expansion as well as new planned parking facilities in the site vicinity.

TABLE 2
RICHARDS BOULEVARD OFFICE COMPLEX – VEHICULAR TRIP GENERATION

Land Use	Employees	Square Feet (ksf)	Trips [1]								
			Daily			AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total	In	Out	Total
Office Complex	6,000	1,375	4,774	4,774	9,547	1,416	412	1,827	611	1,957	2,567

Notes:

[1] Refer to prior text and Appendix A for detailed calculations. As shown in appendix, these totals comprise trips made by employees (both primary commute and mid-day), visitors/customers, and other ancillary travel purposes.

SOURCE: Fehr & Peers, 2019.

This table indicates the proposed project would generate 1,827 AM peak hour vehicle trips, 2,567 PM peak hour vehicle trips, and 9,547 daily vehicle trips.

Table 3 compares the trip rates for the proposed project (using data from Table 2) against applicable trip rates for office buildings contained in the *Trip Generation Manual*.

TABLE 3
RICHARDS BOULEVARD OFFICE COMPLEX – VEHICULAR TRIP GENERATION RATE COMPARISON

Independent Variable		Vehicular Trip Rates (In/Out Combined) [1]								
		Daily			AM Peak Hour			PM Peak Hour		
		Employee Survey [2]	ITE	% Change	Employee Survey [2]	ITE	% Change	Employee Survey [2]	ITE	% Change
Employees	6,000	1.59	2.28	-30.3%	0.30	0.27	+11.1%	0.43	0.30	+43.3%
KSF	1,375	6.94	6.0	+15.7%	1.33	1.08	+23.1%	1.87	1.09	+71.6%

Notes:

[1] Vehicle trip rates expressed as trips per employee or trips per KSF. Refer to prior text and Appendix A for detailed calculations.

[2] Employee survey results derived from Table 2 by dividing vehicle trips for each time period against independent variable.

[3] Trip rates from ITE's *Trip Generation Manual* (2017) uses filtering (from online webapp) based on General Office Building (LU Code 710) for Urban/Suburban Areas. Data are further filtered to only use data points with higher levels of building size and square footage.

KSF = Thousand Square Feet

SOURCE: Fehr & Peers, 2019.

The following key conclusions are drawn from this table:

1. AM Peak Hour – The project's trip generation rate (when expressed in terms of employees) is 11 percent greater than ITE's corresponding trip rate. A portion of this increase is attributable to the assumed use of TNCs due to full on-site/nearby parking and capped usage of bus and light rail modes. Each employee transported by a TNC generates both an inbound and outbound trip.

2. PM Peak Hour – The project's trip generation rate (when expressed in terms of employees) is 43 percent greater than ITE's corresponding trip rate. In addition to added trips associated with TNCs, this result is also influenced by 62 percent of all employees departing during this peak

hour (based on the survey results). This percentage is much higher than for the office buildings contained in the ITE database.

3. Daily – The project's trip generation rate (when expressed in terms of employees) is 30 percent lower than ITE's corresponding trip rate. This result may seem counterintuitive given the above results, but may be explained by the following:

    a. The greater AM and PM peak hour rates are influenced by peaks in arriving and departing State employees during those periods. In contrast, daily conditions, by definition, incorporate all travel, and not just the AM and PM peaks.
    b. The proposed project would benefit from greater usage of non-auto travel modes when compared to ITE rates.
    c. Surveyed State employees that would relocated indicated relatively infrequent levels of traveling off-site by private vehicle for work purposes during the workday. Hence, off-peak / mid-day travel may be less than ITE rates for a typical office building.

Lastly, the use of employees as the independent variable (to predict trips) is considered more accurate than KSF for this project. This is because the proposed project's relatively high employee density (i.e., 24 percent denser in terms of employees per thousand square feet than the data points in ITE's *Trip Generation Manual*) ensures that comparisons using KSF will lead to the proposed project having much higher trip rates (because its trip generation was derived from its employees, and not square footage).

Intersection 1 **I-5 SB Ramps/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	608	598	98.4%	28.2	1.8	C
	Through	11	12	112.7%	26.4	10.0	C
	Right Turn	413	404	97.9%	9.2	1.3	A
	Subtotal	1,032	1,015	98.4%	20.7	1.0	C
EB	Left Turn						
	Through	279	296	106.2%	23.8	4.0	C
	Right Turn	47	55	116.6%	1.3	0.4	A
	Subtotal	326	351	107.7%	20.3	3.8	C
WB	Left Turn	330	301	91.3%	17.7	4.4	B
	Through	163	158	96.7%	7.9	1.5	A
	Right Turn						
	Subtotal	493	459	93.1%	14.4	3.2	B
Total		1,851	1,825	98.6%	19.1	1.4	B

Intersection 2 **I-5 NB Ramps/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	36	40	110.0%	24.4	7.9	C
	Through	2	2	120.0%	12.6	20.8	B
	Right Turn	799	765	95.8%	16.8	1.4	B
	Subtotal	837	807	96.4%	17.2	1.3	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	177	181	102.1%	26.5	4.9	C
	Through	710	698	98.4%	9.0	1.9	A
	Right Turn						
	Subtotal	887	879	99.1%	12.7	2.0	B
WB	Left Turn						
	Through	457	412	90.2%	12.2	2.0	B
	Right Turn	410	391	95.4%	2.3	0.1	A
	Subtotal	867	804	92.7%	7.4	1.3	A
Total		2,591	2,490	96.1%	12.4	1.2	B

Intersection 3 **Bercut Drive/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	79	83	104.8%	21.4	4.2	C
	Through	10	8	84.0%	24.5	15.5	C
	Right Turn	6	6	93.3%	3.1	4.2	A
	Subtotal	95	97	101.9%	20.9	4.3	C
SB	Left Turn	32	29	91.3%	28.1	5.2	C
	Through	9	9	102.2%	18.9	10.0	B
	Right Turn	98	95	96.7%	5.4	0.8	A
	Subtotal	139	133	95.8%	11.4	2.0	B
EB	Left Turn	105	104	99.4%	19.3	3.8	B
	Through	1,188	1,156	97.3%	11.4	2.3	B
	Right Turn	216	217	100.6%	2.5	0.2	A
	Subtotal	1,509	1,478	97.9%	10.7	2.0	B
WB	Left Turn	16	14	90.0%	28.2	10.2	C
	Through	690	617	89.4%	14.5	1.6	B
	Right Turn	15	14	90.7%	12.0	8.3	B
	Subtotal	721	645	89.5%	14.8	1.6	B
Total		2,464	2,353	95.5%	12.2	1.7	B

Intersection 4 **N 3rd Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	28	34	121.4%	36.2	6.5	D
	Through	1	0	40.0%	3.0	9.6	A
	Right Turn	5	6	112.0%	4.0	5.7	A
	Subtotal	34	40	117.6%	31.8	4.5	C
SB	Left Turn	8	7	85.0%	36.4	24.7	D
	Through	1	1	80.0%	14.6	31.1	B
	Right Turn	22	21	96.4%	6.4	3.8	A
	Subtotal	31	29	92.9%	16.9	7.5	B
EB	Left Turn	39	37	94.4%	40.3	12.6	D
	Through	1,077	1,088	101.1%	13.1	2.1	B
	Right Turn	110	104	94.5%	9.8	2.9	A
	Subtotal	1,226	1,229	100.3%	13.6	2.1	B
WB	Left Turn	20	13	64.0%	19.5	9.1	B
	Through	670	583	87.0%	5.4	2.0	A
	Right Turn	37	31	84.3%	5.5	4.5	A
	Subtotal	727	627	86.3%	5.7	1.9	A
Total		2,018	1,925	95.4%	11.5	1.8	B

Intersection 5 **Sequoia Pacific Boulevard/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	32	25	77.5%	38.0	8.1	D
	Through	7	8	108.6%	38.2	24.9	D
	Right Turn	25	22	89.6%	11.4	7.2	B
	Subtotal	64	55	85.6%	27.6	5.5	C
SB	Left Turn	6	6	106.7%	24.4	20.6	C
	Through	3	4	120.0%	24.8	26.9	C
	Right Turn	7	6	80.0%	3.3	3.3	A
	Subtotal	16	16	97.5%	22.3	17.6	C
EB	Left Turn	52	55	105.4%	34.5	5.5	C
	Through	1,021	996	97.6%	6.8	2.6	A
	Right Turn	17	15	87.1%	6.9	6.9	A
	Subtotal	1,090	1,066	97.8%	8.2	2.7	A
WB	Left Turn	27	26	94.8%	41.0	7.4	D
	Through	688	610	88.7%	9.2	3.1	A
	Right Turn	18	20	108.9%	9.1	6.3	A
	Subtotal	733	655	89.4%	10.5	3.1	B
Total		1,903	1,792	94.1%	9.8	2.7	A

Intersection 6 **N 5th Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	5	2	48.0%	18.2	18.6	B
	Through						
	Right Turn	2	2	120.0%	3.6	6.4	A
	Subtotal	7	5	68.6%	9.0	12.7	A
SB	Left Turn	19	16	84.2%	39.3	8.9	D
	Through						
	Right Turn	41	42	101.5%	8.7	5.2	A
	Subtotal	60	58	96.0%	17.0	4.4	B
EB	Left Turn	56	51	91.4%	44.3	7.3	D
	Through	988	967	97.9%	5.9	2.2	A
	Right Turn	8	10	130.0%	4.2	4.9	A
	Subtotal	1,052	1,029	97.8%	7.7	2.1	A
WB	Left Turn	10	8	80.0%	31.6	19.9	C
	Through	687	617	89.8%	8.6	2.5	A
	Right Turn	18	17	93.3%	7.1	2.8	A
	Subtotal	715	642	89.8%	8.9	2.6	A
Total		1,834	1,733	94.5%	8.5	1.9	A

Intersection 7 **N 7th Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	41	40	97.6%	46.0	11.7	D
	Through	49	46	94.7%	35.4	8.1	D
	Right Turn	98	86	88.2%	37.5	6.2	D
	Subtotal	188	173	91.9%	38.7	4.5	D
SB	Left Turn	13	10	76.9%	49.2	15.2	D
	Through	17	18	103.5%	59.1	12.8	E
	Right Turn	20	18	88.0%	48.0	13.2	D
	Subtotal	50	45	90.4%	52.2	8.1	D
EB	Left Turn	169	164	96.8%	49.6	6.9	D
	Through	750	776	103.5%	30.1	5.9	C
	Right Turn	90	90	100.0%	28.7	6.5	C
	Subtotal	1,009	1,030	102.1%	33.0	5.5	C
WB	Left Turn	320	283	88.5%	54.3	11.4	D
	Through	654	588	89.8%	26.0	5.9	C
	Right Turn	31	26	85.2%	22.5	13.4	C
	Subtotal	1,005	897	89.3%	35.0	7.3	C
Total		2,252	2,145	95.3%	34.7	4.9	C

Intersection 8 **N 10th Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	23	21	92.2%	32.2	14.4	C
	Through	22	24	107.3%	33.3	10.7	C
	Right Turn	13	14	110.8%	5.1	2.5	A
	Subtotal	58	59	102.1%	28.1	7.1	C
SB	Left Turn	8	6	70.0%	36.0	30.0	D
	Through	3	2	80.0%	20.5	22.7	C
	Right Turn	28	35	125.7%	6.5	2.0	A
	Subtotal	39	43	110.8%	12.6	5.9	B
EB	Left Turn	104	117	112.3%	43.6	8.0	D
	Through	709	673	95.0%	10.6	1.2	B
	Right Turn	24	27	111.7%	7.0	0.9	A
	Subtotal	837	817	97.6%	15.3	2.4	B
WB	Left Turn	29	24	81.4%	34.7	12.9	C
	Through	994	833	83.8%	7.6	1.4	A
	Right Turn	49	39	79.2%	7.5	2.9	A
	Subtotal	1,072	896	83.5%	8.3	1.2	A
Total		2,006	1,815	90.5%	12.2	1.4	B

Intersection 9 **Dos Rios Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	11	11	98.2%	36.5	21.4	D
	Through	6	9	153.3%	22.0	19.8	C
	Right Turn	10	12	120.0%	10.6	10.5	B
	Subtotal	27	32	118.5%	24.7	13.6	C
SB	Left Turn	84	79	93.8%	28.2	4.2	C
	Through	7	8	114.3%	20.6	13.8	C
	Right Turn	24	26	108.3%	18.9	6.5	B
	Subtotal	115	113	98.1%	26.2	3.5	C
EB	Left Turn	30	22	74.7%	41.6	15.4	D
	Through	678	656	96.8%	10.3	2.9	B
	Right Turn	22	20	90.9%	3.7	2.8	A
	Subtotal	730	698	95.7%	11.2	2.8	B
WB	Left Turn	28	22	78.6%	38.0	12.8	D
	Through	1,037	877	84.6%	7.6	1.8	A
	Right Turn	67	58	86.6%	7.0	2.7	A
	Subtotal	1,132	957	84.6%	8.3	1.8	A
Total		2,004	1,800	89.8%	10.9	1.7	B

Intersection 10 **N 12th St/Richard Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	76	74	96.8%	78.2	12.6	E
	Through	984	964	98.0%	23.2	2.9	C
	Right Turn	2	2	80.0%	0.2	0.2	A
	Subtotal	1,062	1,040	97.9%	27.1	2.5	C
SB	Left Turn						
	Through	2,415	2,276	94.2%	141.3	17.4	F
	Right Turn	1,126	1,044	92.7%	149.2	23.2	F
	Subtotal	3,541	3,320	93.8%	144.0	18.4	F
EB	Left Turn	666	630	94.6%	68.4	9.2	E
	Through						
	Right Turn	26	25	95.4%	5.5	1.5	A
	Subtotal	692	655	94.6%	65.9	8.6	E
WB	Left Turn	7	8	114.3%	50.5	45.3	D
	Through	0					
	Right Turn						
	Subtotal	7	8	120.0%			
Total		5,302	5,023	94.7%	109.4	11.5	F

SimTraffic Post-Processor **Richards DGS**
Average Results from 10 Runs **Existing Conditions**
Volume and Delay by Movement **AM Peak Hour**

Intersection 11 **N 7th Street/Bannon St/Project Driveway** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	al Delay (sec/veh) Average	Std. Dev.	LOS
NB	Left Turn	11	12	105.5%	5.0	3.0	A
	Through	182	169	93.0%	2.6	0.3	A
	Right Turn						
	Subtotal	193	181	93.7%	2.8	0.3	A
SB	Left Turn	2	2	100.0%	1.1	1.4	A
	Through	408	377	92.4%	2.1	0.4	A
	Right Turn	17	17	101.2%	1.6	0.9	A
	Subtotal	427	396	92.7%	2.1	0.4	A
EB	Left Turn	5	6	112.0%	4.9	4.9	A
	Through						
	Right Turn	3	3	93.3%	1.3	1.8	A
	Subtotal	8	8	105.0%	4.4	4.2	A
WB	Left Turn						
	Through						
	Right Turn	1	0	40.0%	0.2	0.5	A
	Subtotal	1	0	40.0%	0.2	0.5	A
Total		629	586	93.1%	2.3	0.3	A

Intersection 12 **N 7th Street/N B Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Std. Dev.	LOS
NB	Left Turn	16	15	95.0%	32.0	11.8	C
	Through	159	145	91.3%	32.9	9.0	C
	Right Turn	75	68	90.1%	29.3	9.8	C
	Subtotal	250	228	91.2%	31.9	7.0	C
SB	Left Turn	21	16	78.1%	36.9	17.3	D
	Through	386	364	94.3%	38.5	8.2	D
	Right Turn	4	4	100.0%	16.4	11.8	B
	Subtotal	411	384	93.5%	38.3	7.5	D
EB	Left Turn	6	6	100.0%	19.8	19.1	B
	Through	80	73	91.5%	27.4	4.7	C
	Right Turn	92	92	100.4%	15.7	6.7	B
	Subtotal	178	172	96.4%	21.0	5.5	C
WB	Left Turn	205	193	94.0%	31.6	6.7	C
	Through	33	34	103.0%	40.6	15.8	D
	Right Turn	28	29	104.3%	23.0	10.2	C
	Subtotal	266	256	96.2%	31.8	7.2	C
Total		1,105	1,040	94.1%	32.5	5.2	C

Intersection 13 **Dos Rios Street/N B Street-N 12th Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
WB	Left Turn	31	31	100.6%	42.7	8.7	D
	Through	86	95	110.7%	36.9	7.3	D
	Right Turn	22	25	112.7%	37.0	8.9	D
	Subtotal	139	151	108.8%	38.1	5.9	D
SB	Left Turn	2	3	140.0%	35.5	41.7	D
	Through						
	Right Turn	25	27	108.8%	35.8	6.4	D
	Subtotal	27	30	111.1%	36.8	8.6	D
EB	Left Turn						
	Through	154	137	88.8%	33.1	5.8	C
	Right Turn	22	19	87.3%	21.6	12.4	C
	Subtotal	176	156	88.6%	31.8	6.0	C
SW	Left Turn	18	10	55.6%	9.9	5.7	A
	Through	2,338	2,050	87.7%	14.7	3.5	B
	Right Turn	173	162	93.9%	22.7	6.5	C
	Subtotal	2,529	2,222	87.9%	15.2	3.7	B
Total		2,871	2,559	89.1%	17.8	3.3	B

Intersection 14 **N 7th Street/Railyards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	10	10	100.0%	11.8	6.8	B
	Through	64	64	100.0%	17.6	2.8	B
	Right Turn						
	Subtotal	74	74	100.0%	17.1	2.2	B
SB	Left Turn						
	Through	480	449	93.5%	27.7	5.9	C
	Right Turn	203	199	98.1%	22.0	5.9	C
	Subtotal	683	648	94.9%	26.0	5.9	C
EB	Left Turn	186	164	88.4%	16.1	2.6	B
	Through						
	Right Turn	107	100	93.8%	7.3	2.2	A
	Subtotal	293	265	90.4%	12.8	2.3	B
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,050	987	94.0%	21.8	4.1	C

Intersection 1 **I-5 SB Ramps/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	339	326	96.3%	32.7	2.2	C
	Through	217	229	105.4%	39.5	4.9	D
	Right Turn	309	316	102.3%	8.9	1.1	A
	Subtotal	865	871	100.7%	25.8	2.3	C
EB	Left Turn						
	Through	675	613	90.8%	88.0	60.1	F
	Right Turn	51	49	95.7%	2.9	1.3	A
	Subtotal	726	662	91.1%	81.1	54.3	F
WB	Left Turn	614	622	101.4%	12.2	1.9	B
	Through	222	204	92.1%	4.9	0.8	A
	Right Turn						
	Subtotal	836	827	98.9%	10.4	1.4	B
Total		2,427	2,360	97.2%	35.3	14.6	D

Intersection 2 **I-5 NB Ramps/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	48	50	105.0%	32.3	9.8	C
	Through	15	14	96.0%	34.8	16.9	C
	Right Turn	275	289	105.0%	8.9	1.1	A
	Subtotal	338	354	104.6%	13.5	1.9	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	451	397	88.0%	50.8	13.1	D
	Through	563	557	99.0%	2.3	0.4	A
	Right Turn						
	Subtotal	1,014	954	94.1%	22.3	4.6	C
WB	Left Turn						
	Through	788	761	96.6%	9.0	1.5	A
	Right Turn	969	882	91.0%	3.4	0.3	A
	Subtotal	1,757	1,643	93.5%	5.9	0.8	A
Total		3,109	2,950	94.9%	12.1	1.5	B

Intersection 3 **Bercut Drive/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	211	209	99.1%	39.7	8.8	D
	Through	16	14	87.5%	40.6	18.1	D
	Right Turn	22	20	89.1%	4.7	2.8	A
	Subtotal	249	243	97.5%	37.0	8.3	D
SB	Left Turn	31	29	94.2%	39.4	9.2	D
	Through	15	12	82.7%	42.1	18.2	D
	Right Turn	175	190	108.6%	17.6	7.1	B
	Subtotal	221	232	104.8%	21.3	6.0	C
EB	Left Turn	91	82	90.1%	29.0	5.5	C
	Through	633	658	104.0%	11.4	2.4	B
	Right Turn	114	123	108.1%	2.1	0.1	A
	Subtotal	838	864	103.1%	11.8	2.2	B
WB	Left Turn	10	6	64.0%	31.3	25.4	C
	Through	1,371	1,245	90.8%	52.7	5.9	D
	Right Turn	9	8	84.4%	62.6	21.7	E
	Subtotal	1,390	1,259	90.6%	52.6	5.8	D
Total		2,698	2,597	96.3%	34.8	2.8	C

Intersection 4 **N 3rd Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	101	94	92.7%	50.9	23.2	D
	Through	1	1	80.0%	3.1	6.5	A
	Right Turn	10	13	132.0%	5.3	4.6	A
	Subtotal	112	108	96.1%	46.0	22.6	D
SB	Left Turn	37	26	71.4%	36.1	11.9	D
	Through	2	1	60.0%	9.9	19.5	A
	Right Turn	27	31	115.6%	41.3	23.0	D
	Subtotal	66	59	89.1%	38.1	13.7	D
EB	Left Turn	29	24	81.4%	46.7	15.9	D
	Through	641	635	99.1%	12.5	2.1	B
	Right Turn	16	20	125.0%	9.1	4.6	A
	Subtotal	686	679	99.0%	13.6	2.0	B
WB	Left Turn	3	1	40.0%	4.4	10.6	A
	Through	1,257	1,098	87.4%	54.5	14.5	D
	Right Turn	12	9	73.3%	65.8	39.9	E
	Subtotal	1,272	1,108	87.1%	54.6	14.6	D
Total		2,136	1,953	91.4%	39.3	8.6	D

Intersection 5 **Sequoia Pacific Boulevard/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	30	23	76.0%	41.2	9.6	D
	Through	2	2	120.0%	4.8	10.0	A
	Right Turn	38	44	115.8%	6.4	2.8	A
	Subtotal	70	69	98.9%	18.2	3.7	B
SB	Left Turn	21	20	97.1%	33.7	13.0	C
	Through	6	9	146.7%	31.5	21.8	C
	Right Turn	56	56	99.3%	19.7	7.2	B
	Subtotal	83	85	102.2%	25.0	6.6	C
EB	Left Turn	11	9	80.0%	38.9	23.9	D
	Through	657	633	96.3%	7.0	1.1	A
	Right Turn	20	20	102.0%	5.1	1.8	A
	Subtotal	688	662	96.2%	7.4	1.2	A
WB	Left Turn	12	8	66.7%	63.2	39.3	E
	Through	1,186	1,056	89.0%	46.9	29.9	D
	Right Turn	7	6	80.0%	50.5	53.6	D
	Subtotal	1,205	1,069	88.7%	47.1	29.8	D
Total		2,046	1,885	92.1%	30.5	16.0	C

Intersection 6 **N 5th Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	13	9	67.7%	36.5	16.5	D
	Through						
	Right Turn	11	15	134.5%	6.3	2.4	A
	Subtotal	24	24	98.3%	17.7	7.4	B
SB	Left Turn	11	10	90.9%	34.9	19.2	C
	Through						
	Right Turn	77	78	101.3%	20.2	10.5	C
	Subtotal	88	88	100.0%	22.1	9.2	C
EB	Left Turn	20	16	78.0%	46.2	20.2	D
	Through	687	670	97.5%	3.7	1.3	A
	Right Turn	9	12	128.9%	3.7	3.0	A
	Subtotal	716	697	97.3%	4.6	1.3	A
WB	Left Turn	8	5	60.0%	52.3	46.3	D
	Through	1,115	1,049	94.1%	36.0	29.8	D
	Right Turn	3	2	66.7%	11.0	5.6	B
	Subtotal	1,126	1,056	93.7%	36.1	29.8	D
Total		1,954	1,864	95.4%	23.3	16.9	C

Intersection 7 **N 7th Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	86	80	92.6%	42.1	5.6	D
	Through	14	14	97.1%	39.7	16.2	D
	Right Turn	281	292	104.1%	42.9	5.1	D
	Subtotal	381	386	101.2%	42.8	4.0	D
SB	Left Turn	68	61	90.0%	78.5	16.6	E
	Through	106	102	96.6%	57.0	12.9	E
	Right Turn	90	95	105.8%	62.3	11.0	E
	Subtotal	264	259	98.0%	64.0	10.6	E
EB	Left Turn	10	7	68.0%	107.8	62.5	F
	Through	609	599	98.4%	71.8	9.1	E
	Right Turn	90	83	92.4%	80.1	25.3	F
	Subtotal	709	689	97.2%	73.5	10.0	E
WB	Left Turn	241	229	94.9%	147.0	43.0	F
	Through	950	927	97.6%	64.5	18.1	E
	Right Turn	18	17	95.6%	67.5	19.4	E
	Subtotal	1,209	1,173	97.0%	81.1	22.3	F
Total		2,563	2,506	97.8%	71.1	9.9	E

Intersection 8 **N 10th Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	30	28	93.3%	35.8	6.9	D
	Through	6	7	113.3%	29.0	23.0	C
	Right Turn	23	22	97.4%	9.3	4.0	A
	Subtotal	59	57	96.9%	26.0	3.5	C
SB	Left Turn	71	65	91.8%	33.4	4.4	C
	Through	43	41	94.9%	24.9	6.4	C
	Right Turn	124	132	106.8%	10.3	2.4	B
	Subtotal	238	238	100.2%	19.2	2.2	B
EB	Left Turn	24	28	118.3%	39.8	11.1	D
	Through	918	906	98.7%	11.1	2.4	B
	Right Turn	71	76	106.5%	7.9	1.9	A
	Subtotal	1,013	1,010	99.7%	11.6	2.0	B
WB	Left Turn	9	10	115.6%	35.3	14.5	D
	Through	1,014	975	96.2%	7.2	1.4	A
	Right Turn	12	9	76.7%	6.7	4.9	A
	Subtotal	1,035	995	96.1%	7.5	1.4	A
Total		2,345	2,301	98.1%	11.0	1.2	B

Intersection 9 **Dos Rios Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	29	29	100.7%	29.3	10.0	C
	Through	10	8	80.0%	37.4	23.4	D
	Right Turn	25	27	107.2%	12.0	8.5	B
	Subtotal	64	64	100.0%	23.1	6.2	C
SB	Left Turn	29	24	81.4%	31.9	16.1	C
	Through	13	16	120.0%	35.1	14.0	D
	Right Turn	35	29	83.4%	19.7	6.6	B
	Subtotal	77	68	88.8%	28.4	7.5	C
EB	Left Turn	17	17	101.2%	47.1	12.0	D
	Through	988	969	98.1%	11.3	3.0	B
	Right Turn	7	4	51.4%	2.2	2.1	A
	Subtotal	1,012	990	97.8%	11.9	2.7	B
WB	Left Turn	15	14	90.7%	35.9	11.7	D
	Through	971	965	99.4%	5.4	2.0	A
	Right Turn	10	12	120.0%	3.3	3.3	A
	Subtotal	996	991	99.5%	5.9	1.9	A
Total		2,149	2,113	98.3%	9.9	1.4	A

Intersection 10 **N 12th St/Richard Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	53	45	85.3%	134.2	35.3	F
	Through	3,635	3,608	99.2%	111.5	26.5	F
	Right Turn	6	4	60.0%	76.3	71.2	E
	Subtotal	3,694	3,656	99.0%	111.8	26.4	F
SB	Left Turn						
	Through	1,825	1,820	99.7%	33.9	2.6	C
	Right Turn	913	919	100.7%	25.1	3.1	C
	Subtotal	2,738	2,740	100.1%	31.0	2.4	C
EB	Left Turn	840	782	93.1%	117.6	36.1	F
	Through						
	Right Turn	92	96	103.9%	8.4	2.7	A
	Subtotal	932	878	94.2%	105.7	32.2	F
WB	Left Turn	6	6	100.0%	57.8	39.2	E
	Through	6	4	66.7%	58.7	38.4	E
	Right Turn	3	3	93.3%	13.6	26.3	B
	Subtotal	15	13	85.3%			
Total		7,379	7,286	98.7%	80.7	13.0	F

Intersection 11 **N 7th Street/Bannon St/Project Driveway** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	1	0	40.0%	1.7	5.3	A
	Through	360	357	99.2%	3.4	0.3	A
	Right Turn						
	Subtotal	361	358	99.1%	3.5	0.3	A
SB	Left Turn	3	1	40.0%	0.8	1.6	A
	Through	429	404	94.2%	10.5	19.2	B
	Right Turn	5	3	64.0%	0.6	0.9	A
	Subtotal	437	408	93.5%	10.4	19.2	B
EB	Left Turn	10	10	96.0%	6.3	7.4	A
	Through						
	Right Turn	17	13	77.6%	8.9	11.9	A
	Subtotal	27	23	84.4%	10.3	11.9	B
WB	Left Turn	4	5	120.0%	14.7	25.8	B
	Through						
	Right Turn	11	16	149.1%	3.7	1.8	A
	Subtotal	15	21	141.3%	7.6	9.0	A
Total		840	810	96.4%	6.8	8.6	A

Intersection 12 **N 7th Street/N B Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	86	78	91.2%	54.4	12.8	D
	Through	324	324	100.1%	56.2	11.5	E
	Right Turn	240	236	98.2%	53.7	9.4	D
	Subtotal	650	638	98.2%	55.2	10.7	E
SB	Left Turn	59	52	88.1%	128.4	65.1	F
	Through	379	347	91.5%	122.8	53.2	F
	Right Turn	12	10	86.7%	115.6	65.4	F
	Subtotal	450	409	90.9%	123.4	54.4	F
EB	Left Turn						
	Through	91	93	102.0%	41.3	6.3	D
	Right Turn	59	56	94.2%	24.5	6.1	C
	Subtotal	150	148	98.9%	34.9	5.3	C
WB	Left Turn	179	168	94.1%	114.0	47.2	F
	Through	76	67	87.9%	116.9	40.3	F
	Right Turn	37	34	93.0%	43.2	12.1	D
	Subtotal	292	270	92.3%	105.6	39.3	F
Total		1,542	1,466	95.0%	81.0	16.3	F

Intersection 13 **Dos Rios Street/N B Street-N 12th Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
WB	Left Turn	43	40	92.1%	51.3	7.9	D
	Through	126	130	103.5%	33.2	5.9	C
	Right Turn	22	21	96.4%	32.0	12.6	C
	Subtotal	191	191	100.1%	37.0	5.9	D
SB	Left Turn	5	5	96.0%	43.5	34.8	D
	Through						
	Right Turn	35	30	84.6%	31.1	13.7	C
	Subtotal	40	34	86.0%	36.5	10.2	D
EB	Left Turn						
	Through	329	314	95.4%	33.3	4.9	C
	Right Turn	61	64	104.9%	27.2	6.1	C
	Subtotal	390	378	96.9%	32.2	3.6	C
SW	Left Turn	34	34	100.0%	12.3	1.9	B
	Through	1,681	1,727	102.7%	15.1	1.7	B
	Right Turn	160	151	94.5%	20.5	3.6	C
	Subtotal	1,875	1,912	102.0%	15.5	1.7	B
Total		2,496	2,516	100.8%	20.0	1.1	B

Intersection 14 **N 7th Street/Railyards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	52	54	103.1%	45.8	32.4	D
	Through	313	310	99.0%	44.6	19.6	D
	Right Turn						
	Subtotal	365	364	99.6%	44.9	21.5	D
SB	Left Turn						
	Through	293	272	92.8%	47.4	15.9	D
	Right Turn	324	289	89.1%	38.9	13.4	D
	Subtotal	617	561	90.9%	43.0	14.7	D
EB	Left Turn	337	334	99.0%	32.1	6.5	C
	Through						
	Right Turn	45	45	99.6%	8.0	3.2	A
	Subtotal	382	378	99.1%	29.2	6.1	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,364	1,303	95.5%	39.9	10.0	D

Intersection 1 **I-5 SB Ramps/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	852	833	97.7%	52.0	22.0	D
	Through	11	10	94.5%	49.7	25.2	D
	Right Turn	473	482	101.9%	19.1	6.9	B
	Subtotal	1,336	1,325	99.2%	40.3	17.0	D
EB	Left Turn						
	Through	291	298	102.3%	23.6	3.6	C
	Right Turn	47	40	84.3%	1.3	0.2	A
	Subtotal	338	337	99.8%	21.1	3.5	C
WB	Left Turn	406	354	87.2%	30.2	3.9	C
	Through	209	190	90.7%	9.7	2.0	A
	Right Turn						
	Subtotal	615	544	88.4%	23.1	3.7	C
Total		2,289	2,206	96.4%	33.2	10.3	C

Intersection 2 **I-5 NB Ramps/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	76	62	81.6%	127.9	46.1	F
	Through	2	3	140.0%	104.4	119.5	F
	Right Turn	1,165	966	83.0%	172.9	38.2	F
	Subtotal	1,243	1,031	83.0%	170.4	38.3	F
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	177	166	93.6%	31.3	0.8	C
	Through	966	991	102.6%	24.6	7.4	C
	Right Turn						
	Subtotal	1,143	1,157	101.2%	25.6	6.3	C
WB	Left Turn						
	Through	539	468	86.8%	17.5	2.5	B
	Right Turn	505	426	84.3%	2.5	0.2	A
	Subtotal	1,044	893	85.6%	10.4	1.6	B
Total		3,430	3,081	89.8%	69.6	13.9	E

Intersection 3 **Bercut Drive/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	79	73	92.7%	20.5	3.5	C
	Through	10	13	132.0%	23.5	6.1	C
	Right Turn	6	5	86.7%	8.0	8.7	A
	Subtotal	95	92	96.4%	20.1	2.7	C
SB	Left Turn	32	31	97.5%	27.4	7.4	C
	Through	9	9	97.8%	17.1	13.4	B
	Right Turn	98	91	93.1%	6.2	1.7	A
	Subtotal	139	131	94.4%	12.1	3.0	B
EB	Left Turn	105	108	103.2%	21.1	3.5	C
	Through	1,810	1,639	90.5%	14.4	1.9	B
	Right Turn	216	208	96.3%	2.5	0.2	A
	Subtotal	2,131	1,955	91.8%	13.5	1.7	B
WB	Left Turn	16	14	85.0%	34.0	18.7	C
	Through	867	720	83.0%	16.2	5.0	B
	Right Turn	15	12	82.7%	13.4	9.4	B
	Subtotal	898	746	83.0%	16.4	5.0	B
Total		3,263	2,924	89.6%	14.4	2.1	B

Intersection 4 **N 3rd Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	28	29	104.3%	44.2	8.9	D
	Through	1	1	80.0%	7.3	22.5	A
	Right Turn	5	4	80.0%	9.5	9.0	A
	Subtotal	34	34	100.0%	40.8	9.9	D
SB	Left Turn	8	10	125.0%	21.6	15.3	C
	Through	1	1	80.0%	8.5	18.8	A
	Right Turn	22	24	109.1%	7.1	2.8	A
	Subtotal	31	35	112.3%	13.0	4.1	B
EB	Left Turn	39	30	75.9%	41.3	8.6	D
	Through	1,699	1,553	91.4%	19.3	3.6	B
	Right Turn	110	111	100.7%	17.3	1.9	B
	Subtotal	1,848	1,693	91.6%	19.6	3.3	B
WB	Left Turn	20	12	62.0%	22.3	11.1	C
	Through	847	676	79.9%	4.9	1.4	A
	Right Turn	37	26	70.3%	5.0	2.3	A
	Subtotal	904	715	79.1%	5.2	1.4	A
Total		2,817	2,477	87.9%	15.6	2.4	B

Intersection 5 **Sequoia Pacific Boulevard/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	32	38	117.5%	39.1	8.4	D
	Through	7	7	97.1%	37.4	32.1	D
	Right Turn	25	28	110.4%	16.1	5.3	B
	Subtotal	64	72	112.5%	30.7	4.8	C
SB	Left Turn	6	9	146.7%	36.9	21.1	D
	Through	3	2	66.7%	19.1	30.7	B
	Right Turn	7	6	91.4%	7.1	10.8	A
	Subtotal	16	17	107.5%	28.4	10.7	C
EB	Left Turn	52	48	91.5%	37.6	9.4	D
	Through	1,643	1,473	89.7%	12.2	2.7	B
	Right Turn	17	13	77.6%	7.6	4.7	A
	Subtotal	1,712	1,534	89.6%	12.9	2.9	B
WB	Left Turn	27	22	81.5%	49.1	11.6	D
	Through	865	682	78.9%	8.5	2.5	A
	Right Turn	18	19	104.4%	7.5	2.7	A
	Subtotal	910	723	79.5%	9.7	2.4	A
Total		2,702	2,346	86.8%	12.6	2.4	B

Intersection 6 **N 5th Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	5	4	88.0%	14.5	13.7	B
	Through						
	Right Turn	2	2	120.0%	11.1	16.7	B
	Subtotal	7	7	97.1%	16.6	13.2	B
SB	Left Turn	19	24	124.2%	35.7	10.5	D
	Through						
	Right Turn	41	38	92.7%	8.0	2.4	A
	Subtotal	60	62	102.7%	19.3	7.2	B
EB	Left Turn	56	47	83.6%	42.7	10.4	D
	Through	1,610	1,462	90.8%	9.8	3.5	A
	Right Turn	8	5	65.0%	3.7	3.7	A
	Subtotal	1,674	1,514	90.4%	10.8	3.6	B
WB	Left Turn	10	9	88.0%	41.1	20.7	D
	Through	864	679	78.6%	8.8	2.4	A
	Right Turn	18	17	95.6%	7.9	4.4	A
	Subtotal	892	705	79.0%	9.2	2.3	A
Total		2,633	2,287	86.9%	10.6	2.3	B

Intersection 7 **N 7th Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	81	92	114.1%	49.6	9.8	D
	Through	56	52	93.6%	39.7	10.0	D
	Right Turn	153	148	96.5%	41.3	7.1	D
	Subtotal	290	292	100.8%	43.5	4.1	D
SB	Left Turn	13	14	107.7%	54.7	20.9	D
	Through	17	18	108.2%	51.4	12.0	D
	Right Turn	20	24	120.0%	53.0	13.0	D
	Subtotal	50	56	112.8%	54.3	10.9	D
EB	Left Turn	194	162	83.5%	96.8	27.9	F
	Through	866	785	90.6%	74.6	24.2	E
	Right Turn	203	165	81.2%	79.1	32.6	E
	Subtotal	1,263	1,112	88.0%	78.6	25.7	E
WB	Left Turn	502	357	71.1%	169.8	33.1	F
	Through	772	542	70.2%	71.2	26.3	E
	Right Turn	45	27	60.4%	62.9	28.8	E
	Subtotal	1,319	926	70.2%	109.0	28.1	F
Total		2,922	2,386	81.7%	85.2	20.8	F

Intersection 8 **N 10th Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	23	19	83.5%	48.8	16.9	D
	Through	25	26	102.4%	32.4	12.6	C
	Right Turn	13	12	95.4%	4.8	2.4	A
	Subtotal	61	57	93.8%	32.4	9.6	C
SB	Left Turn	8	8	95.0%	31.9	20.2	C
	Through	3	4	133.3%	21.7	26.7	C
	Right Turn	28	28	100.0%	12.5	10.7	B
	Subtotal	39	40	101.5%	21.6	8.2	C
EB	Left Turn	145	141	97.4%	46.3	6.5	D
	Through	839	780	92.9%	12.1	2.2	B
	Right Turn	24	20	83.3%	7.5	1.7	A
	Subtotal	1,008	941	93.3%	17.2	3.1	B
WB	Left Turn	29	22	75.9%	37.8	18.3	D
	Through	1,308	946	72.3%	23.0	18.9	C
	Right Turn	69	44	64.3%	11.7	7.2	B
	Subtotal	1,406	1,012	72.0%	22.9	18.5	C
Total		2,514	2,050	81.5%	20.5	9.8	C

Intersection 9 **Dos Rios Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	11	12	109.1%	34.4	18.5	C
	Through	6	6	106.7%	28.2	26.4	C
	Right Turn	10	10	104.0%	13.8	16.8	B
	Subtotal	27	29	106.7%	28.7	13.7	C
SB	Left Turn	84	81	96.7%	28.9	5.1	C
	Through	7	6	80.0%	27.3	19.4	C
	Right Turn	24	24	98.3%	19.7	11.9	B
	Subtotal	115	110	96.0%	28.1	4.6	C
EB	Left Turn	30	24	80.0%	43.6	18.7	D
	Through	807	753	93.3%	11.9	2.8	B
	Right Turn	23	24	102.6%	5.0	2.9	A
	Subtotal	860	800	93.1%	12.6	2.8	B
WB	Left Turn	33	23	69.1%	41.6	17.0	D
	Through	1,371	1,076	78.5%	9.1	3.1	A
	Right Turn	67	59	88.4%	7.4	2.6	A
	Subtotal	1,471	1,158	78.7%	9.7	2.7	A
Total		2,473	2,098	84.8%	12.0	2.4	B

Intersection 10 **N 12th St/Richard Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	88	84	95.9%	75.6	10.9	E
	Through	984	950	96.5%	27.2	3.7	C
	Right Turn	2	4	200.0%	0.5	0.6	A
	Subtotal	1,074	1,038	96.6%	31.1	3.0	C
SB	Left Turn						
	Through	2,503	2,048	81.8%	177.9	19.1	F
	Right Turn	1,453	1,127	77.6%	224.2	21.5	F
	Subtotal	3,956	3,175	80.3%	194.4	18.9	F
EB	Left Turn	787	748	95.0%	76.9	8.1	E
	Through						
	Right Turn	34	30	88.2%	5.7	1.3	A
	Subtotal	821	778	94.7%	74.2	7.7	E
WB	Left Turn	7	4	62.9%	67.6	35.9	E
	Through	0					
	Right Turn						
	Subtotal	7	8	114.3%			
Total		5,858	4,998	85.3%	141.5	12.5	F

Intersection 11 **N 7th Street/Bannon St/ Project Driveway** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	al Delay (sec/veh) Average	Std. Dev.	LOS
NB	Left Turn	159	143	89.8%	15.7	5.9	C
	Through	193	192	99.5%	2.9	0.3	A
	Right Turn						
	Subtotal	352	335	95.1%	8.2	2.3	A
SB	Left Turn	2	1	60.0%	1.5	2.7	A
	Through	456	340	74.6%	8.4	6.1	A
	Right Turn	264	192	72.9%	6.1	5.6	A
	Subtotal	722	534	74.0%	7.6	5.9	A
EB	Left Turn	96	92	96.3%	22.4	6.7	C
	Through						
	Right Turn	108	110	101.5%	7.6	5.8	A
	Subtotal	204	202	99.0%	14.5	5.7	B
WB	Left Turn						
	Through						
	Right Turn	1	0	40.0%	0.2	0.5	A
	Subtotal	1	0	40.0%	0.2	0.5	A
Total		1,279	1,071	83.8%	9.0	3.6	A

Intersection 12 **N 7th Street/N B Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Std. Dev.	LOS
NB	Left Turn	16	17	107.5%	47.9	22.5	D
	Through	291	289	99.4%	50.6	7.5	D
	Right Turn	78	90	115.9%	49.4	6.5	D
	Subtotal	385	397	103.1%	50.3	7.0	D
SB	Left Turn	27	20	72.6%	111.9	62.4	F
	Through	533	428	80.2%	93.5	23.8	F
	Right Turn	4	3	80.0%	73.5	36.3	E
	Subtotal	564	450	79.9%	94.1	24.1	F
EB	Left Turn	6	6	100.0%	44.7	29.9	D
	Through	80	67	83.5%	45.6	7.6	D
	Right Turn	92	102	110.4%	26.8	7.2	C
	Subtotal	178	174	98.0%	34.7	7.2	C
WB	Left Turn	312	232	74.5%	128.6	74.7	F
	Through	33	20	59.4%	129.4	89.8	F
	Right Turn	55	46	84.4%	39.1	9.4	D
	Subtotal	400	298	74.6%	114.3	63.6	F
Total		1,527	1,320	86.4%	77.6	18.0	E

Intersection 13 **Dos Rios Street/N B Street-N 12th Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
WB	Left Turn	31	27	87.7%	36.5	12.1	D
	Through	127	124	97.6%	37.3	8.8	D
	Right Turn	22	23	105.5%	38.5	15.5	D
	Subtotal	180	174	96.9%	38.4	6.9	D
SB	Left Turn	2	1	40.0%	7.2	13.2	A
	Through						
	Right Turn	32	26	82.5%	29.4	11.5	C
	Subtotal	34	27	80.0%	30.2	10.9	C
EB	Left Turn						
	Through	154	144	93.5%	34.6	5.2	C
	Right Turn	28	30	108.6%	20.4	8.8	C
	Subtotal	182	174	95.8%	32.3	5.3	C
SW	Left Turn	18	16	91.1%	10.2	3.5	B
	Through	2,346	1,998	85.2%	15.1	2.9	B
	Right Turn	261	218	83.5%	22.7	3.8	C
	Subtotal	2,625	2,232	85.0%	15.8	3.0	B
Total		3,021	2,608	86.3%	18.6	2.2	B

Intersection 14 **N 7th Street/Railyards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	17	18	105.9%	32.4	11.2	C
	Through	118	129	109.2%	28.9	4.2	C
	Right Turn						
	Subtotal	135	147	108.7%	29.1	4.2	C
SB	Left Turn						
	Through	528	412	78.1%	58.7	16.3	E
	Right Turn	409	323	79.0%	55.1	15.5	E
	Subtotal	937	736	78.5%	57.2	15.8	E
EB	Left Turn	267	268	100.2%	28.3	3.8	C
	Through						
	Right Turn	107	118	110.3%	10.0	1.4	B
	Subtotal	374	386	103.1%	22.7	2.8	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,446	1,268	87.7%	43.4	9.1	D

SimTraffic Post-Processor **Richards DGS**
Average Results from 10 Runs **Baseline Plus Project Conditions**
Volume and Delay by Movement **AM Peak Hour**

Intersection 15 **North Project Driveway/Richards Boulevard** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	137	121	88.5%	229.8	79.5	F
	Through						
	Right Turn	79	75	94.7%	47.9	57.1	E
	Subtotal	216	196	90.7%	156.9	43.4	F
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	1,184	1,061	89.6%	15.2	10.8	C
	Right Turn	447	413	92.4%	15.0	10.3	C
	Subtotal	1,631	1,474	90.4%	15.2	10.6	C
WB	Left Turn	118	80	68.1%	54.0	12.5	F
	Through	755	582	77.1%	2.6	0.5	A
	Right Turn						
	Subtotal	873	663	75.9%	9.0	3.0	A
Total		2,720	2,333	85.8%	25.7	7.2	D

Intersection 1 **I-5 SB Ramps/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	464	448	96.6%	37.9	4.5	D
	Through	217	204	94.0%	46.0	5.7	D
	Right Turn	309	318	102.8%	9.9	1.7	A
	Subtotal	990	970	97.9%	30.4	3.0	C
EB	Left Turn						
	Through	706	594	84.2%	142.2	61.6	F
	Right Turn	74	77	104.3%	5.7	4.8	A
	Subtotal	780	672	86.1%	126.2	53.6	F
WB	Left Turn	873	638	73.1%	13.2	2.8	B
	Through	232	171	73.6%	4.4	1.1	A
	Right Turn						
	Subtotal	1,105	809	73.2%	11.3	2.3	B
Total		2,875	2,450	85.2%	50.0	12.5	D

Intersection 2 **I-5 NB Ramps/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	48	44	90.8%	23.6	6.4	C
	Through	15	13	88.0%	33.8	14.7	C
	Right Turn	462	419	90.6%	18.1	9.2	B
	Subtotal	525	476	90.6%	18.9	7.6	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	480	398	82.9%	49.6	16.6	D
	Through	690	650	94.1%	8.0	9.1	A
	Right Turn						
	Subtotal	1,170	1,048	89.5%	23.1	6.4	C
WB	Left Turn						
	Through	1,057	734	69.5%	12.1	1.3	B
	Right Turn	1,419	886	62.4%	3.8	0.7	A
	Subtotal	2,476	1,620	65.4%	7.5	0.7	A
Total		4,171	3,143	75.4%	14.4	2.9	B

Intersection 3 **Bercut Drive/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	293	287	97.9%	45.8	10.7	D
	Through	16	14	87.5%	54.7	20.3	D
	Right Turn	22	28	125.5%	17.3	23.1	B
	Subtotal	331	328	99.2%	44.1	10.1	D
SB	Left Turn	31	28	90.3%	41.9	11.5	D
	Through	15	18	117.3%	43.1	19.4	D
	Right Turn	175	165	94.2%	16.1	4.2	B
	Subtotal	221	210	95.2%	21.7	4.0	C
EB	Left Turn	91	85	93.2%	29.1	9.0	C
	Through	947	864	91.3%	17.3	7.6	B
	Right Turn	114	108	95.1%	2.1	0.2	A
	Subtotal	1,152	1,058	91.8%	16.7	6.1	B
WB	Left Turn	10	8	80.0%	31.2	28.8	C
	Through	2,008	1,155	57.5%	58.4	3.9	E
	Right Turn	9	6	62.2%	52.9	43.2	D
	Subtotal	2,027	1,169	57.7%	58.3	4.0	E
Total		3,731	2,765	74.1%	37.9	3.6	D

Intersection 4 **N 3rd Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	101	112	110.9%	60.9	28.9	E
	Through	1	2	200.0%	15.6	28.2	B
	Right Turn	10	11	108.0%	29.2	40.1	C
	Subtotal	112	125	111.4%	57.8	29.1	E
SB	Left Turn	37	36	97.3%	47.9	17.0	D
	Through	2	3	140.0%	19.4	26.8	B
	Right Turn	27	32	117.0%	43.6	21.4	D
	Subtotal	66	70	106.7%	47.2	14.0	D
EB	Left Turn	29	29	100.7%	53.4	12.5	D
	Through	955	761	79.7%	48.0	27.5	D
	Right Turn	16	12	75.0%	44.2	38.3	D
	Subtotal	1,000	802	80.2%	47.8	26.0	D
WB	Left Turn	3	2	80.0%	19.8	20.7	B
	Through	1,894	974	51.4%	75.7	4.6	E
	Right Turn	12	7	60.0%	99.7	49.8	F
	Subtotal	1,909	984	51.5%	75.8	4.6	E
Total		3,087	1,981	64.2%	62.0	12.4	E

Intersection 5 **Sequoia Pacific Boulevard/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	101	98	96.6%	39.3	14.7	D
	Through	2	3	140.0%	39.2	58.3	D
	Right Turn	38	33	87.4%	58.8	38.2	E
	Subtotal	141	134	94.8%	44.4	13.3	D
SB	Left Turn	21	20	95.2%	135.3	71.0	F
	Through	6	7	113.3%	20.9	17.3	C
	Right Turn	56	59	105.7%	17.7	4.0	B
	Subtotal	83	86	103.6%	41.9	13.4	D
EB	Left Turn	11	7	61.8%	146.1	117.1	F
	Through	971	607	62.5%	118.6	61.6	F
	Right Turn	20	18	88.0%	101.1	60.3	F
	Subtotal	1,002	631	63.0%	117.7	60.8	F
WB	Left Turn	12	6	50.0%	89.3	48.9	F
	Through	1,752	807	46.1%	121.4	13.5	F
	Right Turn	7	4	62.9%	109.4	97.3	F
	Subtotal	1,771	818	46.2%	121.5	13.3	F
Total		2,997	1,668	55.7%	107.5	25.9	F

Intersection 6 **N 5th Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	13	10	80.0%	28.6	26.6	C
	Through						
	Right Turn	11	11	98.2%	60.9	42.5	E
	Subtotal	24	21	88.3%	55.1	32.8	E
SB	Left Turn	11	11	98.2%	65.5	38.4	E
	Through						
	Right Turn	77	71	92.5%	46.0	18.9	D
	Subtotal	88	82	93.2%	51.0	20.1	D
EB	Left Turn	20	14	72.0%	148.2	84.0	F
	Through	1,001	506	50.5%	181.3	65.0	F
	Right Turn	9	4	40.0%	181.8	189.1	F
	Subtotal	1,030	524	50.9%	181.2	65.1	F
WB	Left Turn	8	3	35.0%	92.0	67.1	F
	Through	1,681	742	44.1%	135.7	16.4	F
	Right Turn	3	1	26.7%	39.0	82.4	D
	Subtotal	1,692	745	44.0%	135.8	16.3	F
Total		2,834	1,372	48.4%	144.2	29.7	F

Intersection 7 **N 7th Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	231	112	48.5%	82.8	37.4	F
	Through	14	5	34.3%	21.2	31.3	C
	Right Turn	564	313	55.5%	39.8	5.7	D
	Subtotal	809	430	53.1%	50.9	9.6	D
SB	Left Turn	89	70	79.1%	170.9	102.8	F
	Through	119	92	77.6%	202.4	99.2	F
	Right Turn	118	79	67.1%	194.7	94.7	F
	Subtotal	326	242	74.2%	189.1	95.2	F
EB	Left Turn	10	4	36.0%	131.3	113.2	F
	Through	799	478	59.8%	157.1	21.8	F
	Right Turn	180	87	48.4%	270.5	69.1	F
	Subtotal	989	569	57.5%	173.9	25.4	F
WB	Left Turn	351	166	47.3%	418.3	44.5	F
	Through	1,061	566	53.4%	269.1	43.8	F
	Right Turn	18	10	57.8%	248.4	58.5	F
	Subtotal	1,430	743	51.9%	300.4	40.1	F
Total		3,554	1,983	55.8%	195.1	23.0	F

Intersection 8 **N 10th Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	30	26	88.0%	100.5	55.9	F
	Through	6	6	93.3%	26.5	26.9	C
	Right Turn	23	24	106.1%	6.9	3.5	A
	Subtotal	59	56	95.6%	52.5	21.9	D
SB	Left Turn	101	78	77.2%	61.4	30.6	E
	Through	57	55	96.8%	72.7	41.0	E
	Right Turn	173	141	81.6%	107.9	48.2	F
	Subtotal	331	274	82.9%	87.7	40.6	F
EB	Left Turn	24	18	73.3%	45.2	11.1	D
	Through	1,412	841	59.6%	15.7	5.8	B
	Right Turn	71	39	55.2%	8.4	3.7	A
	Subtotal	1,507	898	59.6%	16.0	5.7	B
WB	Left Turn	9	4	48.9%	181.7	125.2	F
	Through	1,186	612	51.6%	195.8	40.8	F
	Right Turn	12	6	46.7%	149.7	128.2	F
	Subtotal	1,207	622	51.5%	195.6	40.4	F
Total		3,104	1,851	59.6%	86.0	9.8	F

Intersection 9 **Dos Rios Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	29	22	77.2%	50.9	18.6	D
	Through	10	9	92.0%	37.6	27.8	D
	Right Turn	92	76	82.2%	25.9	11.0	C
	Subtotal	131	107	81.8%	33.2	13.9	C
SB	Left Turn	29	31	106.2%	36.1	11.3	D
	Through	13	7	55.4%	33.6	27.8	C
	Right Turn	35	38	108.6%	30.7	13.4	C
	Subtotal	77	76	98.7%	34.0	11.1	C
EB	Left Turn	17	7	42.4%	48.2	28.1	D
	Through	1,512	925	61.2%	20.8	7.0	C
	Right Turn	7	5	74.3%	6.6	7.0	A
	Subtotal	1,536	938	61.0%	20.9	6.8	C
WB	Left Turn	15	8	53.3%	104.8	61.0	F
	Through	1,143	767	67.1%	88.0	28.9	F
	Right Turn	10	7	72.0%	85.3	90.6	F
	Subtotal	1,168	782	67.0%	88.0	28.9	F
Total		2,912	1,903	65.3%	49.1	13.9	D

Intersection 10 **N 12th St-N 16th St/Richard Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	55	49	88.7%	244.6	36.9	F
	Through	3,665	2,643	72.1%	276.1	18.8	F
	Right Turn	6	4	60.0%	250.5	183.7	F
	Subtotal	3,726	2,696	72.3%	275.6	18.7	F
SB	Left Turn						
	Through	1,825	1,861	102.0%	35.1	3.1	D
	Right Turn	1,083	1,066	98.4%	29.5	3.1	C
	Subtotal	2,908	2,927	100.6%	33.1	2.7	C
EB	Left Turn	1,420	806	56.8%	247.7	31.8	F
	Through						
	Right Turn	103	64	62.5%	63.8	26.1	E
	Subtotal	1,523	870	57.2%	234.1	33.1	F
WB	Left Turn	6	8	133.3%	62.8	27.8	E
	Through	6	6	106.7%	63.6	23.8	E
	Right Turn	3	3	93.3%	1.6	2.0	A
	Subtotal	15	17	114.7%			
Total		8,172	6,510	79.7%	160.5	8.3	F

Intersection 11 **N 7th Street/Project Driveway** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	126	74	58.7%	8.9	1.2	A
	Through	517	318	61.4%	6.3	0.5	A
	Right Turn						
	Subtotal	643	392	60.9%	6.8	0.3	A
SB	Left Turn	3	1	26.7%	31.9	67.4	C
	Through	499	256	51.3%	145.3	31.0	F
	Right Turn	148	81	54.6%	138.0	40.2	F
	Subtotal	650	338	51.9%	143.5	33.2	F
EB	Left Turn	281	107	38.1%	31.8	8.7	C
	Through						
	Right Turn	490	146	29.7%	440.5	50.4	F
	Subtotal	771	253	32.8%	265.6	29.2	F
WB	Left Turn	4	3	70.0%	48.1	89.6	D
	Through						
	Right Turn	11	12	105.5%	3.2	1.9	A
	Subtotal	15	14	96.0%	36.7	87.2	D
Total		2,079	996	47.9%	117.0	10.2	F

Intersection 12 **N 7th Street/N B Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	139	78	56.1%	133.9	16.8	F
	Through	585	346	59.2%	135.8	11.3	F
	Right Turn	356	211	59.2%	132.3	5.3	F
	Subtotal	1,080	635	58.8%	134.5	8.7	F
SB	Left Turn	103	32	31.5%	184.1	34.7	F
	Through	778	316	40.7%	173.7	21.0	F
	Right Turn	112	36	32.5%	161.2	36.8	F
	Subtotal	993	385	38.8%	173.4	21.1	F
EB	Left Turn						
	Through	91	87	95.8%	51.2	9.9	D
	Right Turn	59	62	105.1%	41.1	16.6	D
	Subtotal	150	149	99.5%	46.5	11.7	D
WB	Left Turn	190	155	81.5%	238.0	94.3	F
	Through	76	70	92.6%	247.8	100.6	F
	Right Turn	58	54	93.1%	58.1	32.5	E
	Subtotal	324	279	86.2%	205.9	82.5	F
Total		2,547	1,449	56.9%	148.1	13.8	F

Intersection 13 **Dos Rios Street/N B Street-N 12th Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
WB	Left Turn	43	38	88.4%	42.3	10.4	D
	Through	147	144	97.7%	30.8	3.1	C
	Right Turn	22	19	85.5%	28.0	13.9	C
	Subtotal	212	200	94.5%	32.9	3.0	C
SB	Left Turn	5	3	64.0%	28.4	38.2	C
	Through						
	Right Turn	35	28	80.0%	41.1	10.5	D
	Subtotal	40	31	78.0%	43.7	10.5	D
EB	Left Turn	67	46	68.7%	41.8	8.4	D
	Through	359	210	58.6%	32.4	6.0	C
	Right Turn	127	72	56.7%	21.7	6.3	C
	Subtotal	553	328	59.4%	31.6	4.5	C
SW	Left Turn	34	35	102.4%	11.0	4.3	B
	Through	1,692	1,704	100.7%	15.4	2.3	B
	Right Turn	160	147	91.8%	18.9	4.0	B
	Subtotal	1,886	1,885	100.0%	15.6	2.3	B
Total		2,691	2,445	90.9%	19.6	1.8	B

Intersection 14 **N 7th Street/Railyards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	52	34	64.6%	285.6	95.1	F
	Through	368	199	54.0%	307.5	103.7	F
	Right Turn						
	Subtotal	420	232	55.3%	306.3	101.8	F
SB	Left Turn						
	Through	496	232	46.8%	147.2	29.8	F
	Right Turn	531	258	48.5%	140.5	26.3	F
	Subtotal	1,027	490	47.7%	143.8	27.9	F
EB	Left Turn	712	416	58.4%	372.7	70.7	F
	Through						
	Right Turn	64	43	67.5%	375.1	89.3	F
	Subtotal	776	459	59.1%	373.4	72.4	F
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,223	1,181	53.1%	257.9	28.9	F

Intersection 15 **North Project Driveway/Richard Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	351	161	45.9%	307.9	110.9	F
	Through						
	Right Turn	240	172	71.8%	183.5	85.7	F
	Subtotal	591	334	56.4%	232.8	64.0	F
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	749	388	51.9%	186.5	36.3	F
	Right Turn	274	134	49.1%	204.1	48.9	F
	Subtotal	1,023	523	51.1%	191.0	37.8	F
WB	Left Turn	69	33	47.5%	55.3	18.7	F
	Through	1,341	645	48.1%	122.3	28.6	F
	Right Turn						
	Subtotal	1,410	678	48.1%	119.0	27.0	F
Total		3,024	1,534	50.7%	165.8	29.6	F

Intersection 1 **I-5 SB Ramps/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	1,660	729	43.9%	402.0	57.5	F
	Through	15	6	40.0%	402.8	108.2	F
	Right Turn	325	156	48.1%	350.0	55.8	F
	Subtotal	2,000	891	44.6%	392.9	55.6	F
EB	Left Turn						
	Through	105	106	101.0%	22.8	3.3	C
	Right Turn	80	79	99.0%	2.8	3.0	A
	Subtotal	185	185	100.1%	14.3	2.9	B
WB	Left Turn	650	532	81.9%	27.4	14.8	C
	Through	110	106	96.0%	6.8	1.3	A
	Right Turn						
	Subtotal	760	638	83.9%	24.2	12.7	C
Total		2,945	1,714	58.2%	211.1	15.6	F

Intersection 2 **I-5 NB Ramps/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	55	53	96.0%	36.4	18.7	D
	Through	5	6	112.0%	126.5	67.3	F
	Right Turn	1,210	1,152	95.2%	79.0	37.8	E
	Subtotal	1,270	1,210	95.3%	77.5	37.0	E
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	135	95	70.5%	13.1	2.6	B
	Through	1,630	760	46.6%	91.8	21.9	F
	Right Turn						
	Subtotal	1,765	855	48.4%	82.4	17.9	F
WB	Left Turn						
	Through	705	568	80.6%	13.7	2.8	B
	Right Turn	875	723	82.7%	6.0	1.4	A
	Subtotal	1,580	1,291	81.7%	9.3	1.8	A
Total		4,615	3,356	72.7%	51.6	12.0	D

Intersection 3 **Bercut Drive/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	125	121	96.6%	31.3	4.8	C
	Through	50	54	108.8%	35.5	6.7	D
	Right Turn	15	17	112.0%	11.8	4.8	B
	Subtotal	190	192	101.1%	30.5	3.8	C
SB	Left Turn	40	35	88.0%	33.6	6.3	C
	Through	30	25	84.0%	38.1	8.5	D
	Right Turn	60	69	114.7%	8.6	3.1	A
	Subtotal	130	129	99.4%	21.4	4.1	C
EB	Left Turn	390	273	70.1%	65.3	11.4	E
	Through	1,575	1,094	69.5%	22.5	2.9	C
	Right Turn	875	563	64.3%	4.1	0.8	A
	Subtotal	2,840	1,930	68.0%	23.2	2.3	C
WB	Left Turn	125	95	75.8%	47.7	7.3	D
	Through	1,395	1,097	78.6%	19.6	5.1	B
	Right Turn	30	24	80.0%	14.7	7.7	B
	Subtotal	1,550	1,216	78.4%	21.7	4.9	C
Total		4,710	3,467	73.6%	23.0	2.1	C

Intersection 4 **N 3rd Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	50	46	92.0%	33.4	6.6	C
	Through	50	53	106.4%	32.5	8.9	C
	Right Turn	15	19	128.0%	17.4	6.6	B
	Subtotal	115	118	103.0%	30.7	4.7	C
SB	Left Turn	5	4	80.0%	22.9	24.3	C
	Through	35	41	116.6%	37.2	7.3	D
	Right Turn	205	207	101.1%	12.9	2.8	B
	Subtotal	245	252	102.9%	17.0	2.6	B
EB	Left Turn	125	89	71.0%	36.5	7.8	D
	Through	1,165	796	68.3%	18.1	5.1	B
	Right Turn	340	231	68.0%	17.3	5.9	B
	Subtotal	1,630	1,116	68.4%	19.4	4.8	B
WB	Left Turn	30	19	62.7%	18.2	13.2	B
	Through	1,295	954	73.7%	16.0	3.3	B
	Right Turn	80	58	72.5%	15.8	5.1	B
	Subtotal	1,405	1,031	73.4%	16.1	3.3	B
Total		3,395	2,517	74.1%	18.3	3.2	B

Intersection 5 **Sequoia Pacific Boulevard/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	325	322	99.1%	28.4	6.3	C
	Through	295	320	108.3%	31.2	3.9	C
	Right Turn	20	22	110.0%	25.0	10.1	C
	Subtotal	640	664	103.7%	29.9	3.3	C
SB	Left Turn	105	44	42.3%	456.3	26.8	F
	Through	535	227	42.4%	466.9	27.1	F
	Right Turn	35	17	49.1%	435.6	64.4	F
	Subtotal	675	288	42.7%	463.3	27.2	F
EB	Left Turn	75	46	61.3%	52.0	6.2	D
	Through	1,085	748	68.9%	9.2	1.9	A
	Right Turn	25	17	67.2%	6.3	3.7	A
	Subtotal	1,185	810	68.4%	11.5	1.9	B
WB	Left Turn	35	26	75.4%	38.0	11.0	D
	Through	1,045	708	67.8%	29.6	3.3	C
	Right Turn	140	95	67.7%	29.1	6.4	C
	Subtotal	1,220	829	68.0%	29.8	3.3	C
Total		3,720	2,592	69.7%	72.5	2.0	E

Intersection 6 **N 5th Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	15	14	90.7%	37.2	7.8	D
	Through	115	120	104.3%	31.6	5.4	C
	Right Turn	135	132	97.5%	14.1	4.6	B
	Subtotal	265	265	100.1%	23.0	3.8	C
SB	Left Turn	80	76	95.0%	37.6	8.6	D
	Through	120	113	94.0%	28.8	6.4	C
	Right Turn	110	117	106.5%	17.1	5.1	B
	Subtotal	310	306	98.7%	26.5	4.7	C
EB	Left Turn	15	8	56.0%	49.8	28.7	D
	Through	1,190	789	66.3%	15.7	8.2	B
	Right Turn	5	4	72.0%	8.3	13.0	A
	Subtotal	1,210	801	66.2%	16.1	8.2	B
WB	Left Turn	235	145	61.8%	44.0	11.7	D
	Through	1,095	727	66.4%	13.3	3.4	B
	Right Turn	5	4	80.0%	6.8	6.3	A
	Subtotal	1,335	876	65.6%	18.6	4.6	B
Total		3,120	2,248	72.1%	19.3	4.3	B

Intersection 7 **N 7th Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	155	147	94.7%	43.7	7.0	D
	Through	240	236	98.2%	37.4	4.4	D
	Right Turn	10	12	124.0%	29.8	21.3	C
	Subtotal	405	395	97.5%	39.6	3.1	D
SB	Left Turn	70	46	65.7%	68.1	26.2	E
	Through	215	199	92.7%	37.2	7.2	D
	Right Turn	35	36	104.0%	34.9	9.5	C
	Subtotal	320	282	88.0%	42.3	9.7	D
EB	Left Turn	195	151	77.3%	97.8	28.7	F
	Through	1,075	793	73.8%	93.7	30.1	F
	Right Turn	135	92	67.9%	93.0	33.5	F
	Subtotal	1,405	1,036	73.7%	94.2	29.7	F
WB	Left Turn	310	173	55.9%	56.7	6.4	E
	Through	1,145	668	58.4%	31.7	4.8	C
	Right Turn	15	12	77.3%	34.9	14.6	C
	Subtotal	1,470	853	58.0%	36.6	4.0	D
Total		3,600	2,565	71.3%	60.2	11.7	E

Intersection 8 **N 10th Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	5	4	88.0%	71.0	128.4	E
	Through	40	28	69.0%	83.5	36.3	F
	Right Turn	290	166	57.2%	161.4	69.7	F
	Subtotal	335	198	59.1%	150.4	64.3	F
SB	Left Turn	120	65	54.3%	152.0	50.1	F
	Through	15	12	77.3%	51.6	29.7	D
	Right Turn	45	23	50.7%	57.3	60.7	E
	Subtotal	180	100	55.3%	118.7	49.5	F
EB	Left Turn	125	80	64.3%	159.8	39.7	F
	Through	1,030	475	46.1%	214.8	54.7	F
	Right Turn	5	3	64.0%	160.6	152.0	F
	Subtotal	1,160	558	48.1%	207.1	52.0	F
WB	Left Turn	225	134	59.6%	48.0	7.6	D
	Through	1,540	934	60.7%	27.8	8.4	C
	Right Turn	165	100	60.4%	27.7	10.5	C
	Subtotal	1,930	1,168	60.5%	30.1	8.1	C
Total		3,605	2,024	56.1%	92.5	13.2	F

Intersection 9 **Dos Rios Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	30	25	84.0%	99.6	53.5	F
	Through	15	8	56.0%	256.4	179.4	F
	Right Turn	440	232	52.7%	271.8	170.6	F
	Subtotal	485	266	54.8%	245.4	137.4	F
SB	Left Turn	110	92	83.3%	114.1	35.6	F
	Through	5	2	48.0%	25.5	38.6	C
	Right Turn	60	62	102.7%	25.2	12.3	C
	Subtotal	175	156	88.9%	76.8	21.6	E
EB	Left Turn	80	30	37.0%	229.5	54.3	F
	Through	1,320	500	37.9%	235.1	39.3	F
	Right Turn	40	15	38.0%	269.5	194.7	F
	Subtotal	1,440	545	37.8%	235.3	41.1	F
WB	Left Turn	125	60	47.7%	78.9	22.0	E
	Through	1,840	1,156	62.8%	36.1	9.3	D
	Right Turn	70	47	67.4%	31.8	11.9	C
	Subtotal	2,035	1,263	62.1%	38.2	10.0	D
Total		4,135	2,229	53.9%	106.9	11.5	F

Intersection 10 **N 12th St/Richard Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	360	250	69.6%	24.1	4.7	C
	Through	2,240	1,464	65.4%	24.8	3.2	C
	Right Turn	1,195	628	52.5%	21.7	2.3	C
	Subtotal	3,795	2,342	61.7%	23.9	2.5	C
EB	Left Turn						
	Through	1,435	585	40.8%	83.1	11.9	F
	Right Turn	470	192	40.9%	87.5	12.4	F
	Subtotal	1,905	778	40.8%	84.2	11.1	F
WB	Left Turn	270	213	79.0%	106.5	19.5	F
	Through	815	659	80.8%	41.2	4.4	D
	Right Turn						
	Subtotal	1,085	872	80.4%	57.8	8.2	E
Total		6,785	3,992	58.8%	42.7	2.7	D

Intersection 11 **N 7th Street/Bannon St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Percent	al Delay (sec/veh) Average	Std. Dev.	LOS
NB	Left Turn						
	Through	395	325	82.2%	1.5	0.4	A
	Right Turn	5	4	80.0%	0.6	1.0	A
	Subtotal	400	329	82.2%	1.5	0.4	A
SB	Left Turn	5	4	80.0%	3.5	3.1	A
	Through	655	484	73.8%	2.8	0.5	A
	Right Turn						
	Subtotal	660	488	73.9%	2.8	0.5	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	5	7	144.0%	10.2	16.0	B
	Through						
	Right Turn	10	12	120.0%	3.6	2.9	A
	Subtotal	15	19	128.0%	7.2	11.4	A
Total		1,075	836	77.7%	2.4	0.4	A

Intersection 12 **N 7th Street/N B Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Percent	Total Delay (sec/veh) Average	Std. Dev.	LOS
NB	Left Turn	30	23	76.0%	71.7	18.7	E
	Through	260	212	81.4%	46.5	4.1	D
	Right Turn	320	256	80.1%	64.3	12.9	E
	Subtotal	610	491	80.5%	57.1	7.7	E
SB	Left Turn	235	177	75.2%	91.5	36.0	F
	Through	540	437	81.0%	33.0	4.6	C
	Right Turn	100	84	84.4%	38.0	9.5	D
	Subtotal	875	698	79.8%	49.1	12.2	D
EB	Left Turn	35	25	70.9%	227.9	75.1	F
	Through	315	221	70.2%	224.2	52.2	F
	Right Turn	60	48	79.3%	223.0	62.9	F
	Subtotal	410	294	71.6%	224.8	54.7	F
WB	Left Turn	655	448	68.4%	111.3	32.7	F
	Through	560	416	74.4%	46.2	13.3	D
	Right Turn	130	104	80.3%	43.0	12.0	D
	Subtotal	1,345	969	72.0%	76.1	18.6	E
Total		3,240	2,452	75.7%	82.4	5.8	F

Intersection 13 **Dos Rios Street/N B Street-N 12th Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
WB	Left Turn	30	31	102.7%	47.8	9.0	D
	Through	410	400	97.6%	22.7	1.7	C
	Right Turn	40	41	102.0%	26.2	5.2	C
	Subtotal	480	472	98.3%	24.7	1.6	C
SB	Left Turn						
	Through						
	Right Turn	60	41	68.7%	5.8	3.8	A
	Subtotal	60	41	68.7%	5.8	3.8	A
EB	Left Turn						
	Through	1,035	773	74.7%	116.7	14.1	F
	Right Turn	375	277	73.9%	124.2	13.3	F
	Subtotal	1,410	1,050	74.5%	118.7	13.7	F
SW	Left Turn	30	14	48.0%	21.2	6.4	C
	Through	1,845	1,279	69.3%	27.3	3.1	C
	Right Turn	960	641	66.8%	60.8	23.7	E
	Subtotal	2,835	1,934	68.2%	38.4	9.2	D
Total		4,785	3,498	73.1%	60.2	4.7	E

Intersection 14 **N 7th Street/Railyards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	335	261	77.9%	237.5	55.9	F
	Through	395	389	98.5%	68.8	20.2	E
	Right Turn	410	395	96.3%	55.7	20.6	E
	Subtotal	1,140	1,045	91.6%	106.5	16.9	F
SB	Left Turn	25	18	72.0%	48.4	8.1	D
	Through	710	510	71.8%	28.7	4.0	C
	Right Turn	190	139	73.3%	24.2	4.4	C
	Subtotal	925	667	72.1%	28.3	3.8	C
EB	Left Turn	380	230	60.4%	375.2	35.6	F
	Through	385	259	67.3%	318.1	44.5	F
	Right Turn	370	316	85.4%	87.1	25.9	F
	Subtotal	1,135	805	70.9%	243.4	32.7	F
WB	Left Turn	440	311	70.6%	229.6	25.4	F
	Through	440	292	66.3%	165.6	11.5	F
	Right Turn	20	16	78.0%	138.7	47.5	F
	Subtotal	900	618	68.7%	198.3	20.4	F
Total		4,100	3,134	76.4%	142.6	9.3	F

Intersection 16 **N 16th St/Richards Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	70	63	90.3%	39.3	13.9	D
	Through	1,665	1,776	106.6%	33.4	2.9	C
	Right Turn	160	158	98.5%	4.6	1.1	A
	Subtotal	1,895	1,996	105.4%	31.3	2.8	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	805	338	42.0%	71.9	6.7	E
	Through	990	467	47.2%	27.9	4.9	C
	Right Turn						
	Subtotal	1,795	805	44.8%	46.3	5.2	D
WB	Left Turn						
	Through	1,015	809	79.7%	131.5	37.7	F
	Right Turn	380	304	80.0%	101.1	36.0	F
	Subtotal	1,395	1,113	79.8%	123.2	37.8	F
Total		5,085	3,914	77.0%	59.7	9.0	E

Intersection 17 **N 12th St/Vine St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
WB	Left Turn	75	68	90.7%	143.0	46.9	F
	Through	95	85	89.3%	80.5	31.0	F
	Right Turn						
	Subtotal	170	153	89.9%	109.6	37.1	F
SB	Left Turn	460	280	61.0%	207.7	24.5	F
	Through	3,710	2,203	59.4%	234.5	25.3	F
	Right Turn	670	323	48.2%	282.3	31.7	F
	Subtotal	4,840	2,806	58.0%	237.3	25.5	F
EB	Left Turn						
	Through	365	277	75.9%	101.7	13.5	F
	Right Turn	10	8	84.0%	69.0	36.4	E
	Subtotal	375	286	76.2%	100.8	14.0	F
SW	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		5,385	3,245	60.3%	219.2	22.6	F

Intersection 18 **N 16th St/Vine St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	45	34	74.7%	6.5	7.2	A
	Through						
	Right Turn	2,805	2,418	86.2%	5.1	0.4	A
	Subtotal	2,850	2,451	86.0%	5.1	0.4	A
SB	Left Turn						
	Through						
	Right Turn	1	2	160.0%	34.1	50.6	C
	Subtotal	1	2	160.0%	32.9	51.4	C
EB	Left Turn	330	186	56.2%	106.4	14.3	F
	Through	495	298	60.2%	68.2	3.8	E
	Right Turn						
	Subtotal	825	484	58.6%	82.8	5.4	F
WB	Left Turn						
	Through	125	101	80.6%	79.8	22.4	E
	Right Turn	290	280	96.6%	53.4	15.0	D
	Subtotal	415	381	91.8%	60.7	17.0	E
Total		4,091	3,317	81.1%	22.9	2.8	C

Intersection 1 **I-5 SB Ramps/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	1,020	907	88.9%	64.4	28.7	E
	Through	220	204	92.9%	70.1	31.4	E
	Right Turn	185	177	95.8%	17.2	10.0	B
	Subtotal	1,425	1,289	90.4%	59.0	27.1	E
EB	Left Turn						
	Through	830	582	70.1%	245.8	44.5	F
	Right Turn	135	137	101.6%	26.5	12.1	C
	Subtotal	965	719	74.5%	203.5	35.6	F
WB	Left Turn	705	459	65.1%	8.2	3.1	A
	Through	85	82	96.0%	2.6	1.4	A
	Right Turn						
	Subtotal	790	541	68.5%	7.4	2.8	A
Total		3,180	2,549	80.2%	88.1	14.9	F

Intersection 2 **I-5 NB Ramps/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	60	61	101.3%	27.9	4.4	C
	Through	15	18	117.3%	74.2	71.1	E
	Right Turn	455	426	93.5%	56.1	45.8	E
	Subtotal	530	504	95.1%	52.6	39.8	D
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	665	440	66.1%	27.6	7.9	C
	Through	1,185	1,093	92.3%	29.9	13.2	C
	Right Turn						
	Subtotal	1,850	1,533	82.9%	29.0	8.6	C
WB	Left Turn						
	Through	730	467	64.0%	12.2	2.1	B
	Right Turn	1,290	787	61.0%	12.6	1.8	B
	Subtotal	2,020	1,254	62.1%	12.5	1.5	B
Total		4,400	3,291	74.8%	25.8	7.8	C

Intersection 3 **Bercut Drive/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	255	243	95.2%	60.1	18.3	E
	Through	45	48	107.6%	70.3	23.8	E
	Right Turn	115	118	103.0%	18.7	5.2	B
	Subtotal	415	410	98.7%	49.4	15.0	D
SB	Left Turn	55	50	90.2%	36.7	9.2	D
	Through	80	75	93.5%	40.7	4.4	D
	Right Turn	85	86	100.7%	13.2	2.7	B
	Subtotal	220	210	95.5%	28.4	3.9	C
EB	Left Turn	50	44	87.2%	29.0	9.6	C
	Through	1,120	1,040	92.9%	32.0	6.6	C
	Right Turn	470	450	95.7%	3.6	0.6	A
	Subtotal	1,640	1,534	93.5%	23.4	4.2	C
WB	Left Turn	110	65	59.3%	40.2	8.7	D
	Through	1,680	905	53.9%	63.9	7.8	E
	Right Turn	20	11	54.0%	84.7	21.6	F
	Subtotal	1,810	981	54.2%	62.4	7.4	E
Total		4,085	3,134	76.7%	39.3	4.7	D

Intersection 4 **N 3rd Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	210	174	82.7%	168.5	73.1	F
	Through	35	38	107.4%	16.2	5.7	B
	Right Turn	15	21	138.7%	11.6	5.0	B
	Subtotal	260	232	89.2%	130.0	56.2	F
SB	Left Turn	75	76	101.9%	30.7	6.9	C
	Through	20	21	104.0%	27.9	15.3	C
	Right Turn	230	229	99.5%	28.4	7.7	C
	Subtotal	325	326	100.3%	29.4	6.6	C
EB	Left Turn	215	192	89.1%	72.9	16.9	E
	Through	965	854	88.5%	73.1	15.6	E
	Right Turn	110	99	89.8%	77.4	18.0	E
	Subtotal	1,290	1,145	88.7%	73.6	13.6	E
WB	Left Turn	5	4	80.0%	17.7	25.8	B
	Through	1,370	563	41.1%	129.4	22.8	F
	Right Turn	20	8	38.0%	155.2	85.7	F
	Subtotal	1,395	574	41.2%	129.8	22.6	F
Total		3,270	2,277	69.6%	86.8	15.2	F

Intersection 5 **Sequoia Pacific Boulevard/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	235	258	109.8%	40.8	14.9	D
	Through	405	404	99.7%	72.9	33.6	E
	Right Turn	25	30	118.4%	66.4	36.2	E
	Subtotal	665	691	103.9%	61.0	23.3	E
SB	Left Turn	185	105	56.6%	351.4	59.8	F
	Through	430	270	62.7%	346.8	49.5	F
	Right Turn	80	49	61.0%	358.5	59.3	F
	Subtotal	695	423	60.9%	348.9	50.8	F
EB	Left Turn	45	38	83.6%	47.7	10.7	D
	Through	815	710	87.2%	39.4	7.0	D
	Right Turn	195	172	88.0%	39.2	8.8	D
	Subtotal	1,055	920	87.2%	39.7	7.0	D
WB	Left Turn	5	1	16.0%	15.9	50.2	B
	Through	1,080	285	26.4%	241.9	66.4	F
	Right Turn	180	40	22.2%	365.0	103.7	F
	Subtotal	1,265	326	25.8%	255.4	65.9	F
Total		3,680	2,360	64.1%	128.8	12.5	F

Intersection 6 **N 5th Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	10	6	56.0%	177.9	178.8	F
	Through	135	113	83.6%	62.8	46.8	E
	Right Turn	160	136	85.3%	52.6	40.5	D
	Subtotal	305	255	83.5%	59.1	42.1	E
SB	Left Turn	5	5	96.0%	51.8	63.8	D
	Through	170	134	78.8%	70.1	26.5	E
	Right Turn	130	87	66.8%	138.8	46.3	F
	Subtotal	305	226	74.0%	95.7	30.9	F
EB	Left Turn	105	73	69.3%	52.0	18.6	D
	Through	900	674	74.9%	58.5	40.1	E
	Right Turn	20	14	72.0%	73.0	73.6	E
	Subtotal	1,025	761	74.3%	57.9	37.4	E
WB	Left Turn	195	41	21.1%	246.1	89.4	F
	Through	1,125	285	25.3%	280.2	119.6	F
	Right Turn	15	5	32.0%	258.3	223.1	F
	Subtotal	1,335	331	24.8%	275.9	116.3	F
Total		2,970	1,572	52.9%	102.5	30.0	F

Intersection 7 **N 7th Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	230	234	101.7%	50.2	4.5	D
	Through	200	202	100.8%	41.6	7.1	D
	Right Turn	70	58	83.4%	36.9	17.2	D
	Subtotal	500	494	98.8%	45.0	5.8	D
SB	Left Turn	80	65	81.0%	107.0	23.7	F
	Through	375	356	94.8%	69.8	17.5	E
	Right Turn	55	61	110.5%	38.3	7.2	D
	Subtotal	510	481	94.4%	70.8	16.9	E
EB	Left Turn	5	5	96.0%	95.9	48.5	F
	Through	800	653	81.7%	93.4	28.6	F
	Right Turn	260	198	76.2%	97.2	28.5	F
	Subtotal	1,065	856	80.4%	94.3	28.4	F
WB	Left Turn	495	261	52.8%	64.9	15.1	E
	Through	1,050	607	57.8%	24.6	4.0	C
	Right Turn	20	8	40.0%	15.1	14.9	B
	Subtotal	1,565	876	56.0%	36.6	4.9	D
Total		3,640	2,708	74.4%	62.0	10.2	E

Intersection 8 **N 10th Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	5	2	48.0%	14.2	16.0	B
	Through	25	20	81.6%	32.8	21.4	C
	Right Turn	170	143	84.2%	63.5	25.0	E
	Subtotal	200	166	83.0%	59.3	23.4	E
SB	Left Turn	315	146	46.5%	227.1	80.3	F
	Through	60	23	38.7%	196.0	82.4	F
	Right Turn	145	67	46.1%	174.1	91.5	F
	Subtotal	520	236	45.5%	206.3	79.6	F
EB	Left Turn	40	21	53.0%	174.2	95.6	F
	Through	960	489	50.9%	200.1	61.5	F
	Right Turn	85	50	58.4%	165.7	86.3	F
	Subtotal	1,085	560	51.6%	195.8	62.2	F
WB	Left Turn	280	159	56.7%	46.2	3.9	D
	Through	1,400	842	60.2%	16.3	4.3	B
	Right Turn	115	78	68.2%	12.9	3.8	B
	Subtotal	1,795	1,080	60.1%	20.4	3.8	C
Total		3,600	2,042	56.7%	90.2	20.5	F

Intersection 9 **Dos Rios Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	45	45	99.6%	69.7	24.5	E
	Through	10	10	96.0%	124.2	83.4	F
	Right Turn	345	248	71.9%	154.6	54.9	F
	Subtotal	400	302	75.6%	140.0	46.1	F
SB	Left Turn	50	59	117.6%	77.7	34.2	E
	Through	5	4	88.0%	43.2	52.4	D
	Right Turn	70	75	107.4%	15.6	9.1	B
	Subtotal	125	138	110.7%	45.0	20.3	D
EB	Left Turn	25	8	33.6%	173.0	112.3	F
	Through	1,395	554	39.7%	221.5	39.9	F
	Right Turn	25	10	40.0%	258.4	160.6	F
	Subtotal	1,445	572	39.6%	221.9	41.1	F
WB	Left Turn	100	58	57.6%	67.8	13.1	E
	Through	1,680	980	58.3%	20.6	9.8	C
	Right Turn	45	28	62.2%	19.8	12.8	B
	Subtotal	1,825	1,065	58.4%	23.1	9.5	C
Total		3,795	2,078	54.8%	94.8	9.6	F

Intersection 10 **N 12th St/Richard Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	440	262	59.5%	65.7	12.6	E
	Through	1,690	1,005	59.5%	45.2	11.9	D
	Right Turn	1,000	504	50.4%	35.4	4.0	D
	Subtotal	3,130	1,771	56.6%	45.3	8.6	D
EB	Left Turn						
	Through	1,550	791	51.0%	53.8	10.8	D
	Right Turn	410	214	52.1%	46.0	6.8	D
	Subtotal	1,960	1,004	51.2%	52.3	9.4	D
WB	Left Turn	130	88	68.0%	134.8	35.1	F
	Through	870	635	73.0%	37.5	9.5	D
	Right Turn						
	Subtotal	1,000	724	72.4%	49.5	8.8	D
Total		6,090	3,499	57.5%	47.9	3.6	D

Intersection 11 **N 7th Street/Bannon St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	60	44	73.3%	26.8	5.3	C
	Through	350	281	80.2%	7.7	1.7	A
	Right Turn	15	15	101.3%	5.5	2.2	A
	Subtotal	425	340	80.0%	10.2	1.3	B
SB	Left Turn	10	8	84.0%	40.4	19.8	D
	Through	645	482	74.8%	12.0	1.6	B
	Right Turn	5	6	120.0%	8.1	6.1	A
	Subtotal	660	497	75.3%	12.4	1.6	B
EB	Left Turn	5	5	96.0%	15.6	13.9	B
	Through	65	60	92.3%	16.9	4.2	B
	Right Turn	175	188	107.7%	9.7	2.5	A
	Subtotal	245	253	103.3%	11.6	2.5	B
WB	Left Turn	55	46	84.4%	19.4	4.5	B
	Through	155	154	99.1%	13.5	1.9	B
	Right Turn	45	44	97.8%	6.9	1.3	A
	Subtotal	255	244	95.7%	13.4	2.3	B
Total		1,585	1,334	84.2%	12.0	1.0	B

Intersection 12 **N 7th Street/N B Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	90	42	46.7%	202.9	24.7	F
	Through	300	105	35.1%	161.4	14.8	F
	Right Turn	950	357	37.6%	229.5	15.7	F
	Subtotal	1,340	504	37.6%	213.2	14.8	F
SB	Left Turn	325	203	62.4%	144.8	43.6	F
	Through	850	503	59.2%	52.3	6.7	D
	Right Turn	110	70	63.3%	47.2	9.0	D
	Subtotal	1,285	776	60.4%	76.4	15.0	E
EB	Left Turn	70	61	86.9%	120.5	31.4	F
	Through	500	299	59.8%	351.6	33.8	F
	Right Turn	30	18	61.3%	320.6	45.5	F
	Subtotal	600	378	63.0%	313.7	27.1	F
WB	Left Turn	440	251	57.0%	256.1	61.9	F
	Through	460	333	72.4%	148.6	36.7	F
	Right Turn	180	137	76.2%	136.3	48.7	F
	Subtotal	1,080	721	66.8%	183.6	39.3	F
Total		4,305	2,379	55.3%	174.8	10.6	F

Intersection 13 **Dos Rios Street/N B Street-N 12th Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
WB	Left Turn	10	10	100.0%	40.2	28.0	D
	Through	420	410	97.7%	22.6	2.7	C
	Right Turn	10	9	88.0%	23.6	18.6	C
	Subtotal	440	429	97.5%	23.2	2.7	C
SB	Left Turn						
	Through						
	Right Turn	35	20	56.0%	3.8	1.7	A
	Subtotal	35	20	56.0%	3.8	1.7	A
EB	Left Turn						
	Through	1,510	744	49.3%	36.5	4.4	D
	Right Turn	565	290	51.3%	39.7	4.6	D
	Subtotal	2,075	1,034	49.9%	37.4	4.4	D
SW	Left Turn	60	48	80.7%	18.1	5.5	B
	Through	1,350	940	69.6%	22.6	1.4	C
	Right Turn	835	583	69.8%	41.1	9.7	D
	Subtotal	2,245	1,571	70.0%	29.4	4.3	C
Total		4,795	3,054	63.7%	31.1	2.9	C

Intersection 14 **N 7th Street/Railyards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	265	119	44.8%	404.3	17.3	F
	Through	885	356	40.3%	440.1	24.4	F
	Right Turn	175	65	37.3%	474.6	45.6	F
	Subtotal	1,325	540	40.8%	437.2	20.6	F
SB	Left Turn	30	21	69.3%	74.4	22.1	E
	Through	665	376	56.6%	42.0	6.5	D
	Right Turn	260	140	53.7%	35.4	5.5	D
	Subtotal	955	537	56.2%	41.5	5.6	D
EB	Left Turn	415	130	31.4%	514.6	63.5	F
	Through	470	170	36.1%	475.4	59.8	F
	Right Turn	640	359	56.1%	305.6	72.7	F
	Subtotal	1,525	659	43.2%	390.9	68.3	F
WB	Left Turn	400	320	80.0%	222.0	49.7	F
	Through	355	268	75.5%	221.8	56.0	F
	Right Turn	25	22	89.6%	212.0	63.3	F
	Subtotal	780	610	78.3%	222.0	51.4	F
Total		4,585	2,346	51.2%	275.5	22.6	F

Intersection 16 **N 16th Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	75	60	80.0%	39.0	6.4	D
	Through	3,710	2,573	69.3%	46.5	1.8	D
	Right Turn	290	238	82.1%	12.6	2.8	B
	Subtotal	4,075	2,871	70.4%	43.6	1.9	D
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	990	550	55.6%	59.6	4.9	E
	Through	1,000	484	48.4%	26.4	3.6	C
	Right Turn						
	Subtotal	1,990	1,034	52.0%	44.1	3.4	D
WB	Left Turn						
	Through	925	592	64.0%	243.7	32.4	F
	Right Turn	560	378	67.4%	240.4	26.8	F
	Subtotal	1,485	970	65.3%	242.8	27.7	F
Total		7,550	4,875	64.6%	82.9	4.1	F

Intersection 17 **N 12th St/Vine St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
WB	Left Turn	30	16	54.7%	164.5	90.7	F
	Through	40	30	75.0%	57.7	10.2	E
	Right Turn						
	Subtotal	70	46	66.3%	89.8	30.9	F
SB	Left Turn	220	149	67.6%	147.6	32.4	F
	Through	3,090	1,882	60.9%	201.7	34.7	F
	Right Turn	425	197	46.4%	260.4	40.2	F
	Subtotal	3,735	2,228	59.6%	203.3	33.7	F
EB	Left Turn						
	Through	650	298	45.8%	113.7	13.7	F
	Right Turn	10	7	68.0%	79.5	59.9	E
	Subtotal	660	304	46.1%	113.3	13.9	F
SW	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		4,465	2,578	57.7%	190.0	27.5	F

Intersection 18 **N 16th St/Vine St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	10	5	52.0%	5.2	3.0	A
	Through						
	Right Turn	5,250	3,421	65.2%	21.6	1.1	C
	Subtotal	5,260	3,426	65.1%	21.6	1.1	C
SB	Left Turn						
	Through						
	Right Turn	1	3	280.0%	33.4	38.7	C
	Subtotal	1	3	280.0%	33.4	38.7	C
EB	Left Turn	600	262	43.7%	137.6	15.9	F
	Through	270	142	52.4%	34.1	5.8	C
	Right Turn						
	Subtotal	870	404	46.4%	101.5	12.4	F
WB	Left Turn						
	Through	60	52	86.7%	156.7	20.9	F
	Right Turn	460	398	86.4%	146.4	19.7	F
	Subtotal	520	450	86.5%	147.8	18.8	F
Total		6,651	4,283	64.4%	42.4	2.3	D

Intersection 1 **I-5 SB Ramps/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	1,825	798	43.7%	444.2	42.3	F
	Through	15	8	53.3%	449.1	102.9	F
	Right Turn	325	152	46.6%	391.4	45.0	F
	Subtotal	2,165	958	44.2%	436.0	40.1	F
EB	Left Turn						
	Through	120	128	106.7%	23.9	3.5	C
	Right Turn	80	81	101.5%	1.8	0.8	A
	Subtotal	200	209	104.6%	15.2	2.8	B
WB	Left Turn	670	563	84.1%	29.5	24.7	C
	Through	115	83	72.0%	5.8	1.5	A
	Right Turn						
	Subtotal	785	646	82.3%	26.4	21.4	C
Total		3,150	1,813	57.5%	240.5	19.7	F

Intersection 2 **I-5 NB Ramps/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	60	38	63.3%	167.6	59.9	F
	Through	5	3	56.0%	199.8	112.8	F
	Right Turn	1,385	1,075	77.6%	223.0	58.2	F
	Subtotal	1,450	1,116	76.9%	221.3	58.4	F
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	140	109	77.7%	15.8	4.1	B
	Through	1,805	840	46.6%	78.1	13.4	E
	Right Turn						
	Subtotal	1,945	949	48.8%	70.6	10.7	E
WB	Left Turn						
	Through	725	582	80.3%	16.2	14.7	B
	Right Turn	910	741	81.4%	5.7	1.3	A
	Subtotal	1,635	1,323	80.9%	10.6	7.9	B
Total		5,030	3,388	67.3%	96.0	22.2	F

Intersection 3 **Bercut Drive/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	120	114	95.3%	41.6	21.0	D
	Through	50	45	90.4%	45.7	23.8	D
	Right Turn	20	23	116.0%	12.8	7.7	B
	Subtotal	190	183	96.2%	39.3	19.7	D
SB	Left Turn	40	34	84.0%	33.0	10.9	C
	Through	30	31	104.0%	33.4	7.3	C
	Right Turn	60	58	96.0%	14.5	15.6	B
	Subtotal	130	122	94.2%	24.0	9.3	C
EB	Left Turn	475	273	57.4%	64.8	7.4	E
	Through	1,820	1,118	61.4%	22.5	2.5	C
	Right Turn	895	552	61.6%	4.6	0.7	A
	Subtotal	3,190	1,942	60.9%	23.4	1.7	C
WB	Left Turn	120	95	79.0%	49.0	10.2	D
	Through	1,455	1,141	78.4%	28.6	22.7	C
	Right Turn	35	29	82.3%	24.5	20.6	C
	Subtotal	1,610	1,265	78.6%	30.0	21.5	C
Total		5,120	3,512	68.6%	26.4	8.8	C

Intersection 4 **N 3rd Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	50	46	91.2%	24.9	8.8	C
	Through	55	54	97.5%	31.7	5.9	C
	Right Turn	15	14	90.7%	17.6	11.2	B
	Subtotal	120	113	94.0%	27.6	5.4	C
SB	Left Turn	15	13	85.3%	25.7	18.2	C
	Through	40	43	108.0%	31.3	6.3	C
	Right Turn	200	183	91.6%	13.9	4.6	B
	Subtotal	255	239	93.8%	18.1	3.9	B
EB	Left Turn	130	71	54.8%	32.0	11.9	C
	Through	1,385	865	62.4%	19.9	2.9	B
	Right Turn	365	218	59.7%	19.5	4.0	B
	Subtotal	1,880	1,154	61.4%	20.5	2.4	C
WB	Left Turn	35	24	67.4%	33.2	12.1	C
	Through	1,360	1,040	76.5%	25.0	12.6	C
	Right Turn	85	62	72.9%	26.1	16.2	C
	Subtotal	1,480	1,126	76.1%	25.3	12.6	C
Total		3,735	2,632	70.5%	22.6	5.6	C

Intersection 5 **Sequoia Pacific Boulevard/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	285	295	103.4%	28.4	2.7	C
	Through	275	278	101.1%	31.7	3.8	C
	Right Turn	25	28	110.4%	28.7	6.3	C
	Subtotal	585	600	102.6%	29.9	2.9	C
SB	Left Turn	150	80	53.1%	409.2	59.6	F
	Through	540	294	54.5%	410.7	30.5	F
	Right Turn	40	20	50.0%	412.5	62.3	F
	Subtotal	730	394	54.0%	411.1	35.8	F
EB	Left Turn	80	52	65.0%	51.3	6.5	D
	Through	1,330	816	61.3%	10.9	2.3	B
	Right Turn	5	3	64.0%	3.0	3.7	A
	Subtotal	1,415	871	61.5%	13.3	2.2	B
WB	Left Turn	35	26	73.1%	56.0	16.7	E
	Through	1,155	844	73.1%	43.7	8.0	D
	Right Turn	165	122	73.7%	44.7	10.9	D
	Subtotal	1,355	991	73.2%	44.1	8.1	D
Total		4,085	2,856	69.9%	82.4	6.6	F

Intersection 6 **N 5th Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	20	26	128.0%	38.0	15.1	D
	Through	125	128	102.4%	33.7	12.6	C
	Right Turn	225	198	87.8%	20.5	15.7	C
	Subtotal	370	351	94.9%	26.6	13.9	C
SB	Left Turn	70	59	84.0%	31.5	7.1	C
	Through	125	114	91.5%	25.5	4.3	C
	Right Turn	115	117	101.9%	16.3	4.7	B
	Subtotal	310	290	93.7%	23.1	3.9	C
EB	Left Turn	5	3	56.0%	15.7	27.4	B
	Through	1,490	934	62.7%	16.6	11.7	B
	Right Turn	10	6	56.0%	6.6	4.5	A
	Subtotal	1,505	942	62.6%	16.6	11.7	B
WB	Left Turn	240	166	69.2%	46.7	10.0	D
	Through	1,220	896	73.4%	10.5	3.6	B
	Right Turn	5	7	136.0%	7.2	8.7	A
	Subtotal	1,465	1,069	73.0%	16.1	4.1	B
Total		3,650	2,652	72.7%	18.3	6.3	B

Intersection 7 **N 7th Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	240	253	105.3%	52.6	5.5	D
	Through	260	244	93.7%	52.0	14.7	D
	Right Turn	150	140	93.1%	43.1	17.6	D
	Subtotal	650	636	97.8%	50.4	10.9	D
SB	Left Turn	25	23	91.2%	68.4	34.4	E
	Through	210	214	101.7%	44.1	7.3	D
	Right Turn	30	35	117.3%	41.1	10.1	D
	Subtotal	265	272	102.5%	45.5	7.2	D
EB	Left Turn	170	120	70.8%	96.3	15.9	F
	Through	1,000	688	68.8%	85.4	15.3	F
	Right Turn	185	125	67.7%	83.7	23.7	F
	Subtotal	1,355	934	68.9%	86.2	14.7	F
WB	Left Turn	410	214	52.2%	69.4	10.1	E
	Through	1,155	648	56.1%	39.6	7.3	D
	Right Turn	25	14	57.6%	31.9	14.3	C
	Subtotal	1,590	876	55.1%	46.8	5.8	D
Total		3,860	2,718	70.4%	60.7	6.3	E

Intersection 8 **N 10th Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	15	7	48.0%	119.0	125.7	F
	Through	45	20	44.4%	97.5	59.2	F
	Right Turn	370	188	50.9%	154.9	33.6	F
	Subtotal	430	216	50.1%	148.2	33.7	F
SB	Left Turn	150	72	47.7%	192.9	71.8	F
	Through	20	12	58.0%	114.0	96.0	F
	Right Turn	45	35	78.2%	102.3	68.5	F
	Subtotal	215	118	55.1%	155.2	67.7	F
EB	Left Turn	120	78	65.0%	160.0	43.3	F
	Through	1,050	486	46.3%	188.0	39.3	F
	Right Turn	5	4	80.0%	121.6	82.4	F
	Subtotal	1,175	568	48.3%	183.9	39.1	F
WB	Left Turn	135	80	59.6%	45.4	10.7	D
	Through	1,650	972	58.9%	29.4	3.9	C
	Right Turn	190	112	58.7%	28.4	4.9	C
	Subtotal	1,975	1,164	58.9%	30.4	3.7	C
Total		3,795	2,066	54.4%	89.7	11.6	F

Intersection 9 **Dos Rios Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	35	23	65.1%	88.1	32.5	F
	Through	25	16	62.4%	247.3	132.0	F
	Right Turn	440	245	55.7%	262.0	124.2	F
	Subtotal	500	284	56.7%	247.5	111.2	F
SB	Left Turn	115	89	77.6%	178.3	68.4	F
	Through	5	5	104.0%	40.6	54.4	D
	Right Turn	75	54	72.5%	54.1	38.3	D
	Subtotal	195	149	76.3%	127.6	54.2	F
EB	Left Turn	80	31	39.0%	205.3	70.8	F
	Through	1,450	530	36.6%	231.4	47.5	F
	Right Turn	40	16	39.0%	206.0	53.8	F
	Subtotal	1,570	577	36.7%	229.2	46.4	F
WB	Left Turn	120	69	57.3%	78.1	14.1	E
	Through	1,865	1,126	60.4%	31.7	10.6	C
	Right Turn	65	34	51.7%	27.2	12.3	C
	Subtotal	2,050	1,228	59.9%	34.1	9.9	C
Total		4,315	2,238	51.9%	110.8	11.2	F

Intersection 10 **N 12th St/Richard Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	385	285	74.1%	29.3	10.1	C
	Through	2,340	1,523	65.1%	22.8	2.8	C
	Right Turn	1,055	603	57.2%	18.4	2.4	B
	Subtotal	3,780	2,411	63.8%	22.5	2.3	C
EB	Left Turn						
	Through	1,550	568	36.6%	88.9	6.9	F
	Right Turn	470	178	37.9%	92.3	10.8	F
	Subtotal	2,020	746	36.9%	89.8	7.4	F
WB	Left Turn	245	196	79.8%	83.4	19.2	F
	Through	920	624	67.8%	38.0	3.9	D
	Right Turn						
	Subtotal	1,165	819	70.3%	48.9	6.6	D
Total		6,965	3,976	57.1%	40.4	2.1	D

Intersection 11 **N 7th Street/Project Driveway-Bannon St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	180	135	75.1%	36.8	7.5	D
	Through	400	319	79.8%	11.6	1.6	B
	Right Turn	20	15	76.0%	9.0	9.7	A
	Subtotal	600	470	78.3%	18.8	3.7	B
SB	Left Turn	35	24	68.6%	44.7	10.7	D
	Through	515	346	67.1%	24.7	5.9	C
	Right Turn	255	177	69.3%	20.0	4.2	C
	Subtotal	805	546	67.9%	24.1	5.4	C
EB	Left Turn	140	139	99.1%	33.5	5.5	C
	Through	20	16	82.0%	29.5	13.8	C
	Right Turn	95	97	102.3%	9.3	3.7	A
	Subtotal	255	252	99.0%	24.1	5.0	C
WB	Left Turn	215	215	99.9%	31.0	5.1	C
	Through	75	82	109.3%	30.8	6.5	C
	Right Turn	110	110	100.0%	16.3	6.8	B
	Subtotal	400	407	101.7%	27.2	4.4	C
Total		2,060	1,675	81.3%	23.5	3.4	C

Intersection 12 **N 7th Street/N B Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	60	49	81.3%	74.5	8.7	E
	Through	315	259	82.2%	40.6	5.6	D
	Right Turn	245	221	90.1%	49.9	13.2	D
	Subtotal	620	528	85.2%	48.2	7.0	D
SB	Left Turn	150	108	71.7%	56.4	10.0	E
	Through	515	414	80.4%	38.5	4.5	D
	Right Turn	160	123	76.8%	41.0	9.2	D
	Subtotal	825	644	78.1%	42.1	5.4	D
EB	Left Turn	105	62	58.7%	364.2	72.1	F
	Through	405	238	58.8%	359.5	65.2	F
	Right Turn	35	25	70.9%	338.2	82.7	F
	Subtotal	545	324	59.5%	358.7	62.3	F
WB	Left Turn	735	459	62.4%	164.2	40.3	F
	Through	535	418	78.1%	83.5	29.2	F
	Right Turn	180	132	73.1%	82.1	32.6	F
	Subtotal	1,450	1,008	69.5%	120.2	32.1	F
Total		3,440	2,506	72.8%	115.9	18.9	F

Intersection 13 **Dos Rios Street/N B Street-N 12th Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
WB	Left Turn	30	40	132.0%	49.3	13.7	D
	Through	550	572	104.0%	24.2	2.2	C
	Right Turn	35	38	108.6%	21.8	3.8	C
	Subtotal	615	650	105.6%	25.5	2.1	C
SB	Left Turn						
	Through						
	Right Turn	85	51	60.2%	7.3	8.5	A
	Subtotal	85	51	60.2%	7.3	8.5	A
EB	Left Turn						
	Through	915	733	80.1%	74.3	24.1	E
	Right Turn	390	318	81.6%	79.8	24.8	E
	Subtotal	1,305	1,052	80.6%	75.9	24.2	E
SW	Left Turn	40	23	57.0%	19.6	7.0	B
	Through	1,940	1,321	68.1%	27.2	3.7	C
	Right Turn	885	576	65.1%	45.4	14.4	D
	Subtotal	2,865	1,920	67.0%	32.8	7.0	C
Total		4,870	3,672	75.4%	43.6	8.3	D

Intersection 14 **N 7th Street/Railyards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	310	260	83.7%	200.0	55.6	F
	Through	470	432	91.8%	89.9	20.9	F
	Right Turn	420	403	96.0%	72.5	20.9	E
	Subtotal	1,200	1,094	91.2%	109.9	23.3	F
SB	Left Turn	25	20	81.6%	50.8	12.6	D
	Through	615	428	69.6%	29.9	4.5	C
	Right Turn	335	223	66.5%	25.3	5.6	C
	Subtotal	975	671	68.8%	29.2	4.1	C
EB	Left Turn	275	212	77.1%	242.1	47.0	F
	Through	445	352	79.2%	204.6	32.4	F
	Right Turn	435	411	94.4%	28.4	11.2	C
	Subtotal	1,155	975	84.4%	138.7	24.0	F
WB	Left Turn	460	310	67.5%	225.1	9.1	F
	Through	390	272	69.6%	166.0	9.3	F
	Right Turn	25	18	73.6%	192.8	30.4	F
	Subtotal	875	600	68.6%	197.7	6.0	F
Total		4,205	3,341	79.5%	117.9	10.3	F

Intersection 15 **North Project Driveway/Richards Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	190	190	100.0%	33.5	4.7	C
	Through						
	Right Turn	30	28	92.0%	30.2	23.9	C
	Subtotal	220	218	98.9%	33.0	6.1	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	1,325	832	62.8%	19.3	16.3	B
	Right Turn	460	290	63.0%	17.6	13.7	B
	Subtotal	1,785	1,122	62.9%	18.8	15.6	B
WB	Left Turn	150	96	63.7%	39.7	5.9	D
	Through	1,275	874	68.5%	5.7	0.8	A
	Right Turn						
	Subtotal	1,425	969	68.0%	9.1	1.5	A
Total		3,430	2,309	67.3%	15.7	7.3	B

Intersection 16 **N 16th St/Richards Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	80	88	109.5%	38.7	12.4	D
	Through	1,545	1,688	109.3%	34.0	2.1	C
	Right Turn	150	153	101.9%	5.4	1.0	A
	Subtotal	1,775	1,928	108.6%	31.9	2.1	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	905	382	42.3%	64.6	8.8	E
	Through	1,030	450	43.7%	24.9	5.9	C
	Right Turn						
	Subtotal	1,935	832	43.0%	43.2	7.7	D
WB	Left Turn						
	Through	1,085	764	70.4%	180.0	59.3	F
	Right Turn	385	294	76.4%	155.2	62.0	F
	Subtotal	1,470	1,058	71.9%	172.9	60.1	F
Total		5,180	3,818	73.7%	72.5	13.9	E

Intersection 17 **N 12th St/Vine St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
WB	Left Turn	80	69	86.0%	183.7	66.5	F
	Through	70	68	96.6%	117.4	52.9	F
	Right Turn						
	Subtotal	150	136	90.9%	152.1	60.0	F
SB	Left Turn	450	290	64.4%	196.4	19.5	F
	Through	3,685	2,221	60.3%	225.2	22.3	F
	Right Turn	810	434	53.6%	266.6	33.7	F
	Subtotal	4,945	2,946	59.6%	228.4	23.3	F
EB	Left Turn						
	Through	390	274	70.4%	103.9	10.4	F
	Right Turn	15	13	88.0%	106.6	29.6	F
	Subtotal	405	288	71.0%	104.0	10.4	F
SW	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		5,500	3,370	61.3%	214.4	19.8	F

Intersection 18 **N 16th St/Vine St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	30	18	60.0%	5.4	5.2	A
	Through						
	Right Turn	2,805	2,388	85.1%	4.9	0.5	A
	Subtotal	2,835	2,406	84.9%	4.9	0.5	A
SB	Left Turn						
	Through						
	Right Turn	1	4	360.0%	27.9	33.6	C
	Subtotal	1	4	360.0%	27.9	33.6	C
EB	Left Turn	350	199	56.8%	103.9	18.3	F
	Through	490	282	57.6%	67.2	4.7	E
	Right Turn						
	Subtotal	840	481	57.2%	82.2	8.4	F
WB	Left Turn						
	Through	120	108	90.0%	76.7	14.7	E
	Right Turn	245	228	93.1%	49.5	11.2	D
	Subtotal	365	336	92.1%	58.4	11.4	E
Total		4,041	3,227	79.9%	22.1	2.3	C

Intersection 1 **I-5 SB Ramps/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	1,010	931	92.2%	81.8	56.3	F
	Through	220	205	93.1%	90.3	57.3	F
	Right Turn	190	178	93.5%	32.8	40.3	C
	Subtotal	1,420	1,314	92.5%	76.7	54.1	E
EB	Left Turn						
	Through	845	595	70.4%	271.7	27.8	F
	Right Turn	145	140	96.3%	36.9	20.7	D
	Subtotal	990	734	74.2%	227.1	23.0	F
WB	Left Turn	785	501	63.8%	9.5	3.0	A
	Through	90	80	88.9%	2.7	1.0	A
	Right Turn						
	Subtotal	875	581	66.4%	8.6	2.6	A
Total		3,285	2,629	80.0%	103.1	29.8	F

Intersection 2 **I-5 NB Ramps/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	60	53	88.7%	28.4	6.1	C
	Through	15	15	101.3%	55.0	37.7	D
	Right Turn	490	460	94.0%	30.2	11.1	C
	Subtotal	565	529	93.6%	30.4	9.8	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	670	446	66.6%	27.4	6.5	C
	Through	1,185	1,122	94.6%	27.1	17.2	C
	Right Turn						
	Subtotal	1,855	1,568	84.5%	26.8	11.4	C
WB	Left Turn						
	Through	815	523	64.1%	10.1	1.3	B
	Right Turn	1,360	795	58.4%	12.0	1.9	B
	Subtotal	2,175	1,318	60.6%	11.3	1.3	B
Total		4,595	3,414	74.3%	21.2	5.9	C

Intersection 3 **Bercut Drive/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	275	248	90.0%	80.3	49.3	F
	Through	45	37	81.8%	84.6	62.3	F
	Right Turn	125	126	100.8%	20.7	6.3	C
	Subtotal	445	410	92.2%	62.6	36.0	E
SB	Left Turn	60	55	91.3%	36.7	5.8	D
	Through	85	84	98.4%	36.6	4.3	D
	Right Turn	100	99	98.8%	12.2	2.4	B
	Subtotal	245	237	96.8%	26.7	3.4	C
EB	Left Turn	55	56	101.1%	31.6	8.8	C
	Through	1,155	1,082	93.6%	27.0	6.5	C
	Right Turn	465	452	97.2%	3.6	0.5	A
	Subtotal	1,675	1,589	94.9%	20.6	4.6	C
WB	Left Turn	120	65	54.3%	35.5	6.3	D
	Through	1,800	946	52.6%	61.1	6.0	E
	Right Turn	20	11	54.0%	78.1	28.5	E
	Subtotal	1,940	1,022	52.7%	59.7	5.8	E
Total		4,305	3,259	75.7%	38.5	4.7	D

Intersection 4 **N 3rd Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	180	193	107.3%	74.8	28.2	E
	Through	25	27	107.2%	16.1	6.2	B
	Right Turn	15	14	90.7%	10.4	5.9	B
	Subtotal	220	234	106.2%	63.5	20.8	E
SB	Left Turn	50	55	110.4%	30.1	5.0	C
	Through	10	11	112.0%	28.6	9.9	C
	Right Turn	225	228	101.3%	24.2	4.5	C
	Subtotal	285	294	103.3%	25.6	3.7	C
EB	Left Turn	220	184	83.6%	68.3	10.7	E
	Through	1,065	921	86.5%	69.2	15.1	E
	Right Turn	55	47	85.1%	71.4	18.6	E
	Subtotal	1,340	1,152	85.9%	69.1	13.9	E
WB	Left Turn	5	2	32.0%	13.4	23.6	B
	Through	1,535	568	37.0%	126.9	14.1	F
	Right Turn	5	3	56.0%	57.2	64.2	E
	Subtotal	1,545	572	37.0%	126.6	13.8	F
Total		3,390	2,252	66.4%	77.1	9.3	E

Intersection 5 **Sequoia Pacific Boulevard/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	230	226	98.1%	34.5	12.1	C
	Through	410	398	97.0%	91.3	47.5	F
	Right Turn	25	26	105.6%	87.0	48.9	F
	Subtotal	665	650	97.7%	71.2	29.7	E
SB	Left Turn	240	117	48.8%	359.9	86.7	F
	Through	375	210	56.0%	333.6	86.6	F
	Right Turn	80	55	68.5%	345.7	80.6	F
	Subtotal	695	382	55.0%	343.5	84.9	F
EB	Left Turn	45	45	99.6%	80.1	18.0	F
	Through	940	721	76.7%	75.6	22.1	E
	Right Turn	145	112	77.0%	77.4	30.6	E
	Subtotal	1,130	878	77.7%	76.0	22.1	E
WB	Left Turn	10	3	28.0%	86.0	83.9	F
	Through	1,235	306	24.8%	235.7	43.4	F
	Right Turn	210	44	21.1%	314.0	71.5	F
	Subtotal	1,455	353	24.3%	245.5	43.6	F
Total		3,945	2,262	57.3%	143.9	21.6	F

Intersection 6 **N 5th Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	10	5	48.0%	276.1	247.2	F
	Through	140	103	73.4%	138.2	62.1	F
	Right Turn	230	176	76.5%	133.4	55.0	F
	Subtotal	380	284	74.6%	136.7	57.5	F
SB	Left Turn	15	10	69.3%	233.8	115.8	F
	Through	150	114	75.7%	197.3	101.4	F
	Right Turn	125	71	57.0%	259.7	111.3	F
	Subtotal	290	195	67.3%	222.3	94.5	F
EB	Left Turn	105	74	70.1%	108.0	15.1	F
	Through	1,080	720	66.6%	127.4	21.7	F
	Right Turn	20	12	58.0%	143.8	67.8	F
	Subtotal	1,205	805	66.8%	126.1	20.7	F
WB	Left Turn	280	50	17.7%	206.6	34.2	F
	Through	1,320	282	21.4%	293.1	67.5	F
	Right Turn	35	6	18.3%	290.6	174.8	F
	Subtotal	1,635	338	20.7%	282.6	60.6	F
Total		3,510	1,622	46.2%	166.3	22.4	F

Intersection 7 **N 7th Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	230	223	97.0%	57.0	7.0	E
	Through	215	184	85.4%	77.7	20.3	E
	Right Turn	280	268	95.6%	68.1	22.6	E
	Subtotal	725	674	93.0%	67.2	14.4	E
SB	Left Turn	80	61	76.0%	144.3	37.8	F
	Through	405	327	80.8%	121.6	34.8	F
	Right Turn	50	48	96.8%	36.9	15.8	D
	Subtotal	535	436	81.6%	115.2	31.9	F
EB	Left Turn	5	4	80.0%	60.1	52.9	E
	Through	710	550	77.5%	93.9	12.8	F
	Right Turn	370	265	71.7%	107.5	13.7	F
	Subtotal	1,085	820	75.5%	98.4	11.6	F
WB	Left Turn	495	169	34.1%	183.9	46.7	F
	Through	1,120	639	57.0%	64.8	24.4	E
	Right Turn	15	7	48.0%	43.5	25.2	D
	Subtotal	1,630	815	50.0%	88.8	28.0	F
Total		3,975	2,745	69.1%	90.2	10.8	F

Intersection 8 **N 10th Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	10	10	96.0%	33.3	19.4	C
	Through	40	36	91.0%	29.3	10.0	C
	Right Turn	155	146	94.5%	55.0	36.5	E
	Subtotal	205	192	93.9%	48.4	28.6	D
SB	Left Turn	365	167	45.7%	225.0	65.4	F
	Through	75	41	54.4%	204.3	72.8	F
	Right Turn	150	82	54.7%	195.0	69.9	F
	Subtotal	590	290	49.1%	212.9	66.5	F
EB	Left Turn	40	29	72.0%	101.6	53.0	F
	Through	1,085	666	61.4%	124.7	34.7	F
	Right Turn	80	56	70.0%	93.0	42.8	F
	Subtotal	1,205	751	62.3%	121.5	34.8	F
WB	Left Turn	310	173	55.9%	52.5	11.2	D
	Through	1,450	836	57.6%	23.4	13.5	C
	Right Turn	115	69	60.2%	13.8	6.7	B
	Subtotal	1,875	1,078	57.5%	27.5	12.3	C
Total		3,875	2,311	59.6%	80.4	17.8	F

Intersection 9 **Dos Rios Street/Richards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	45	45	100.4%	53.9	19.7	D
	Through	5	3	64.0%	92.5	94.3	F
	Right Turn	400	244	61.0%	187.3	37.4	F
	Subtotal	450	292	65.0%	167.2	35.8	F
SB	Left Turn	45	37	81.8%	69.3	24.4	E
	Through	5	6	128.0%	25.3	24.1	C
	Right Turn	60	67	111.3%	13.4	5.7	B
	Subtotal	110	110	100.0%	33.5	9.8	C
EB	Left Turn	35	19	53.7%	158.8	41.0	F
	Through	1,540	744	48.3%	168.1	25.9	F
	Right Turn	30	16	54.7%	198.1	53.4	F
	Subtotal	1,605	779	48.5%	168.9	25.0	F
WB	Left Turn	50	30	59.2%	72.5	34.7	E
	Through	1,770	1,052	59.4%	17.4	11.2	B
	Right Turn	40	21	53.0%	15.6	11.2	B
	Subtotal	1,860	1,102	59.3%	18.7	11.0	B
Total		4,025	2,284	56.7%	88.3	10.7	F

Intersection 10 **N 12th St/Richard Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	420	247	58.9%	50.4	9.7	D
	Through	1,715	1,041	60.7%	46.0	9.6	D
	Right Turn	1,030	490	47.5%	37.0	4.2	D
	Subtotal	3,165	1,778	56.2%	44.1	7.3	D
EB	Left Turn						
	Through	1,655	793	47.9%	56.0	10.8	E
	Right Turn	520	250	48.1%	58.2	11.8	E
	Subtotal	2,175	1,043	48.0%	56.5	10.6	E
WB	Left Turn	125	86	68.8%	136.5	36.5	F
	Through	890	695	78.1%	35.8	6.6	D
	Right Turn						
	Subtotal	1,015	781	77.0%	47.3	10.1	D
Total		6,355	3,602	56.7%	48.0	2.7	D

Intersection 11 **N 7th Street/Project Driveway-Bannon St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	al Delay (sec/veh) Average	Std. Dev.	LOS
NB	Left Turn	100	56	56.4%	30.5	4.7	C
	Through	335	180	53.6%	15.6	3.2	B
	Right Turn	110	68	61.8%	10.2	2.5	B
	Subtotal	545	304	55.8%	17.2	3.0	B
SB	Left Turn	100	57	56.8%	46.7	5.2	D
	Through	1,115	588	52.7%	35.6	8.3	D
	Right Turn	55	27	49.5%	32.7	15.2	C
	Subtotal	1,270	672	52.9%	36.5	7.8	D
EB	Left Turn	325	312	96.0%	36.8	16.5	D
	Through	150	152	101.3%	22.5	5.2	C
	Right Turn	165	163	98.9%	18.6	10.1	B
	Subtotal	640	627	98.0%	28.6	11.8	C
WB	Left Turn	15	20	136.0%	33.8	12.7	C
	Through	50	58	116.0%	25.3	7.1	C
	Right Turn	65	64	98.5%	11.3	3.8	B
	Subtotal	130	142	109.5%	20.1	4.6	C
Total		2,585	1,746	67.5%	29.0	5.7	C

Intersection 12 **N 7th Street/N B Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Std. Dev.	LOS
NB	Left Turn	85	36	42.4%	198.7	33.1	F
	Through	220	88	40.2%	174.8	28.9	F
	Right Turn	940	392	41.7%	238.2	23.8	F
	Subtotal	1,245	517	41.5%	224.5	23.9	F
SB	Left Turn	250	150	60.2%	95.6	18.2	F
	Through	875	504	57.6%	50.1	4.1	D
	Right Turn	170	101	59.5%	61.4	16.0	E
	Subtotal	1,295	756	58.4%	60.9	7.5	E
EB	Left Turn	145	82	56.6%	353.9	60.8	F
	Through	410	280	68.4%	319.0	25.2	F
	Right Turn	60	40	67.3%	316.5	35.8	F
	Subtotal	615	403	65.5%	326.1	25.4	F
WB	Left Turn	400	243	60.8%	226.2	73.6	F
	Through	475	334	70.2%	145.3	37.8	F
	Right Turn	180	132	73.6%	140.0	43.0	F
	Subtotal	1,055	709	67.2%	172.1	34.7	F
Total		4,210	2,385	56.6%	174.2	9.7	F

Intersection 13 **Dos Rios Street/N B Street-N 12th Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
WB	Left Turn	10	9	88.0%	42.2	21.0	D
	Through	465	469	100.9%	21.9	3.1	C
	Right Turn	5	5	104.0%	20.2	18.1	C
	Subtotal	480	483	100.7%	22.5	2.8	C
SB	Left Turn						
	Through						
	Right Turn	35	18	52.6%	1.8	0.9	A
	Subtotal	35	18	52.6%	1.8	0.9	A
EB	Left Turn						
	Through	1,470	736	50.0%	34.8	3.9	C
	Right Turn	575	291	50.6%	34.5	5.2	C
	Subtotal	2,045	1,027	50.2%	34.7	4.2	C
SW	Left Turn	65	38	58.5%	18.9	8.2	B
	Through	1,420	937	66.0%	22.2	2.6	C
	Right Turn	835	528	63.3%	36.1	17.5	D
	Subtotal	2,320	1,504	64.8%	27.3	8.3	C
Total		4,880	3,032	62.1%	29.0	4.4	C

Intersection 14 **N 7th Street/Railyards Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	270	120	44.3%	380.3	55.7	F
	Through	780	299	38.4%	442.1	47.2	F
	Right Turn	255	84	32.8%	462.6	51.0	F
	Subtotal	1,305	502	38.5%	431.5	47.7	F
SB	Left Turn	40	24	61.0%	73.4	20.5	E
	Through	665	393	59.1%	40.5	4.7	D
	Right Turn	255	139	54.6%	33.0	6.0	C
	Subtotal	960	557	58.0%	40.2	4.7	D
EB	Left Turn	365	122	33.4%	467.8	29.9	F
	Through	505	203	40.2%	424.9	20.6	F
	Right Turn	550	349	63.4%	217.6	40.3	F
	Subtotal	1,420	674	47.4%	325.0	30.1	F
WB	Left Turn	380	315	82.9%	207.1	44.1	F
	Through	365	314	86.0%	206.4	35.6	F
	Right Turn	25	18	72.0%	236.1	83.1	F
	Subtotal	770	647	84.1%	207.8	40.3	F
Total		4,455	2,380	53.4%	247.8	19.0	F

Intersection 15 **North Project Driveway/Richards Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	420	39	9.3%	609.5	165.2	F
	Through						
	Right Turn	20	7	36.0%	57.3	92.3	E
	Subtotal	440	46	10.5%	433.3	206.1	F
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	1,065	706	66.3%	84.8	13.0	F
	Right Turn	260	188	72.3%	102.4	14.6	F
	Subtotal	1,325	894	67.5%	88.6	12.1	F
WB	Left Turn	185	52	28.1%	60.7	20.6	E
	Through	1,215	344	28.3%	208.6	67.7	F
	Right Turn						
	Subtotal	1,400	396	28.3%	189.3	59.1	F
Total		3,165	1,337	42.2%	125.9	11.5	F

Intersection 16 **N 16th St/Richards Blvd** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	75	59	78.9%	31.1	10.6	C
	Through	3,790	2,645	69.8%	44.9	1.9	D
	Right Turn	275	230	83.5%	12.4	3.5	B
	Subtotal	4,140	2,934	70.9%	42.1	1.6	D
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	985	527	53.5%	55.4	5.2	E
	Through	1,090	506	46.5%	24.9	3.9	C
	Right Turn						
	Subtotal	2,075	1,033	49.8%	40.5	4.1	D
WB	Left Turn						
	Through	940	647	68.8%	206.4	33.5	F
	Right Turn	445	326	73.3%	196.4	32.0	F
	Subtotal	1,385	973	70.2%	203.2	31.9	F
Total		7,600	4,940	65.0%	73.3	5.2	E

Intersection 17 **N 12th St/Vine St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
WB	Left Turn	35	18	50.3%	136.7	63.2	F
	Through	45	34	74.7%	56.7	5.4	E
	Right Turn						
	Subtotal	80	51	64.0%	85.2	29.1	F
SB	Left Turn	200	137	68.4%	143.1	22.0	F
	Through	3,125	1,871	59.9%	199.2	27.1	F
	Right Turn	470	211	44.9%	260.1	28.1	F
	Subtotal	3,795	2,219	58.5%	201.7	26.3	F
EB	Left Turn						
	Through	655	302	46.0%	113.4	12.0	F
	Right Turn	5	2	40.0%	60.4	66.2	E
	Subtotal	660	304	46.0%	113.5	12.0	F
SW	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		4,535	2,574	56.7%	188.5	21.7	F

Intersection 18 **N 16th St/Vine St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	10	8	76.0%	12.2	13.2	B
	Through						
	Right Turn	5,210	3,430	65.8%	20.8	1.5	C
	Subtotal	5,220	3,438	65.9%	20.8	1.5	C
SB	Left Turn						
	Through						
	Right Turn	1	5	520.0%	40.6	50.2	D
	Subtotal	1	5	520.0%	40.6	50.2	D
EB	Left Turn	620	273	44.0%	143.3	18.5	F
	Through	235	120	51.1%	41.9	8.7	D
	Right Turn						
	Subtotal	855	393	45.9%	112.2	14.6	F
WB	Left Turn						
	Through	70	51	72.6%	213.7	52.6	F
	Right Turn	570	405	71.1%	219.1	28.1	F
	Subtotal	640	456	71.3%	218.4	29.7	F
Total		6,716	4,292	63.9%	50.1	3.6	D

Intersection 1 **I-5 SB Ramps/Richards Boulevard** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through	1,350	125	15	175	23	175	26	0%	0%
	Right Turn	150	25	3	25	13	25	18	0%	0%
SB	Left Turn	325	150	25	225	47	225	46	0%	0%
	Left/Through	1,050	200	20	275	32	250	34	0%	0%
	Right Turn	325	100	12	150	27	150	31	0%	0%
WB	Left Turn	1,300	75	22	125	40	125	44	0%	0%
	Through	300	50	8	75	17	75	20	0%	0%

Intersection 2 **I-5 NB Ramps/Richards Boulevard** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	300	150	20	225	41	200	41	0%	0%
	Through	325	100	26	175	52	175	42	0%	0%
NB	Left/Through	325	50	10	75	17	75	18	0%	0%
	Right Turn	1,150	175	22	275	47	275	53	0%	0%
WB	Through	200	100	15	150	35	150	39	0%	0%

Intersection 1 **I-5 SB Ramps/Richards Boulevard** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through	2,800	575	416	875	452	900	451	57%	0%
	Right Turn	150	25	4	25	19	25	27	0%	0%
SB	Left Turn	325	150	31	275	38	250	36	0%	0%
	Left/Through	1,050	225	24	325	36	325	41	1%	0%
	Right Turn	325	75	12	125	21	125	21	0%	0%
WB	Left Turn	1,300	125	16	200	34	200	36	0%	0%
	Through	300	50	10	100	18	100	20	0%	0%

Intersection 2 **I-5 NB Ramps/Richards Boulevard** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	300	250	50	325	34	300	9	0%	5%
	Through	325	25	8	50	30	50	38	0%	0%
NB	Left/Through	325	50	13	100	26	100	25	0%	0%
	Right Turn	1,150	75	9	100	16	125	16	0%	0%
WB	Through	200	100	23	175	45	175	43	0%	1%
	Right Turn	200	25	3	25	15	25	21	0%	0%

Intersection 1 **I-5 SB Ramps/Richards Boulevard** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through	1,350	100	20	150	31	150	35	0%	0%
SB	Left Turn	325	275	75	400	101	375	102	8%	0%
	Left/Through	1,050	375	129	600	291	625	333	15%	1%
	Right Turn	325	175	77	350	180	325	140	0%	0%
WB	Left Turn	1,300	100	16	150	29	150	30	0%	0%
	Through	300	50	11	100	19	100	26	0%	0%

Intersection 2 **I-5 NB Ramps/Richards Boulevard** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	300	125	18	200	28	200	32	0%	0%
	Through	325	225	37	325	108	300	121	5%	5%
NB	Left/Through	325	200	85	525	121	475	0	0%	0%
	Right Turn	4,525	1,900	720	2,775	801	2,725	819	78%	0%
WB	Through	200	125	18	200	31	200	30	0%	1%

Intersection 1 **I-5 SB Ramps/Richards Boulevard** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through	2,800	1,000	502	1,375	678	1,350	633	78%	0%
	Right Turn	150	25	13	75	48	75	62	0%	0%
SB	Left Turn	325	225	44	325	50	325	42	0%	0%
	Left/Through	1,050	275	36	375	65	400	67	5%	0%
	Right Turn	325	75	30	150	112	175	154	0%	0%
WB	Left Turn	1,300	125	30	200	58	200	64	0%	0%
	Through	300	50	11	75	23	75	23	0%	0%

Intersection 2 **I-5 NB Ramps/Richards Boulevard** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	300	250	32	375	17	325	4	0%	6%
	Through	325	50	26	125	60	175	94	1%	1%
NB	Left/Through	325	50	9	75	17	75	23	0%	0%
	Right Turn	1,475	125	28	175	61	200	108	1%	0%
WB	Through	200	100	20	175	41	175	36	0%	1%
	Right Turn	200	25	21	75	70	75	83	0%	0%

Intersection 1 **I-5 SB Ramps/Richards Boulevard** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through	1,350	75	10	100	18	100	21	0%	0%
	Through/Right	1,350	25	10	50	37	75	43	0%	0%
SB	Left Turn	7,125	4,075	758	5,950	1,031	6,100	866	95%	3%
	Left/Through	7,125	3,950	657	5,625	866	5,600	832	96%	2%
	Right Turn	325	450	41	475	64	475	0	0%	0%
WB	Left Turn	1,300	150	44	250	72	225	63	0%	2%
	Through	300	50	12	75	22	75	22	0%	0%

Intersection 2 **I-5 NB Ramps/Richards Boulevard** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	300	50	12	100	17	100	18	0%	0%
	Through	300	325	20	400	41	350	12	0%	43%
NB	Left Turn	325	150	108	375	232	375	196	0%	0%
	Through/Right	2,925	450	170	575	203	600	188	54%	0%
	Right Turn	2,925	425	196	575	237	575	243	49%	0%
WB	Through	200	75	17	125	26	125	36	0%	0%
	Through/Right	200	100	16	150	26	175	29	0%	0%
	Right Turn	200	75	20	150	37	150	45	0%	0%

Intersection 1 **I-5 SB Ramps/Richards Boulevard** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through	3,825	2,125	422	2,900	559	2,950	539	79%	0%
	Through/Right	3,825	1,350	583	2,675	681	2,700	595	0%	0%
SB	Left Turn	4,425	350	131	525	250	575	292	24%	0%
	Left/Through	4,425	375	137	550	237	600	264	32%	0%
	Right Turn	325	175	108	350	243	325	189	0%	0%
WB	Left Turn	1,300	75	33	125	52	150	51	0%	0%
	Through	300	25	5	25	15	25	16	0%	0%

Intersection 2 **I-5 NB Ramps/Richards Boulevard** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	300	175	39	325	46	300	11	0%	3%
	Through	300	225	68	350	71	325	32	0%	9%
NB	Left Turn	325	50	25	125	89	125	126	0%	0%
	Through/Right	1,125	175	71	300	161	300	159	8%	0%
	Right Turn	1,125	150	66	250	153	275	154	6%	0%
WB	Through	200	75	23	125	29	125	26	0%	0%
	Right Turn	200	175	12	225	12	200	8	0%	5%

Intersection 1 **I-5 SB Ramps/Richards Boulevard** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through	1,350	75	16	125	22	125	25	0%	0%
	Through/Right	1,350	25	10	50	32	75	38	0%	0%
SB	Left Turn	7,125	5,300	553	7,400	641	7,100	149	95%	17%
	Left/Through	7,125	4,950	501	6,700	700	6,775	609	95%	8%
	Right Turn	325	425	48	575	94	475	0	0%	0%
WB	Left Turn	1,300	175	60	250	92	250	67	0%	3%
	Through	300	25	8	50	11	50	14	0%	0%

Intersection 2 **I-5 NB Ramps/Richards Boulevard** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	300	75	19	125	31	125	33	0%	0%
	Through	300	325	11	375	37	350	14	0%	39%
NB	Left Turn	325	225	82	575	99	475	0	0%	0%
	Through/Right	2,925	1,500	487	2,050	657	2,025	640	88%	0%
	Right Turn	2,925	1,500	477	2,025	631	2,000	602	92%	0%
WB	Through	200	100	27	175	45	175	30	0%	4%
	Through/Right	200	125	25	200	40	175	32	0%	5%
	Right Turn	200	75	19	150	41	175	46	0%	0%

Intersection 1 **I-5 SB Ramps/Richards Boulevard** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through	3,825	2,525	306	3,400	425	3,400	316	77%	0%
	Through/Right	3,825	1,950	580	3,500	445	3,250	311	0%	0%
SB	Left Turn	4,425	450	299	675	517	675	514	35%	0%
	Left/Through	4,425	475	298	675	507	725	549	40%	0%
	Right Turn	325	200	172	325	254	325	192	0%	0%
WB	Left Turn	1,300	75	26	175	54	175	47	0%	0%
	Through	300	25	6	25	20	50	22	0%	0%

Intersection 2 **I-5 NB Ramps/Richards Boulevard** **Signal**

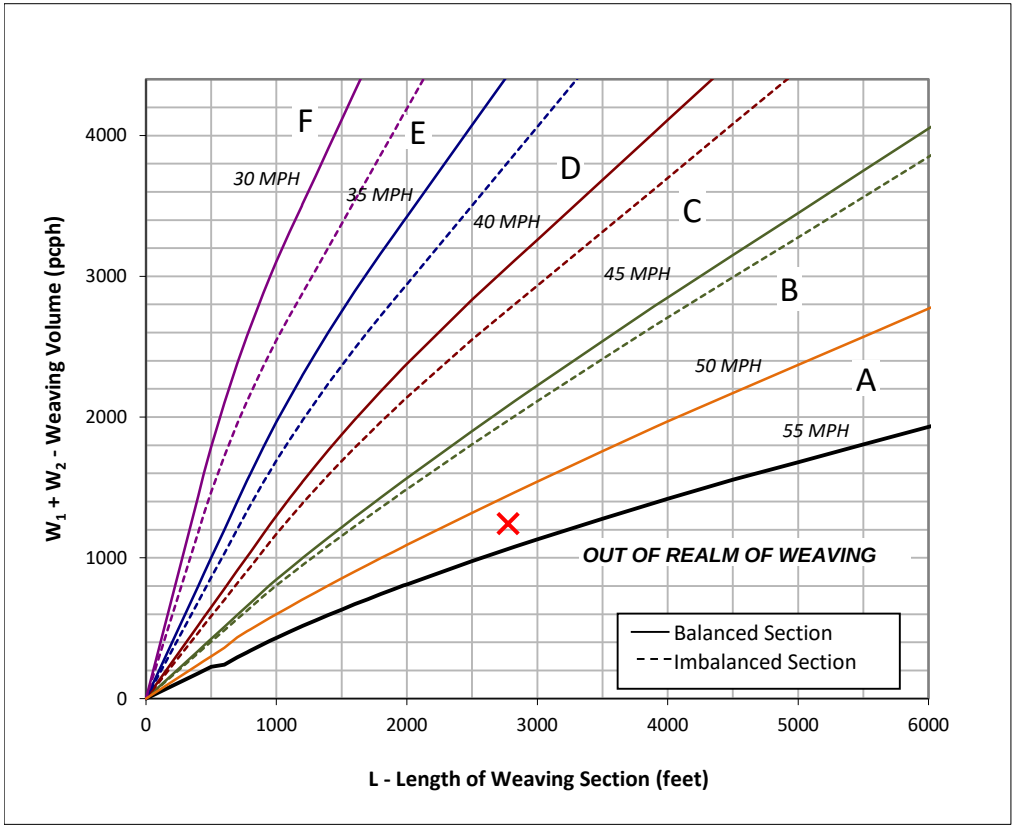
Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	300	200	35	325	38	300	15	0%	2%
	Through	300	200	93	325	146	300	115	0%	10%
NB	Left Turn	325	50	7	75	14	75	21	0%	0%
	Through/Right	1,125	150	22	225	37	250	56	1%	0%
	Right Turn	1,125	100	36	175	65	200	81	0%	0%
WB	Through	200	75	18	125	26	150	26	0%	0%
	Right Turn	200	175	16	225	11	200	11	0%	5%

Leisch Method for Weaving Analysis

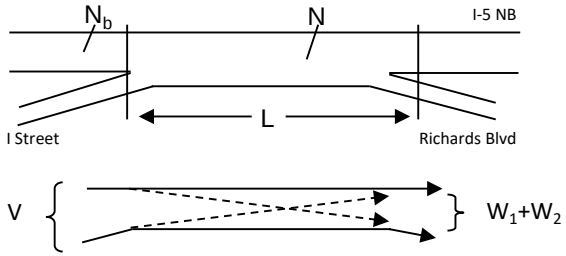
Data Input		
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,775

Project Information	
Project	Richards State Office Complex EIR
Scenario	Existing AM Peak Hour
Freeway	I-5 NB
On-ramp	I Street
Off-ramp	Richards Blvd

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	7,521	Volume (vph)*	386	Volume (vph)*	834
Truck Percentage	10%	Truck Percentage	4%	Truck Percentage	4%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	7,882	Volume (pcph)	394	Volume (pcph)	851



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)?	N
If optional exit lane, then "Y". Otherwise "N".	
2. In the chart to the left, which two speed curves is the red "x" between?	**50 MPH** and **55 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	52.6
4. Weaving Intensity Factor (k)	1.00
5. Service Volume (SV, pcph)	
SV = (1/N)*[V + (k - 1)*min(W_1, W_2)]	1,576
6. Level of Service (LOS)	D

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

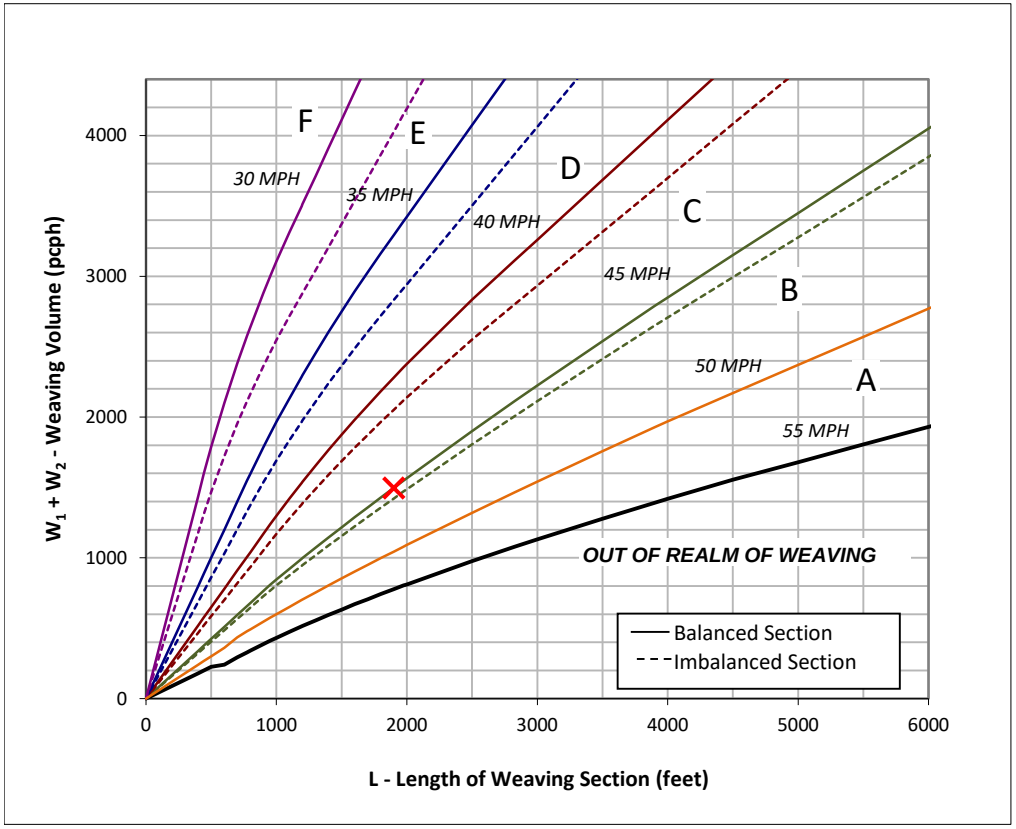
Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections* , Jack E. Leisch & Associates, September 1983 and *Highway Design Manual* , California Department of Transportation, 2014

Leisch Method for Weaving Analysis

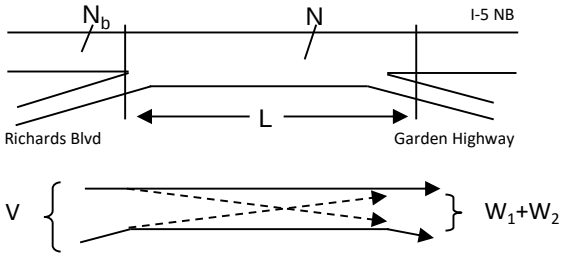
Data Input		
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	1,900

Project Information	
Project	Richards State Office Complex EIR
Scenario	Existing AM Peak Hour
Freeway	I-5 NB
On-ramp	Richards Blvd
Off-ramp	Garden Highway

	Total Weaving Section (V)	On-ramp to Mainline (W_1)	Mainline to Off-ramp (W_2)
Volume (vph)*	7,273	559	909
Truck Percentage	10%	4%	4%
PCE for Trucks	1.5	1.5	1.5
Volume (pcph)	7,622	570	927



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)?	N
If optional exit lane, then "Y". Otherwise "N".	
2. In the chart to the left, which two speed curves is the red "x" between?	**40 MPH** and **45 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	44.4
4. Weaving Intensity Factor (k)	2.05
5. Service Volume (SV, pcph)	
SV = (1/N)*[V + (k - 1)*min(W_1, W_2)]	1,644
6. Level of Service (LOS)	D

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

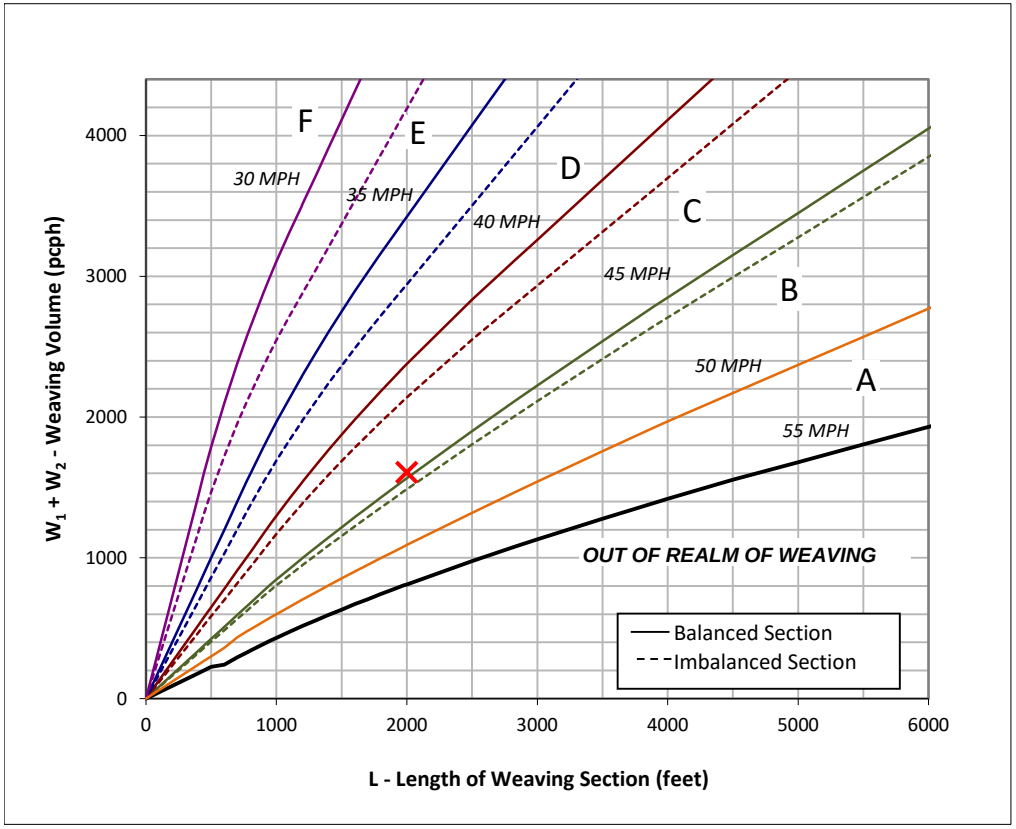
Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections* , Jack E. Leisch & Associates, September 1983 and *Highway Design Manual* , California Department of Transportation, 2014

Leisch Method for Weaving Analysis

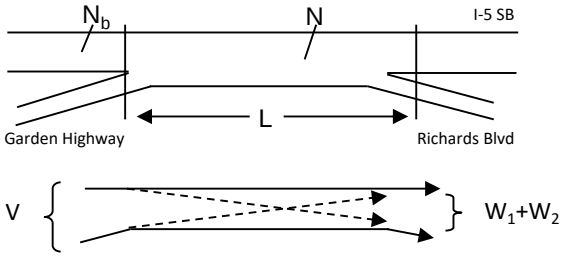
Data Input		
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,000

Project Information	
Project	Richards State Office Complex EIR
Scenario	Existing AM Peak Hour
Freeway	I-5 SB
On-ramp	Garden Highway
Off-ramp	Richards Blvd

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	7,972	Volume (vph)*	632	Volume (vph)*	944
Truck Percentage	10%	Truck Percentage	4%	Truck Percentage	4%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	8,355	Volume (pcph)	645	Volume (pcph)	963



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)?	N
If optional exit lane, then "Y". Otherwise "N".	
2. In the chart to the left, which two speed curves is the red "x" between?	**40 MPH** and **45 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	44.1
4. Weaving Intensity Factor (k)	2.09
5. Service Volume (SV, pcph)	
SV = (1/N)*[V + (k - 1)*min(W_1, W_2)]	1,811
6. Level of Service (LOS)	E

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

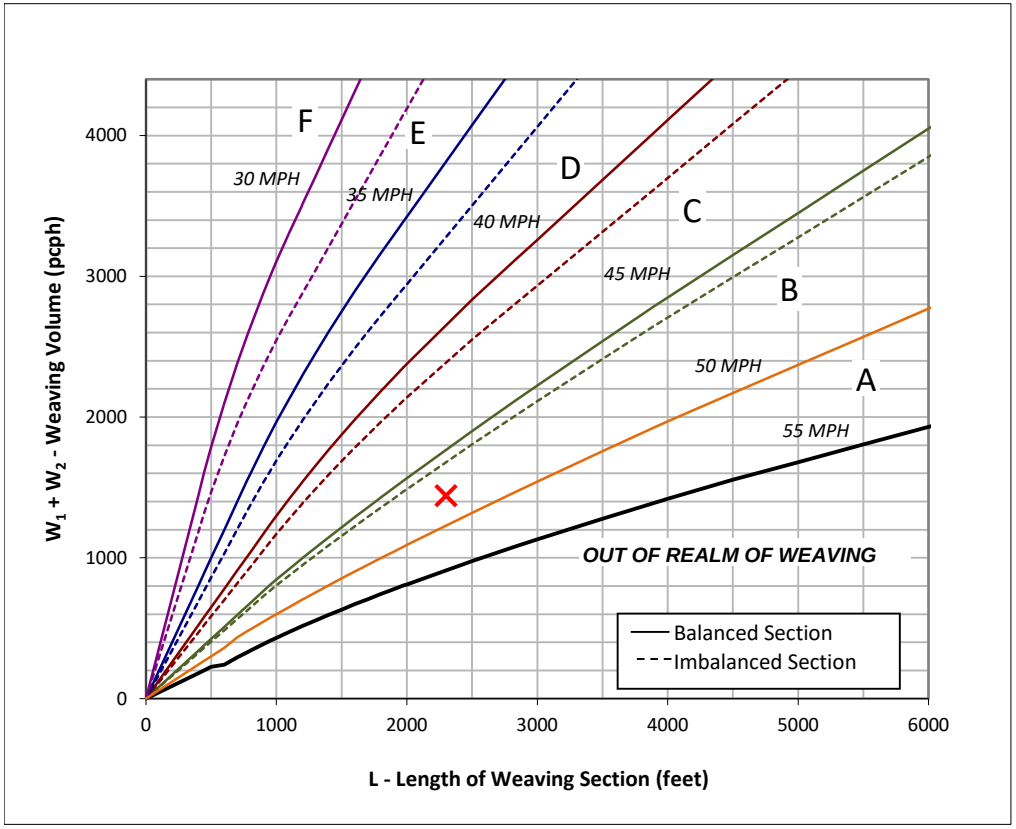
Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections* , Jack E. Leisch & Associates, September 1983 and *Highway Design Manual* , California Department of Transportation, 2014

Leisch Method for Weaving Analysis

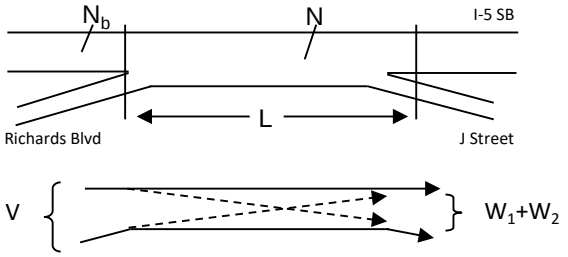
Data Input		
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,300

Project Information	
Project	Richards State Office Complex EIR
Scenario	Existing AM Peak Hour
Freeway	I-5 SB
On-ramp	Richards Blvd
Off-ramp	J Street

	Total Weaving Section (V)	On-ramp to Mainline (W_1)	Mainline to Off-ramp (W_2)
Volume (vph)*	7,328	373	1,042
Truck Percentage	10%	4%	4%
PCE for Trucks	1.5	1.5	1.5
Volume (pcph)	7,680	380	1,063



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)?	Y
If optional exit lane, then "Y". Otherwise "N".	
2. In the chart to the left, which two speed curves is the red "x" between?	**45 MPH** and **50 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	48.0
4. Weaving Intensity Factor (k)	1.24
5. Service Volume (SV, pcph)	
SV = (1/N)*[V + (k - 1)*min(W_1, W_2)]	1,554
6. Level of Service (LOS)	D

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

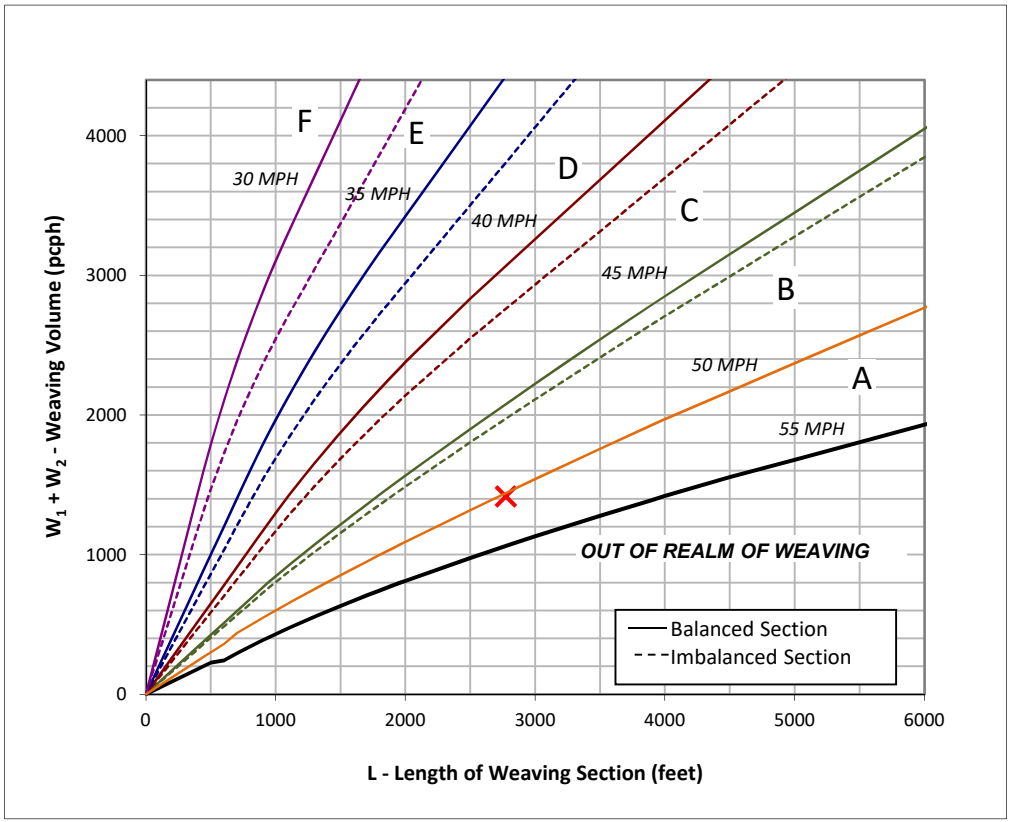
Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections* , Jack E. Leisch & Associates, September 1983 and *Highway Design Manual* , California Department of Transportation, 2014

Leisch Method for Weaving Analysis

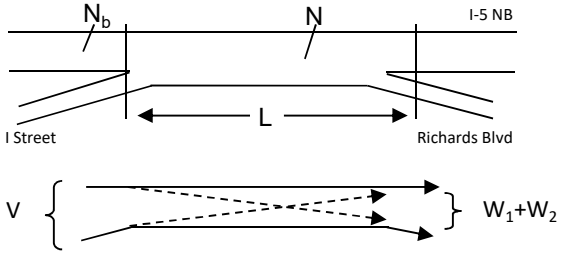
Data Input		
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,775

Project Information	
Project	Richards Blvd State Office Complex
Scenario	Existing PM Peak Hour
Freeway	I-5 NB
On-ramp	I Street
Off-ramp	Richards Blvd

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	8,342	Volume (vph)*	1,050	Volume (vph)*	338
Truck Percentage	10%	Truck Percentage	4%	Truck Percentage	4%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	8,742	Volume (pcph)	1,071	Volume (pcph)	345



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)?	N
If optional exit lane, then "Y". Otherwise "N".	
2. In the chart to the left, which two speed curves is the red "x" between?	**50 MPH** and **55 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	50.4
4. Weaving Intensity Factor (k)	0.99
5. Service Volume (SV, pcph) $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$	1,748
6. Level of Service (LOS)	E

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

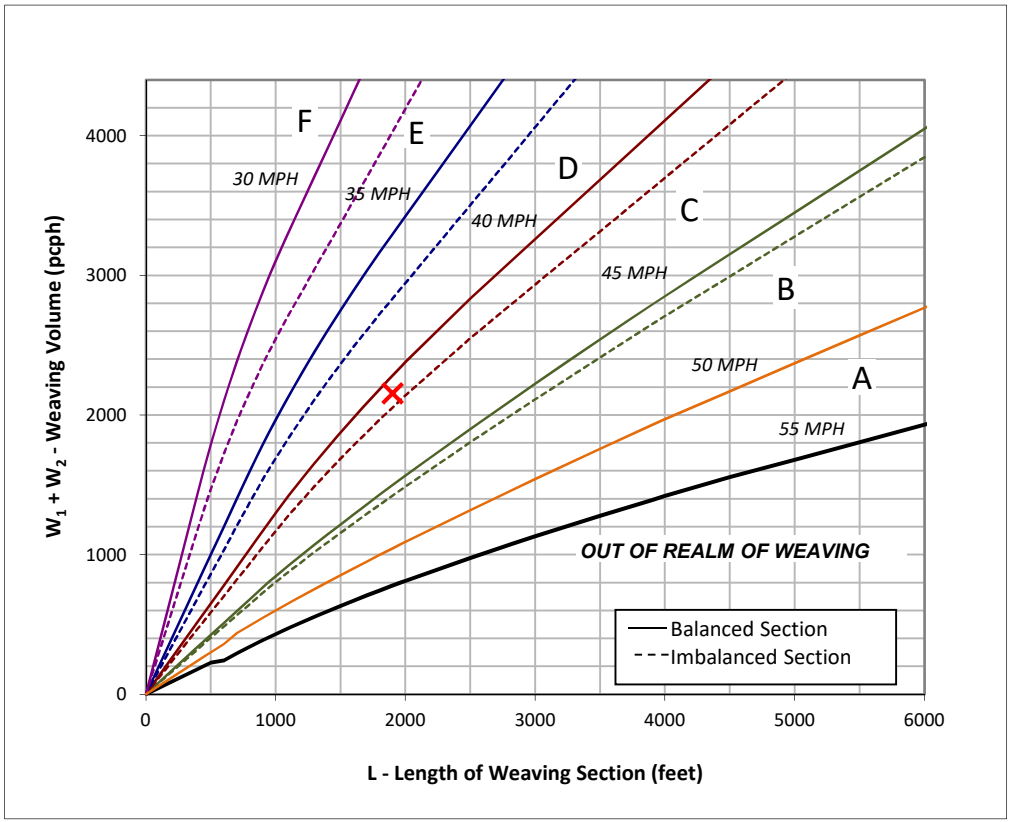
Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections* , Jack E. Leisch & Associates, September 1983 and *Highway Design Manual* , California Department of Transportation, 2014

Leisch Method for Weaving Analysis

Data Input		
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	1,900

Project Information	
Project	Richards Blvd State Office Complex
Scenario	Existing PM Peak Hour
Freeway	I-5 NB
On-ramp	Richards Blvd
Off-ramp	Garden Highway

	Total Weaving Section (V)	On-ramp to Mainline (W_1)	Mainline to Off-ramp (W_2)
Volume (vph)*	9,439	1,364	749
Truck Percentage	10%	4%	4%
PCE for Trucks	1.5	1.5	1.5
Volume (pcph)	9,892	1,391	764

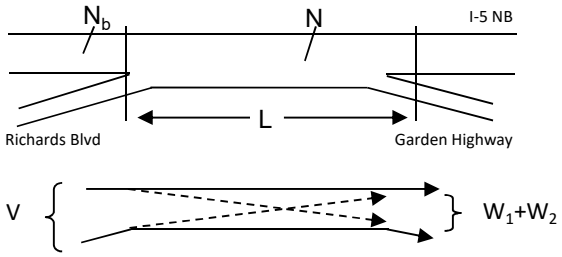


The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections* , Jack E. Leisch & Associates, September 1983 and *Highway Design Manual* , California Department of Transportation, 2014

Figure



Capacity Analysis

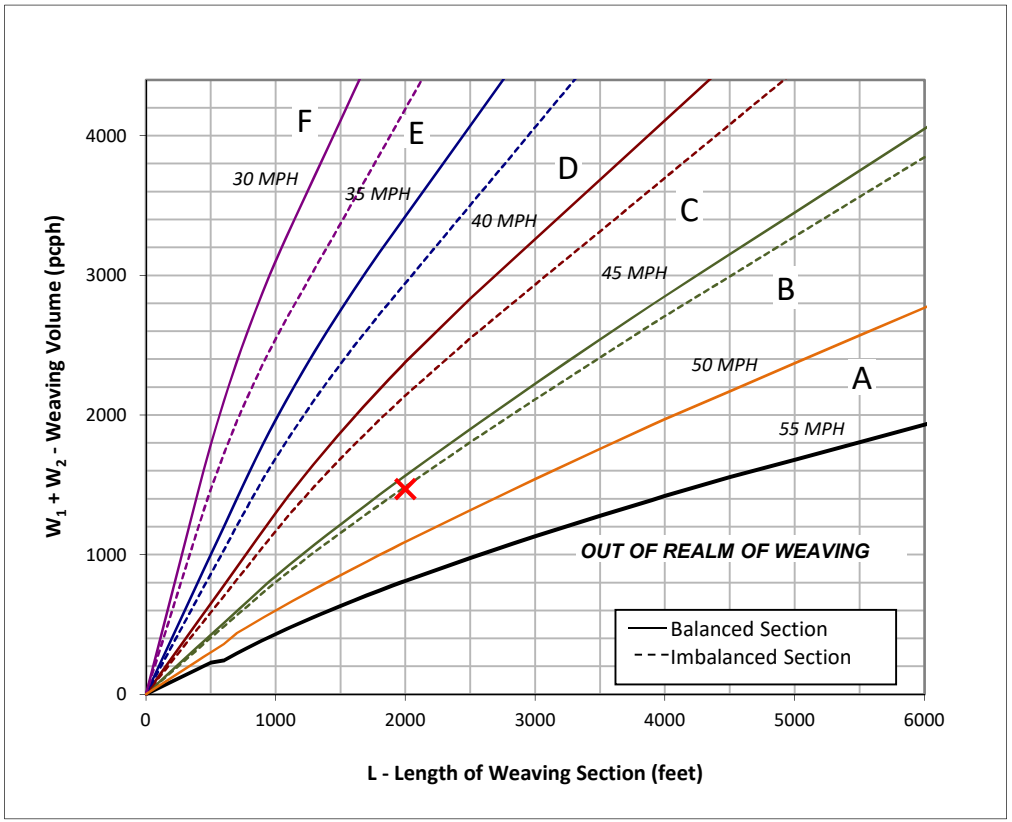
1. Is the weaving section balanced (Y / N)? *If optional exit lane, then "Y". Otherwise "N".*	N
2. In the chart to the left, which two speed curves is the red "x" between?	**40 MPH** and **45 MPH**
If left of the 30 MPH curve, LOS is F. Select "-". *If below the 55 MPH curve, out of the realm of weaving.*	
3. Interpolated Weaving Speed (S_w, mph)	39.2
4. Weaving Intensity Factor (k)	2.57
5. Service Volume (SV, pcph) $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$	2,219
6. Level of Service (LOS)	F

Leisch Method for Weaving Analysis

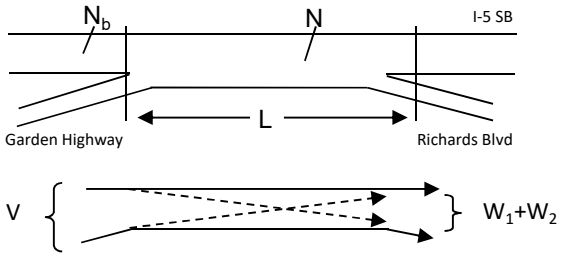
Data Input		
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,000

Project Information	
Project	Richards Blvd State Office Complex
Scenario	Existing PM Peak Hour
Freeway	I-5 SB
On-ramp	Garden Highway
Off-ramp	Richards Blvd

	Total Weaving Section (V)	On-ramp to Mainline (W_1)	Mainline to Off-ramp (W_2)
Volume (vph)*	7,213	748	693
Truck Percentage	10%	4%	4%
PCE for Trucks	1.5	1.5	1.5
Volume (pcph)	7,559	763	707



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)?	N
If optional exit lane, then "Y". Otherwise "N".	
2. In the chart to the left, which two speed curves is the red "x" between?	**45 MPH** and **50 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	45.2
4. Weaving Intensity Factor (k)	1.78
5. Service Volume (SV, pcph) SV = (1/N)*[V + (k - 1)*min(W_1, W_2)]	1,623
6. Level of Service (LOS)	D

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

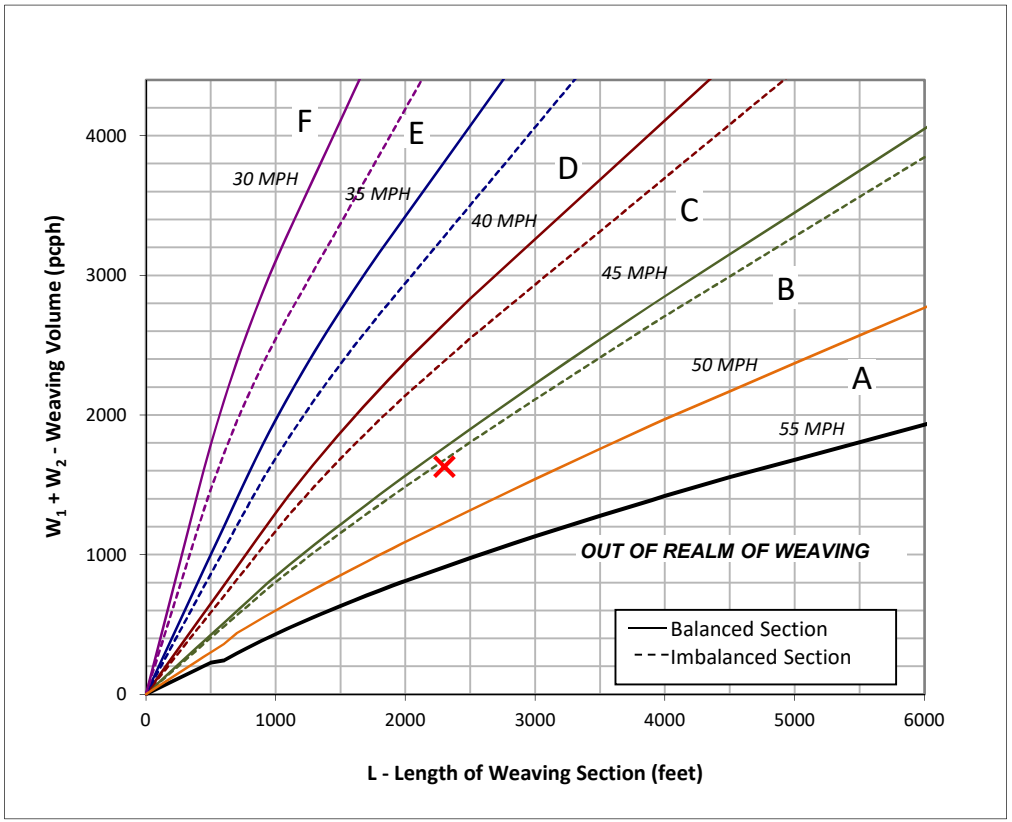
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Leisch Method for Weaving Analysis

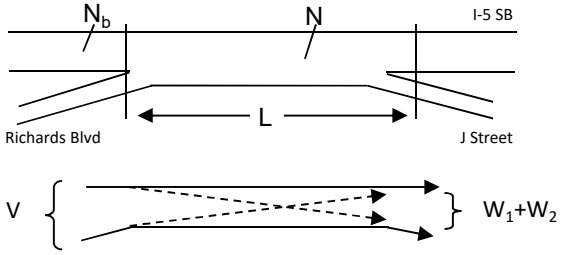
Data Input		
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,300

Project Information	
Project	Richards Blvd State Office Complex
Scenario	Existing PM Peak Hour
Freeway	I-5 SB
On-ramp	Richards Blvd
Off-ramp	J Street

	Total Weaving Section (V)	On-ramp to Mainline (W_1)	Mainline to Off-ramp (W_2)
Volume (vph)*	7,230	855	743
Truck Percentage	10%	4%	4%
PCE for Trucks	1.5	1.5	1.5
Volume (pcph)	7,577	872	758



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? **Y**

   If optional exit lane, then "Y". Otherwise "N".

2. In the chart to the left, which two speed curves is the red "x" between?

   45 MPH and **50 MPH**

   If left of the 30 MPH curve, LOS is F. Select "-".

   If below the 55 MPH curve, out of the realm of weaving.

3. Interpolated Weaving Speed (S_w, mph) **46.3**
4. Weaving Intensity Factor (k) **1.55**
5. Service Volume (SV, pcph)

   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **1,598**
6. Level of Service (LOS) **D**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

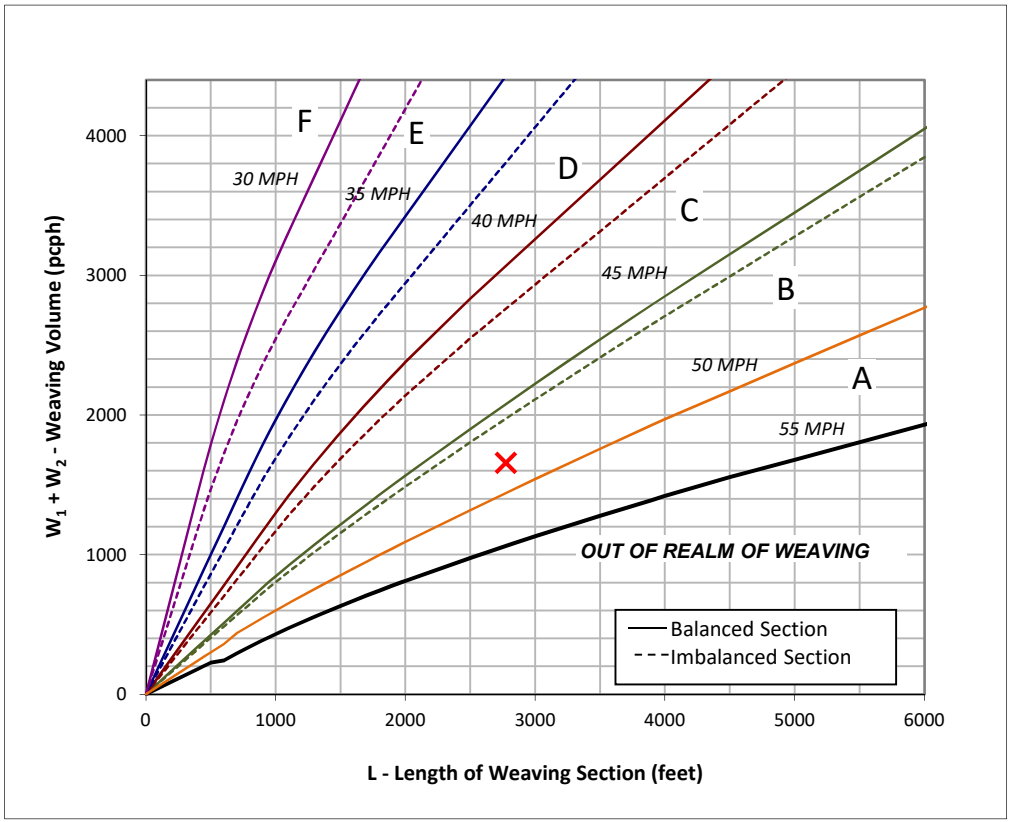
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Leisch Method for Weaving Analysis

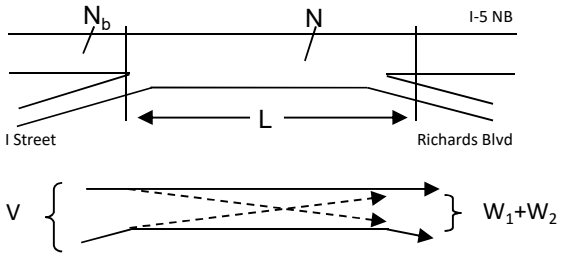
Data Input		
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,775

Project Information	
Project	Richards State Office Complex EIR
Scenario	Existing Plus Project AM Peak Hour
Freeway	I-5 NB
On-ramp	I Street
Off-ramp	Richards Blvd

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	7,621	Volume (vph)*	386	Volume (vph)*	1,240
Truck Percentage	10%	Truck Percentage	4%	Truck Percentage	4%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	7,987	Volume (pcph)	394	Volume (pcph)	1,265



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? *If optional exit lane, then "Y". Otherwise "N".*	N
2. In the chart to the left, which two speed curves is the red "x" between?	**45 MPH** and **50 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	48.0
4. Weaving Intensity Factor (k)	1.65
5. Service Volume (SV, pcph) $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$	1,649
6. Level of Service (LOS)	D

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

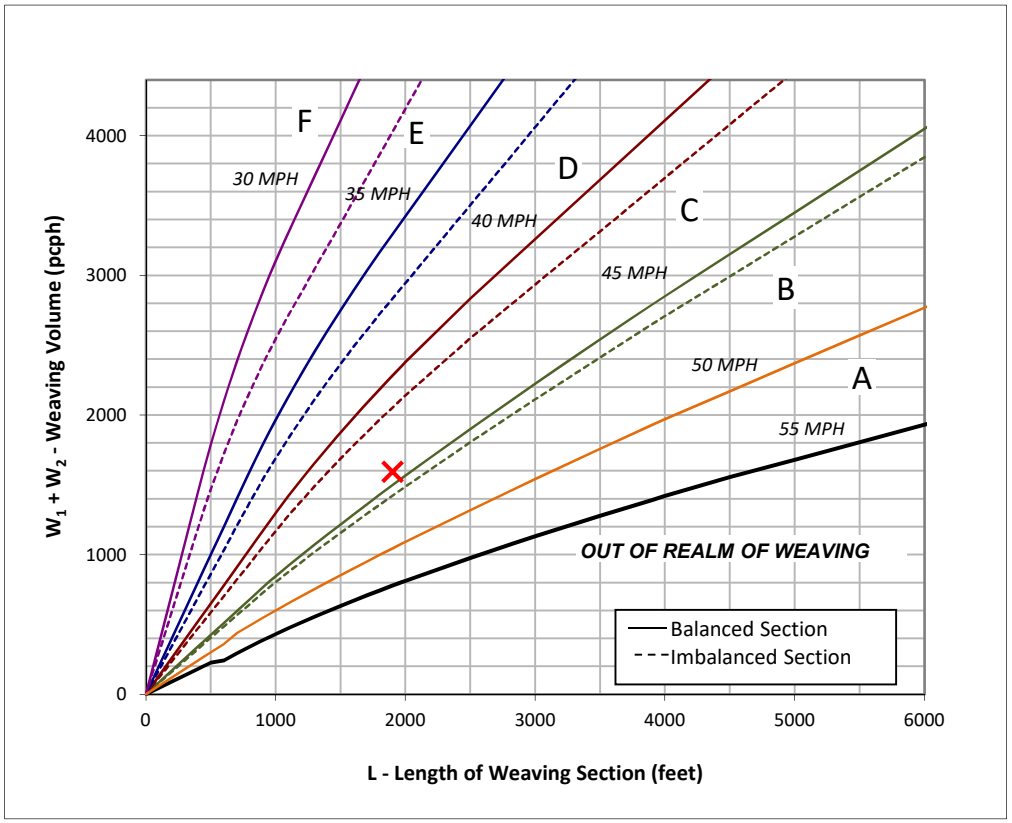
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Leisch Method for Weaving Analysis

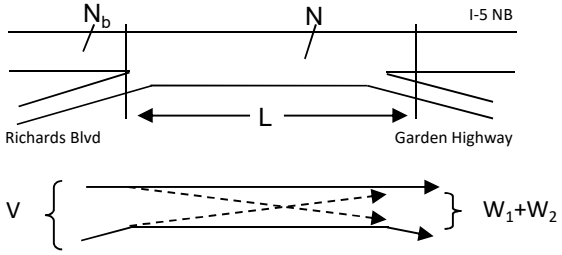
Data Input		
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	1,900

Project Information	
Project	Richards State Office Complex EIR
Scenario	Existing Plus Project AM Peak Hour
Freeway	I-5 NB
On-ramp	Richards Blvd
Off-ramp	Garden Highway

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	7,060	Volume (vph)*	649	Volume (vph)*	914
Truck Percentage	10%	Truck Percentage	4%	Truck Percentage	4%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	7,399	Volume (pcph)	662	Volume (pcph)	932



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)?	N
If optional exit lane, then "Y". Otherwise "N".	
2. In the chart to the left, which two speed curves is the red "x" between?	**40 MPH** and **45 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	43.6
4. Weaving Intensity Factor (k)	2.15
5. Service Volume (SV, pcph) SV = (1/N)*[V + (k - 1)*min(W_1, W_2)]	1,632
6. Level of Service (LOS)	D

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

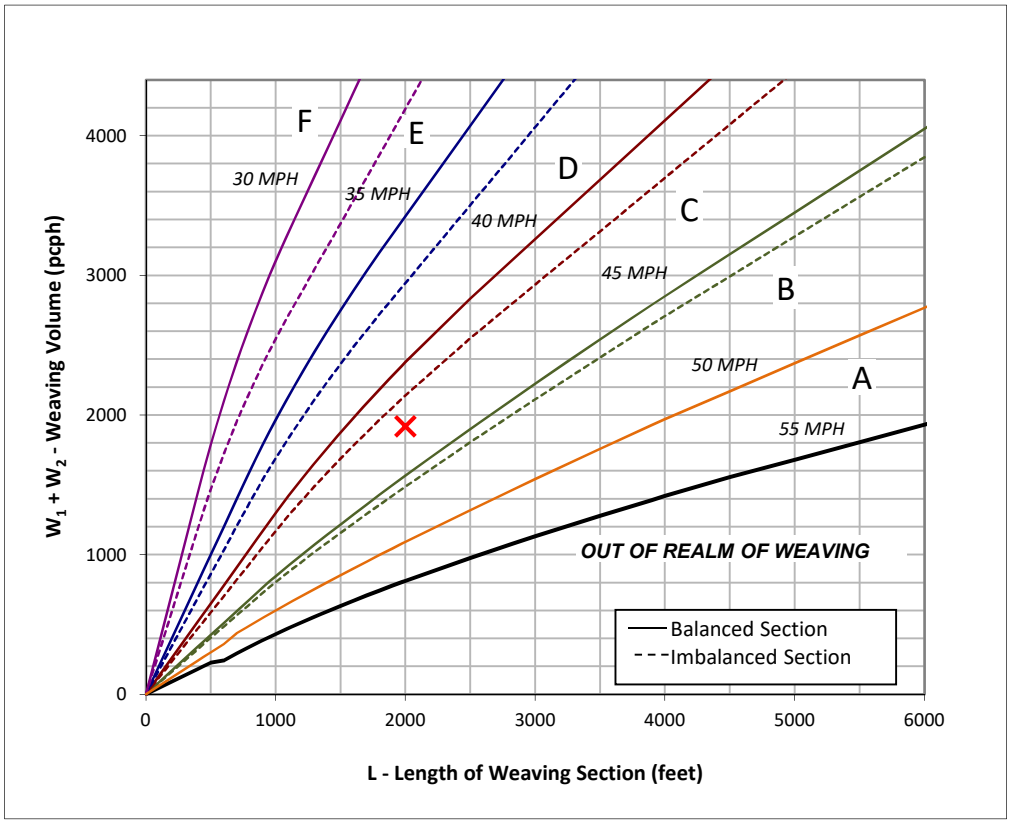
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Leisch Method for Weaving Analysis

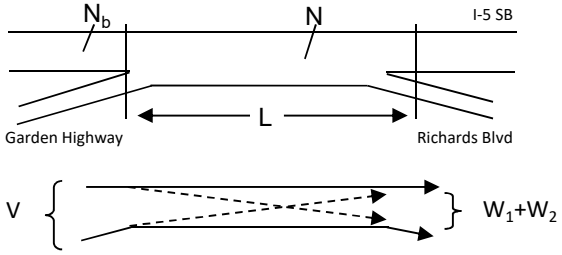
Data Input		
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,000

Project Information	
Project	Richards State Office Complex EIR
Scenario	Existing Plus Project AM Peak Hour
Freeway	I-5 SB
On-ramp	Garden Highway
Off-ramp	Richards Blvd

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	8,045	Volume (vph)*	647	Volume (vph)*	1,233
Truck Percentage	10%	Truck Percentage	4%	Truck Percentage	4%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	8,431	Volume (pcph)	660	Volume (pcph)	1,258



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)?	N
If optional exit lane, then "Y". Otherwise "N".	
2. In the chart to the left, which two speed curves is the red "x" between?	**40 MPH** and **45 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	41.7
4. Weaving Intensity Factor (k)	2.37
5. Service Volume (SV, pcph) $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$	1,867
6. Level of Service (LOS)	E

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

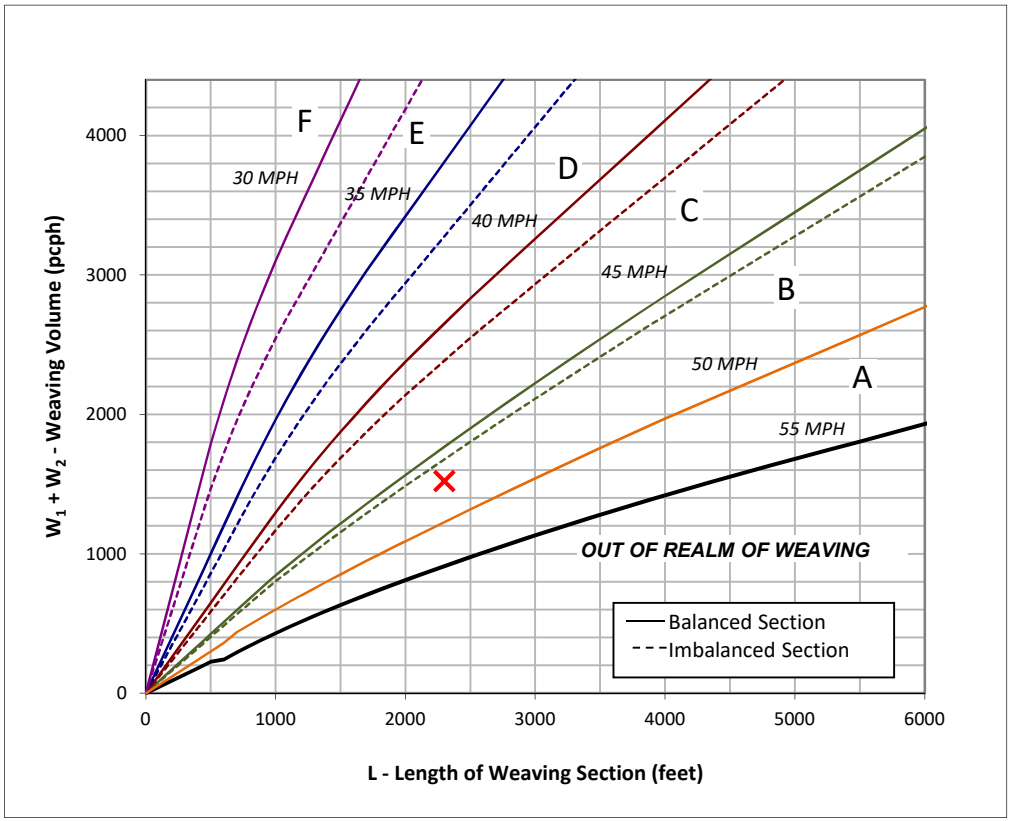
Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections* , Jack E. Leisch & Associates, September 1983 and *Highway Design Manual* , California Department of Transportation, 2014

Leisch Method for Weaving Analysis

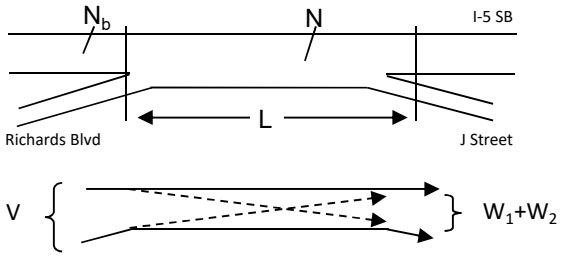
Data Input		
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,300

Project Information	
Project	Richards State Office Complex EIR
Scenario	Existing Plus Project AM Peak Hour
Freeway	I-5 SB
On-ramp	Richards Blvd
Off-ramp	J Street

	Total Weaving Section (V)	On-ramp to Mainline (W_1)	Mainline to Off-ramp (W_2)
Volume (vph)*	7,173	449	1,042
Truck Percentage	10%	4%	4%
PCE for Trucks	1.5	1.5	1.5
Volume (pcph)	7,517	458	1,063



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? *If optional exit lane, then "Y". Otherwise "N".*	Y
2. In the chart to the left, which two speed curves is the red "x" between?	**45 MPH** and **50 MPH**
If left of the 30 MPH curve, LOS is F. Select "-". *If below the 55 MPH curve, out of the realm of weaving.*	
3. Interpolated Weaving Speed (S_w, mph)	47.3
4. Weaving Intensity Factor (k)	1.36
5. Service Volume (SV, pcph) $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$	1,536
6. Level of Service (LOS)	D

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

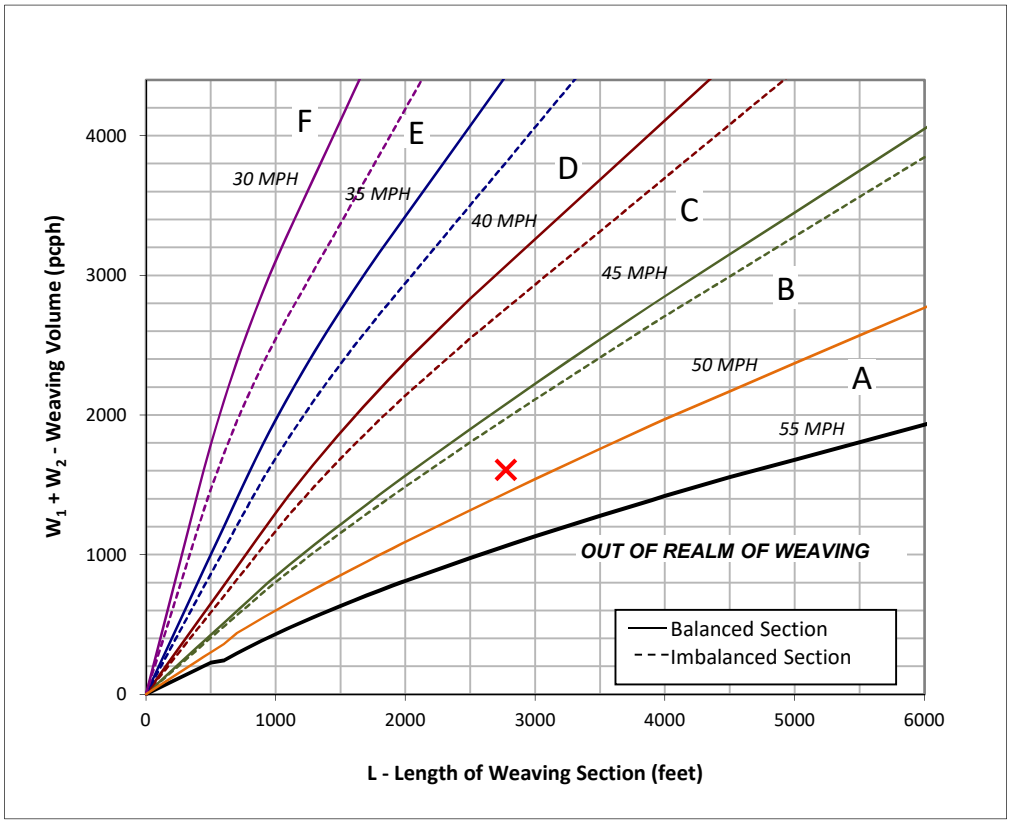
Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections* , Jack E. Leisch & Associates, September 1983 and *Highway Design Manual* , California Department of Transportation, 2014

Leisch Method for Weaving Analysis

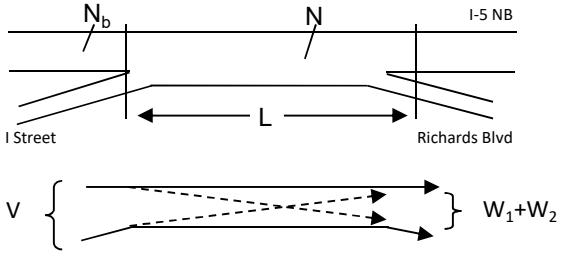
Data Input		
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,775

Project Information	
Project	Richards Blvd State Office Complex
Scenario	Existing Plus Project PM Peak Hour
Freeway	I-5 NB
On-ramp	I Street
Off-ramp	Richards Blvd

	Total Weaving Section (V)	On-ramp to Mainline (W_1)	Mainline to Off-ramp (W_2)
Volume (vph)*	8,138	1,050	525
Truck Percentage	10%	4%	4%
PCE for Trucks	1.5	1.5	1.5
Volume (pcph)	8,529	1,071	536



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? *If optional exit lane, then "Y". Otherwise "N".*	N
2. In the chart to the left, which two speed curves is the red "x" between?	**45 MPH** and **50 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	48.5
4. Weaving Intensity Factor (k)	1.16
5. Service Volume (SV, pcph) $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$	1,723
6. Level of Service (LOS)	E

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

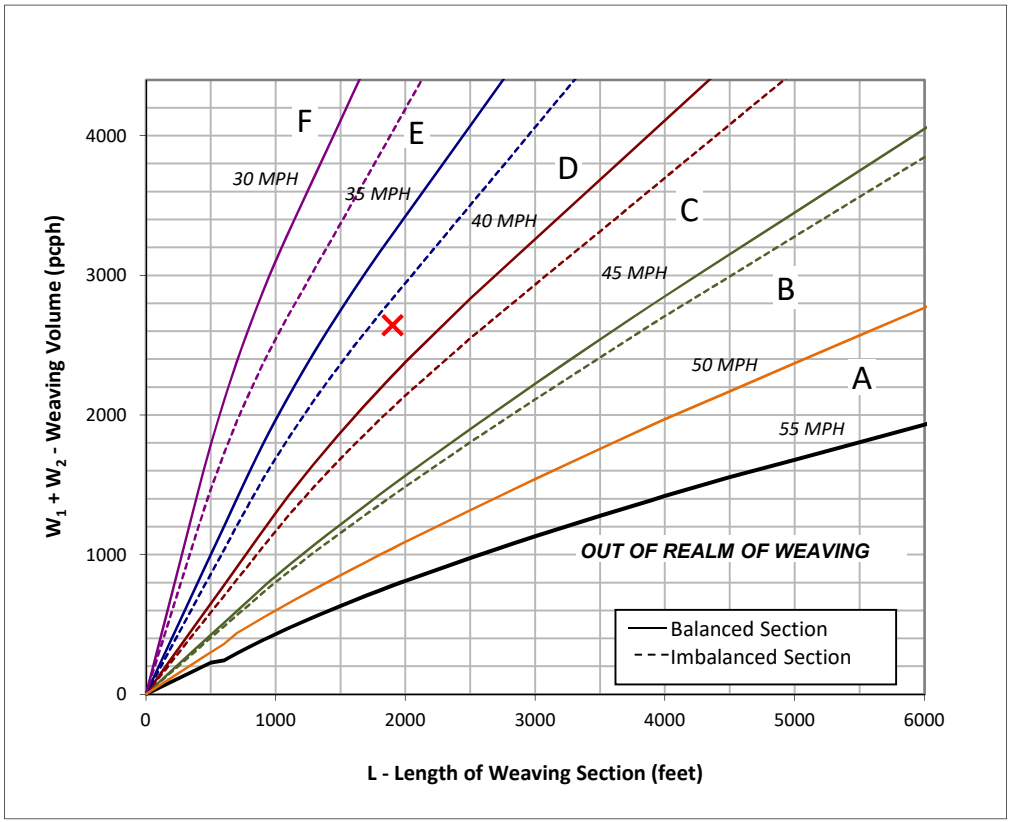
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Leisch Method for Weaving Analysis

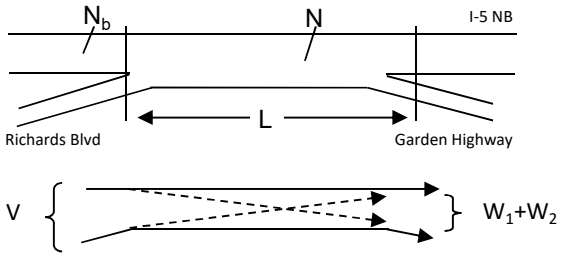
Data Input		
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	1,900

Project Information	
Project	Richards Blvd State Office Complex
Scenario	Existing Plus Project PM Peak Hour
Freeway	I-5 NB
On-ramp	Richards Blvd
Off-ramp	Garden Highway

	Total Weaving Section (V)	On-ramp to Mainline (W_1)	Mainline to Off-ramp (W_2)
Volume (vph)*	9,527	1,819	773
Truck Percentage	10%	4%	4%
PCE for Trucks	1.5	1.5	1.5
Volume (pcph)	9,984	1,855	788



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)?	N
If optional exit lane, then "Y". Otherwise "N".	
2. In the chart to the left, which two speed curves is the red "x" between?	**35 MPH** and **40 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	36.2
4. Weaving Intensity Factor (k)	2.74
5. Service Volume (SV, pcph) SV = (1/N)*[V + (k - 1)*min(W_1, W_2)]	2,271
6. Level of Service (LOS)	F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

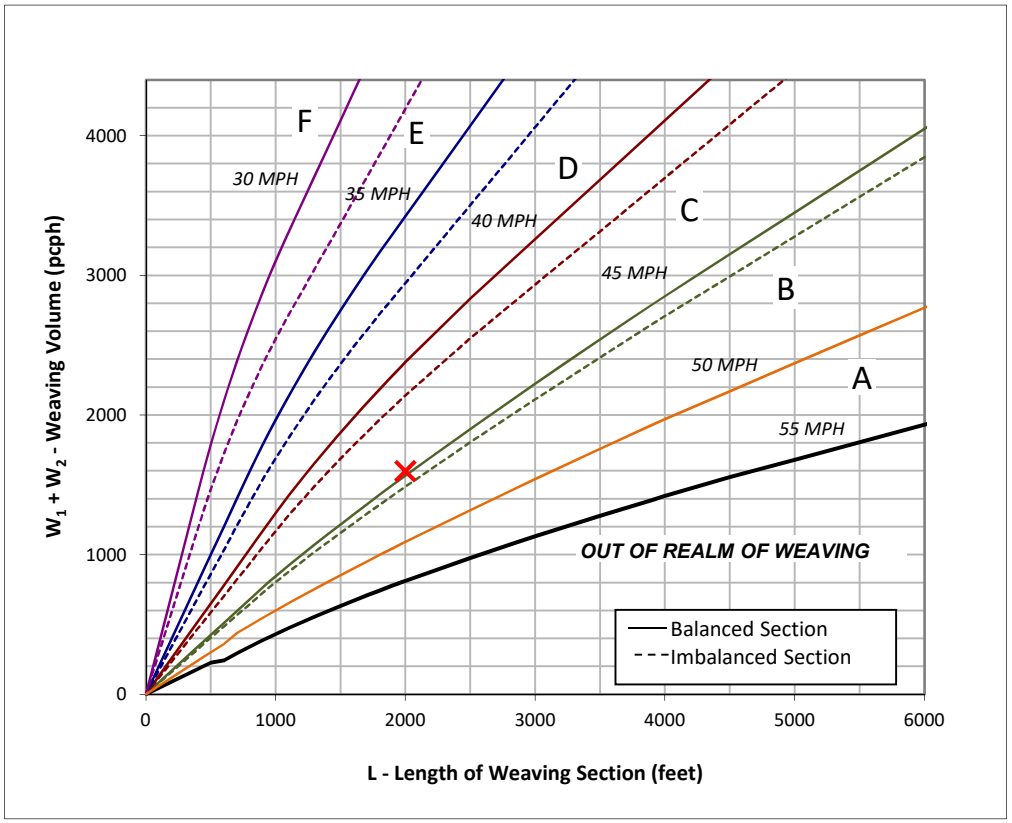
Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections* , Jack E. Leisch & Associates, September 1983 and *Highway Design Manual* , California Department of Transportation, 2014

Leisch Method for Weaving Analysis

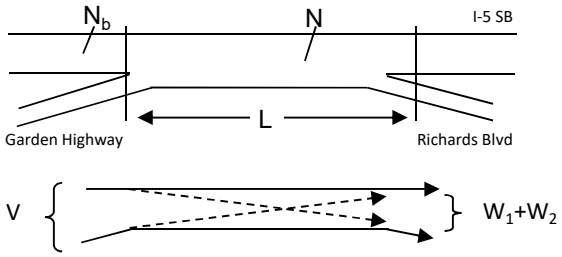
Data Input		
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,000

Project Information	
Project	Richards Blvd State Office Complex
Scenario	Existing Plus Project PM Peak Hour
Freeway	I-5 SB
On-ramp	Garden Highway
Off-ramp	Richards Blvd

	Total Weaving Section (V)	On-ramp to Mainline (W_1)	Mainline to Off-ramp (W_2)
Volume (vph)*	7,046	754	812
Truck Percentage	10%	4%	4%
PCE for Trucks	1.5	1.5	1.5
Volume (pcph)	7,384	769	828



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)?	N
If optional exit lane, then "Y". Otherwise "N".	
2. In the chart to the left, which two speed curves is the red "x" between?	**40 MPH** and **45 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	44.2
4. Weaving Intensity Factor (k)	2.08
5. Service Volume (SV, pcph) SV = (1/N)*[V + (k - 1)*min(W_1, W_2)]	1,642
6. Level of Service (LOS)	D

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

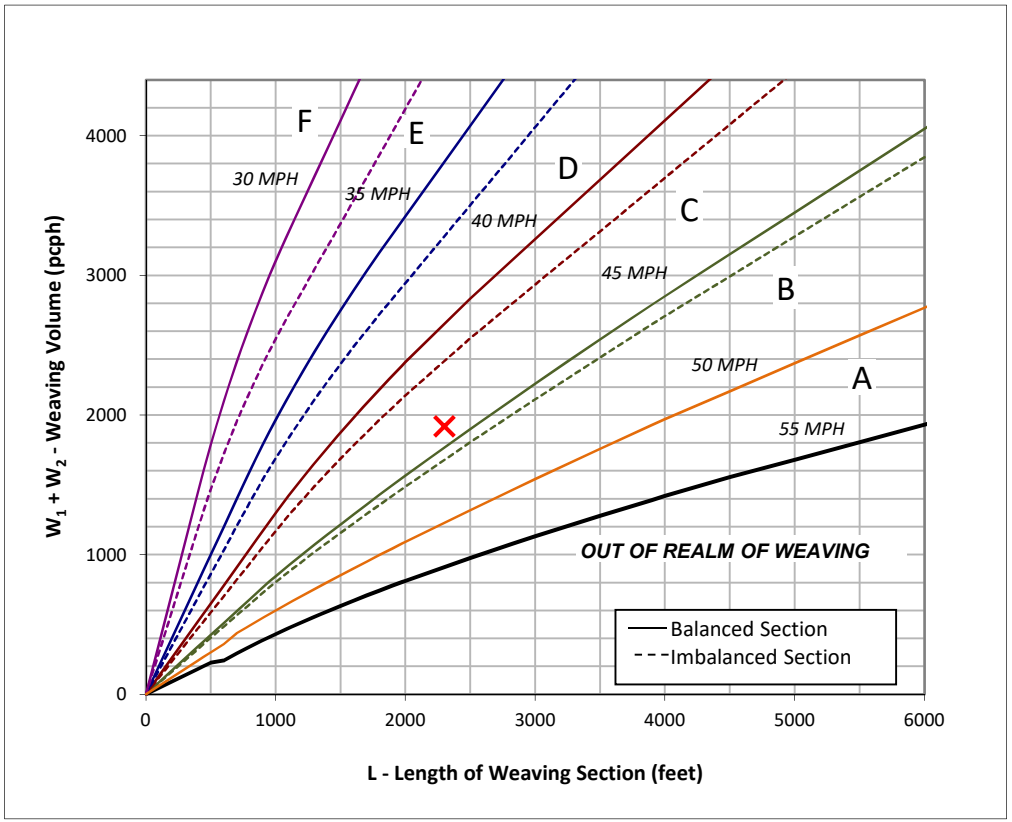
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Leisch Method for Weaving Analysis

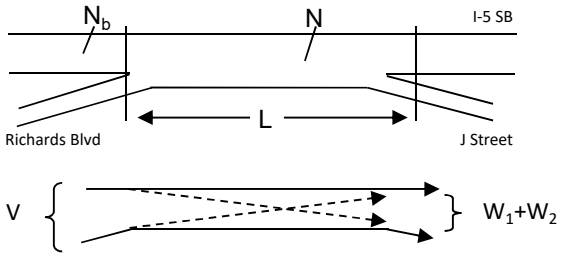
Data Input		
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,300

Project Information	
Project	Richards Blvd State Office Complex
Scenario	Existing Plus Project PM Peak Hour
Freeway	I-5 SB
On-ramp	Richards Blvd
Off-ramp	J Street

	Total Weaving Section (V)	On-ramp to Mainline (W_1)	Mainline to Off-ramp (W_2)
Volume (vph)*	7,559	1,137	743
Truck Percentage	10%	4%	4%
PCE for Trucks	1.5	1.5	1.5
Volume (pcph)	7,922	1,160	758



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? *If optional exit lane, then "Y". Otherwise "N".*	Y
2. In the chart to the left, which two speed curves is the red "x" between?	**40 MPH** and **45 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	44.2
4. Weaving Intensity Factor (k)	2.08
5. Service Volume (SV, pcph) $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$	1,748
6. Level of Service (LOS)	E

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

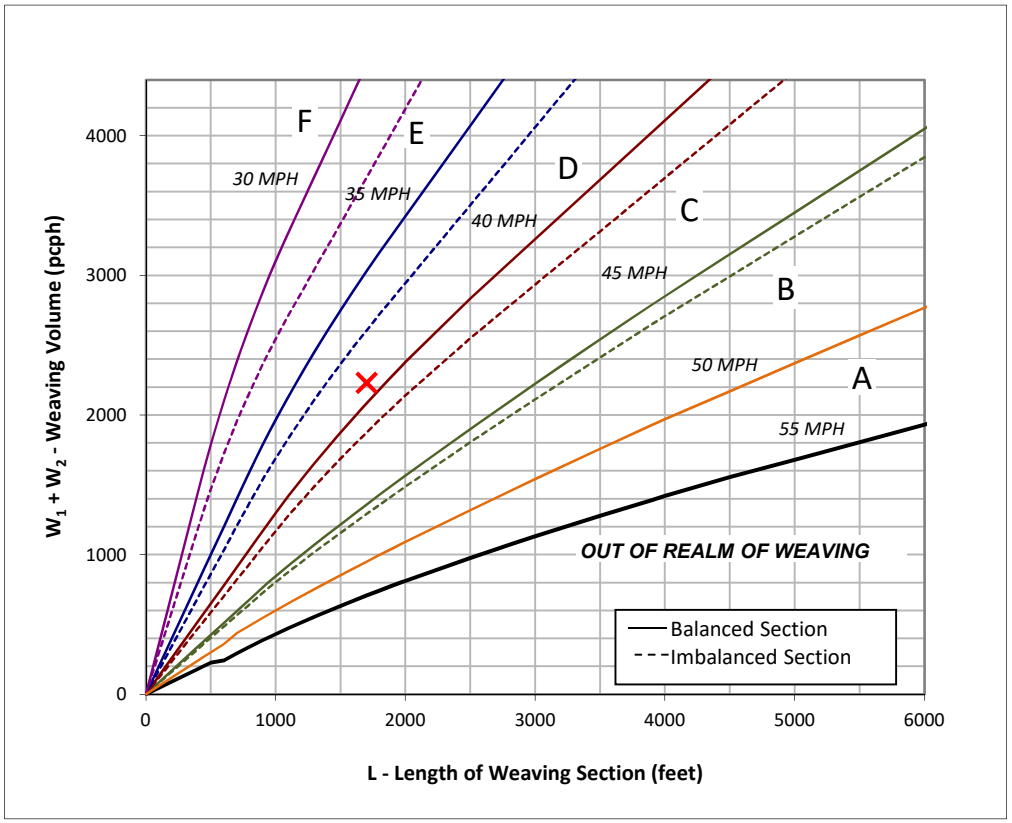
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Leisch Method for Weaving Analysis

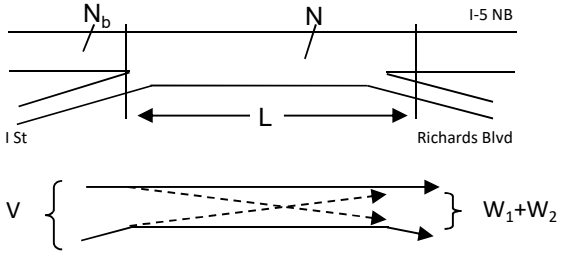
Data Input		
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	1,700

Project Information	
Project	Richards Blvd State Office Complex EIR
Scenario	Cumulative No Project AM Peak Hour
Freeway	I-5 NB
On-ramp	I St
Off-ramp	Richards Blvd

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	7,920	Volume (vph)*	921	Volume (vph)*	1,265
Truck Percentage	10%	Truck Percentage	4%	Truck Percentage	4%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	8,300	Volume (pcph)	939	Volume (pcph)	1,290



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? *If optional exit lane, then "Y". Otherwise "N".*	N
2. In the chart to the left, which two speed curves is the red "x" between?	**35 MPH** and **40 MPH**
If left of the 30 MPH curve, LOS is F. Select "-". *If below the 55 MPH curve, out of the realm of weaving.*	
3. Interpolated Weaving Speed (S_w, mph)	37.6
4. Weaving Intensity Factor (k)	2.67
5. Service Volume (SV, pcph) $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$	1,973
6. Level of Service (LOS)	F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

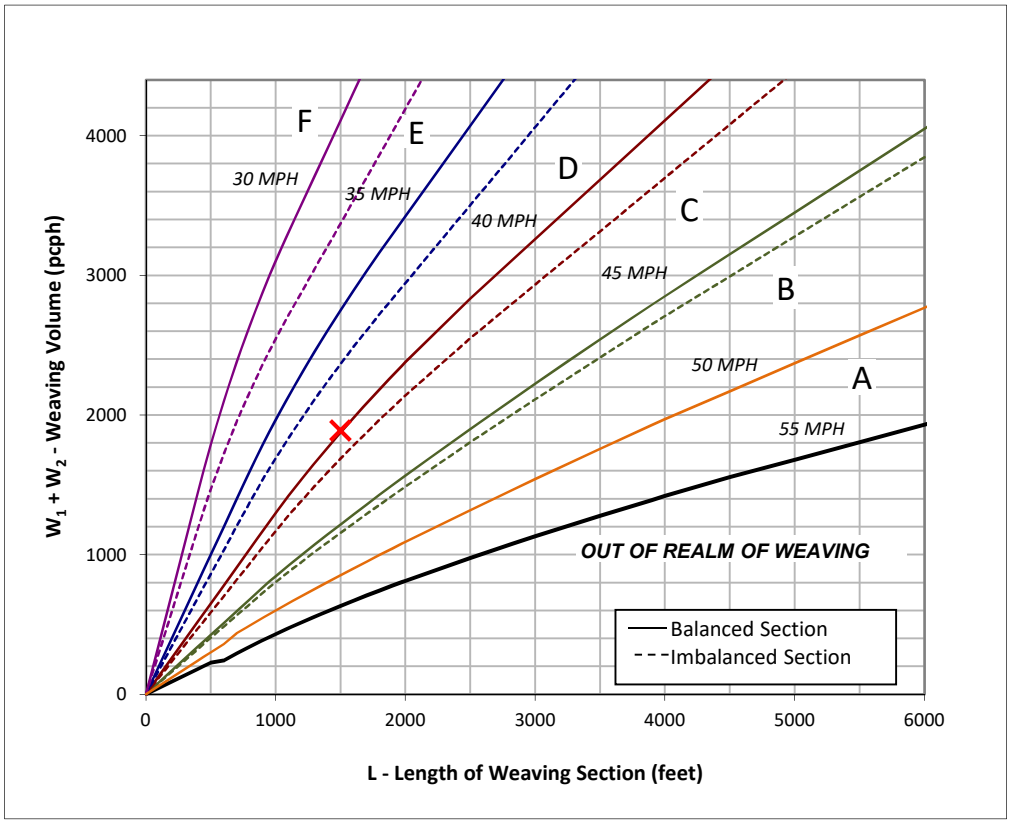
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Leisch Method for Weaving Analysis

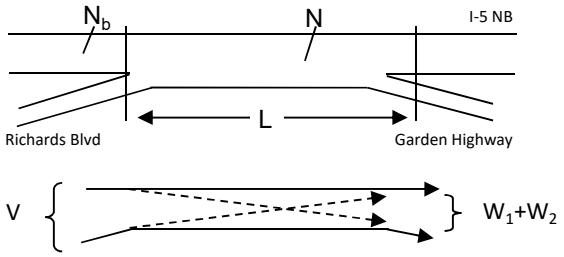
Data Input		
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	1,500

Project Information	
Project	Richards Blvd State Office Complex EIR
Scenario	Cumulative No Project AM Peak Hour
Freeway	I-5 NB
On-ramp	Richards Blvd
Off-ramp	Garden Highway

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	8,022	Volume (vph)*	963	Volume (vph)*	889
Truck Percentage	10%	Truck Percentage	4%	Truck Percentage	4%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	8,407	Volume (pcph)	982	Volume (pcph)	907



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? *If optional exit lane, then "Y". Otherwise "N".*	N
2. In the chart to the left, which two speed curves is the red "x" between?	**40 MPH** and **45 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	38.1
4. Weaving Intensity Factor (k)	2.64
5. Service Volume (SV, pcph) $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$	1,979
6. Level of Service (LOS)	F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

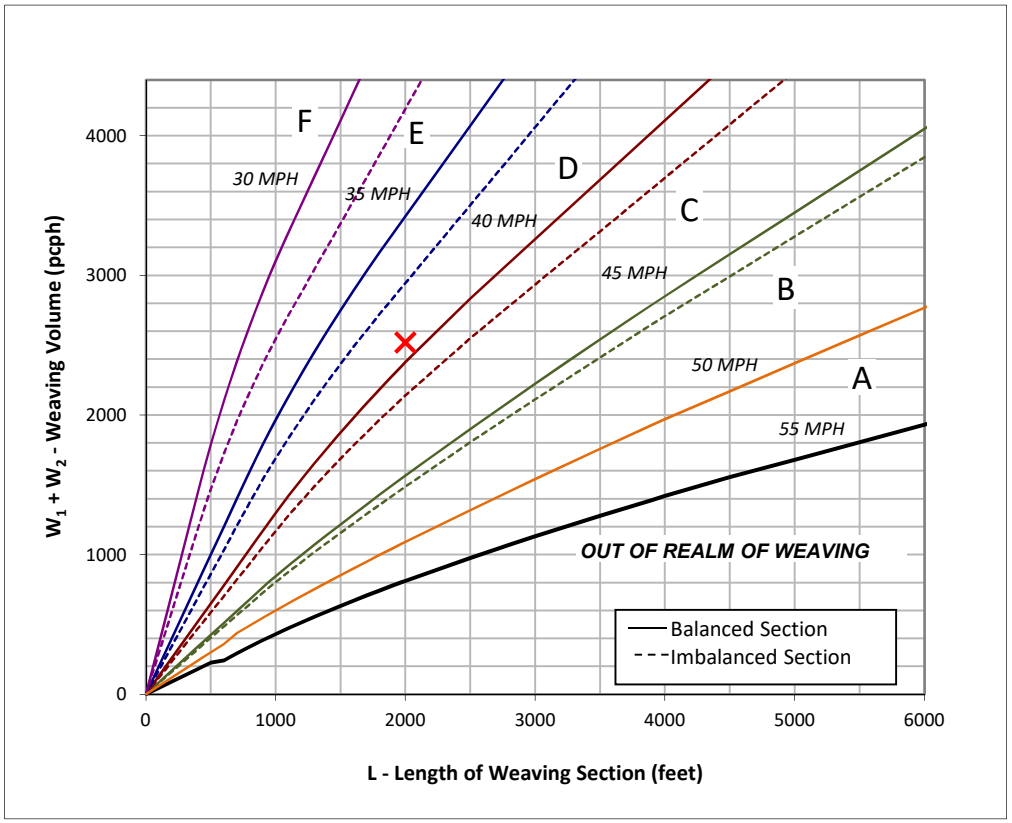
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Leisch Method for Weaving Analysis

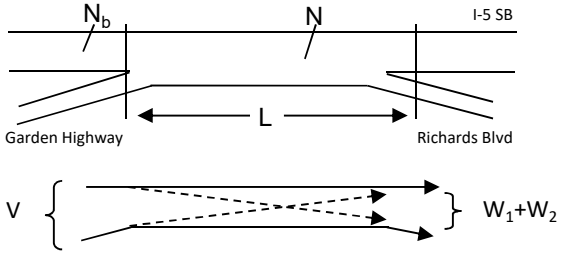
Data Input		
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,000

Project Information	
Project	Richards Blvd State Office Complex EIR
Scenario	Cumulative No Project AM Peak Hour
Freeway	I-5 SB
On-ramp	Garden Highway
Off-ramp	Richards Blvd

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	7,894	Volume (vph)*	641	Volume (vph)*	1,829
Truck Percentage	10%	Truck Percentage	4%	Truck Percentage	4%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	8,273	Volume (pcph)	654	Volume (pcph)	1,866



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)?	Y
If optional exit lane, then "Y". Otherwise "N".	
2. In the chart to the left, which two speed curves is the red "x" between?	**35 MPH** and **40 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	39.3
4. Weaving Intensity Factor (k)	2.57
5. Service Volume (SV, pcph) $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$	1,860
6. Level of Service (LOS)	E

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

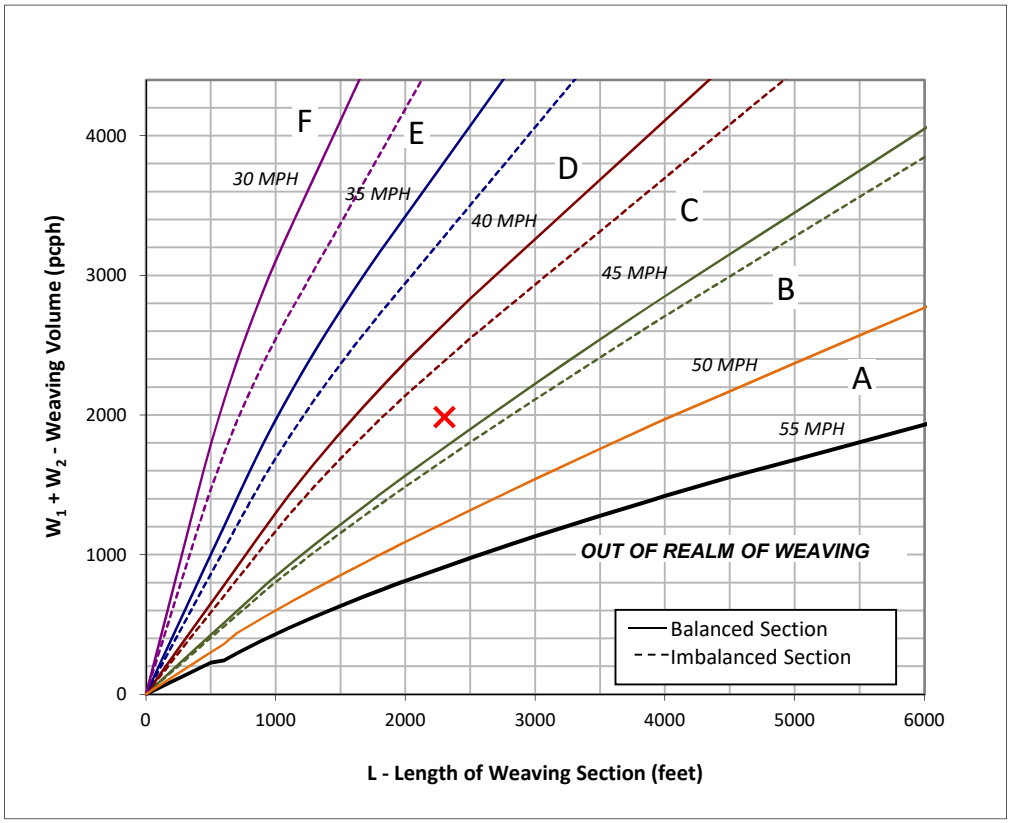
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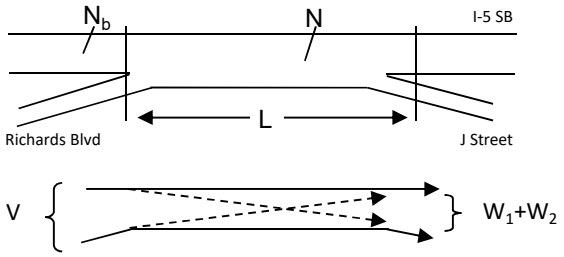
Data Input		
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,300

Project Information	
Project	Richards Blvd State Office Complex EIR
Scenario	Cumulative No Project AM Peak Hour
Freeway	I-5 SB
On-ramp	Richards Blvd
Off-ramp	J Street

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	6,213	Volume (vph)*	715	Volume (vph)*	1,231
Truck Percentage	10%	Truck Percentage	4%	Truck Percentage	4%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	6,511	Volume (pcph)	729	Volume (pcph)	1,256



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? *If optional exit lane, then "Y". Otherwise "N".*	Y
2. In the chart to the left, which two speed curves is the red "x" between?	**40 MPH** and **45 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	43.8
4. Weaving Intensity Factor (k)	2.13
5. Service Volume (SV, pcph) $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$	1,467
6. Level of Service (LOS)	D

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

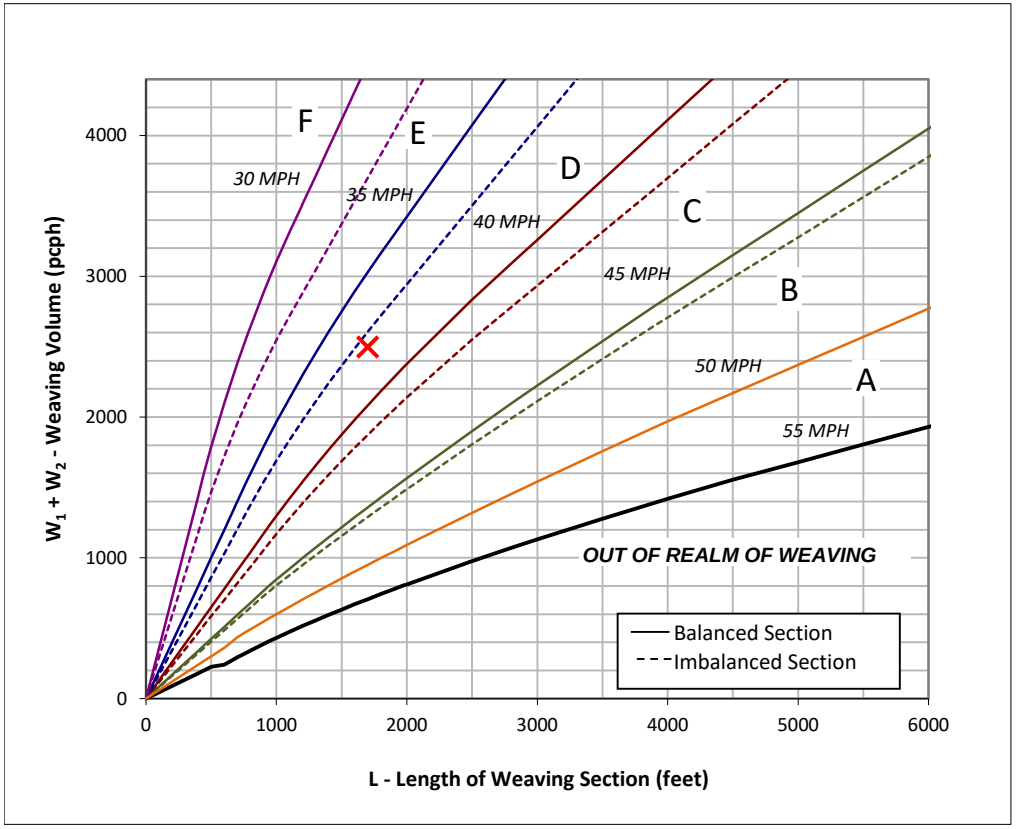
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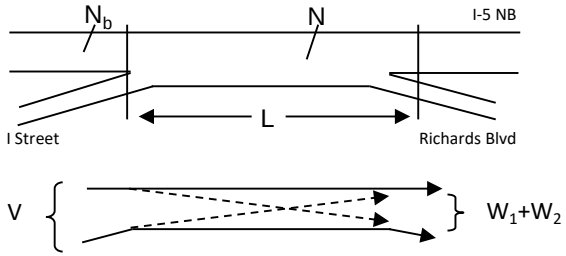
Data Input		
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	1,700

Project Information	
Project	Richards Blvd State Office Complex EIR
Scenario	Cumulative No Project PM Peak Hour
Freeway	I-5 NB
On-ramp	I Street
Off-ramp	Richards Blvd

	Total Weaving Section (V)	On-ramp to Mainline (W_1)	Mainline to Off-ramp (W_2)
Volume (vph)*	8,577	1,920	530
Truck Percentage	10%	4%	4%
PCE for Trucks	1.5	1.5	1.5
Volume (pcph)	8,989	1,958	541



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? *If optional exit lane, then "Y". Otherwise "N".*	N
2. In the chart to the left, which two speed curves is the red "x" between?	**35 MPH** and **40 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	35.7
4. Weaving Intensity Factor (k)	2.84
5. Service Volume (SV, pcph) SV = (1/N)*[V + (k - 1)*min(W_1, W_2)]	1,997
6. Level of Service (LOS)	F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

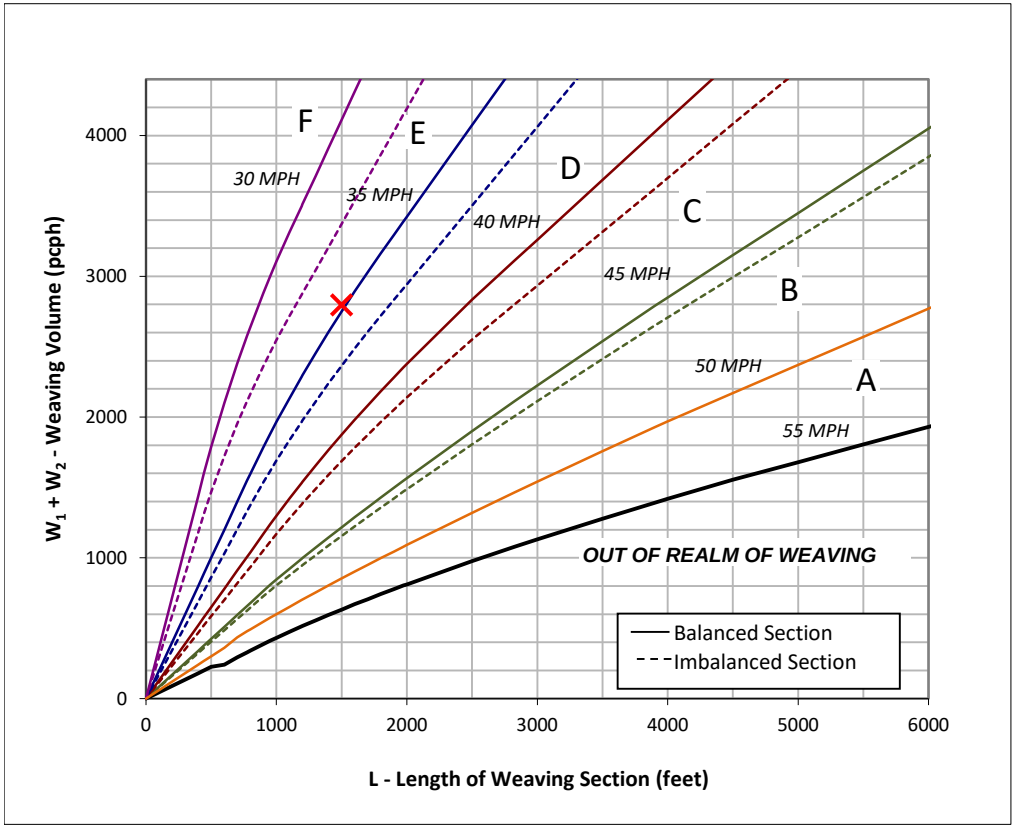
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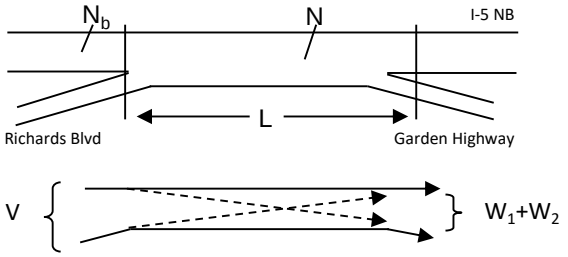
Data Input		
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	1,500

Project Information	
Project	Richards Blvd State Office Complex EIR
Scenario	Cumulative No Project PM Peak Hour
Freeway	I-5 NB
On-ramp	Richards Blvd
Off-ramp	Garden Highway

	Total Weaving Section (V)	On-ramp to Mainline (W_1)	Mainline to Off-ramp (W_2)
Volume (vph)*	10,518	1,872	871
Truck Percentage	10%	4%	4%
PCE for Trucks	1.5	1.5	1.5
Volume (pcph)	11,023	1,909	888



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)?	N
If optional exit lane, then "Y". Otherwise "N".	
2. In the chart to the left, which two speed curves is the red "x" between?	**30 MPH** and **35 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	32.9
4. Weaving Intensity Factor (k)	2.87
5. Service Volume (SV, pcph)	
SV = (1/N)*[V + (k - 1)*min(W_1, W_2)]	2,537
6. Level of Service (LOS)	F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

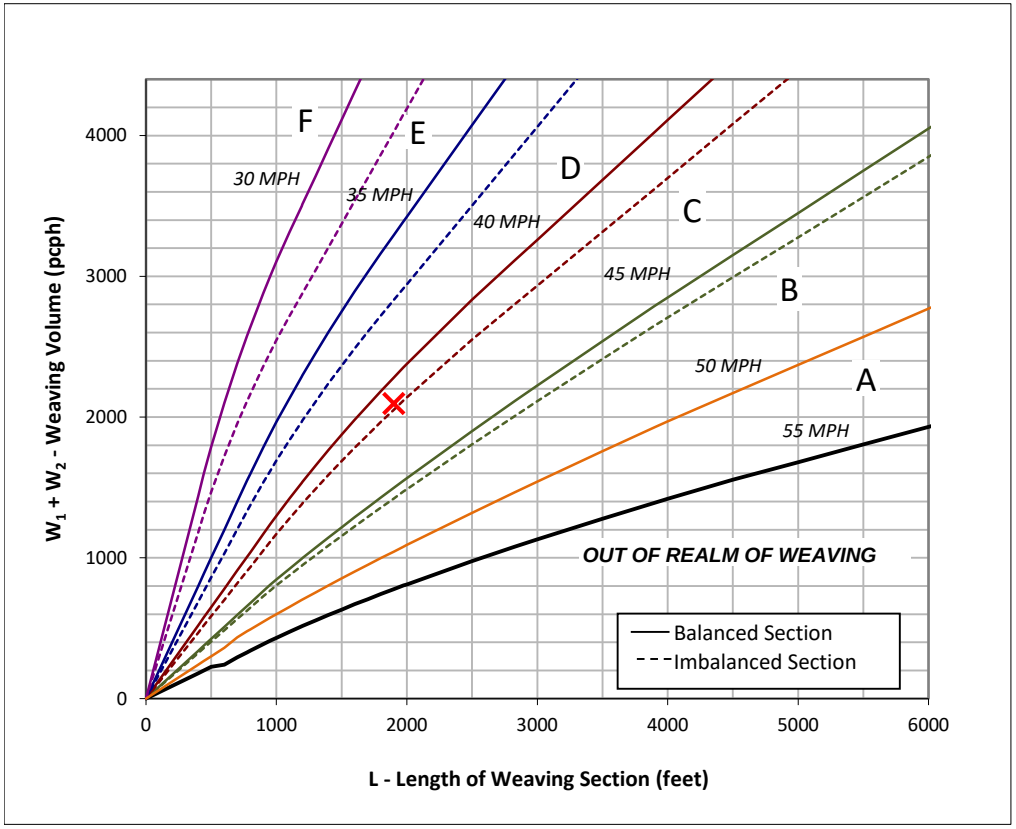
Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections* , Jack E. Leisch & Associates, September 1983 and *Highway Design Manual* , California Department of Transportation, 2014

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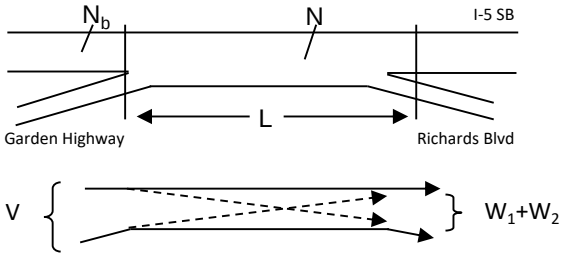
Data Input		
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	1,900

Project Information	
Project	Richards Blvd State Office Complex EIR
Scenario	Cumulative No Project PM Peak Hour
Freeway	I-5 SB
On-ramp	Garden Highway
Off-ramp	Richards Blvd

	Total Weaving Section (V)	On-ramp to Mainline (W_1)	Mainline to Off-ramp (W_2)
Volume (vph)*	8,013	774	1,283
Truck Percentage	10%	4%	4%
PCE for Trucks	1.5	1.5	1.5
Volume (pcph)	8,398	789	1,309



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)?	Y
If optional exit lane, then "Y". Otherwise "N".	
2. In the chart to the left, which two speed curves is the red "x" between?	**40 MPH** and **45 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	41.2
4. Weaving Intensity Factor (k)	2.42
5. Service Volume (SV, pcph)	
SV = (1/N)*[V + (k - 1)*min(W_1, W_2)]	1,903
6. Level of Service (LOS)	F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

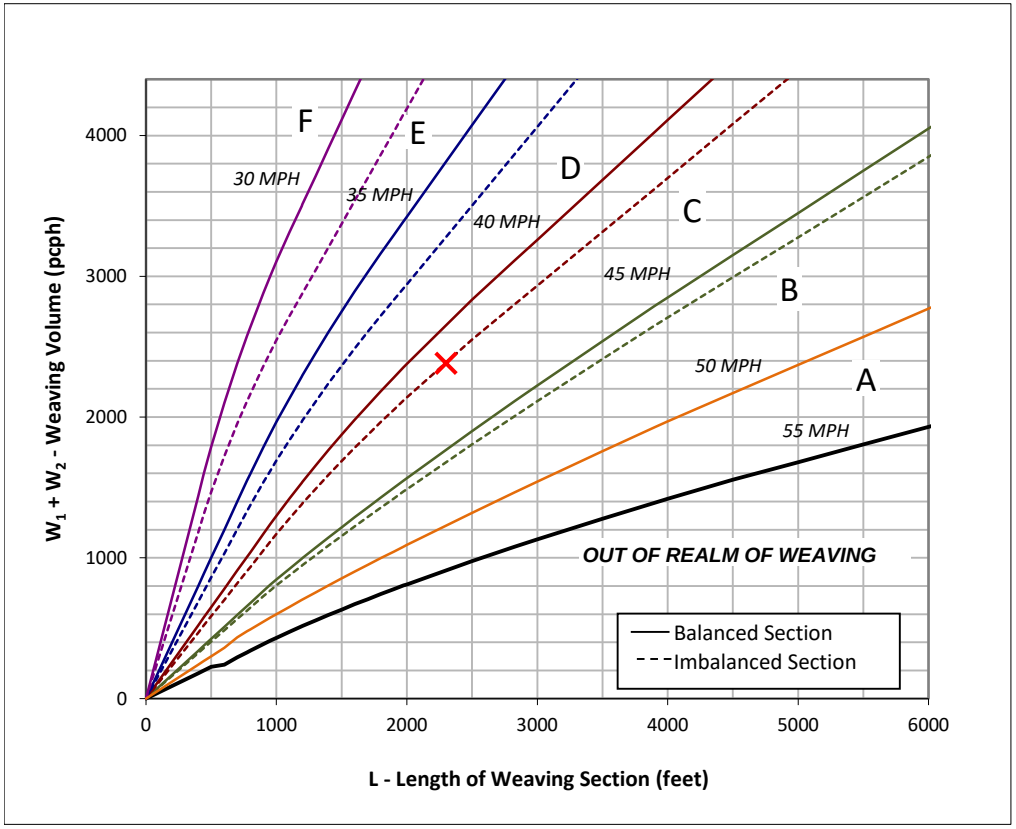
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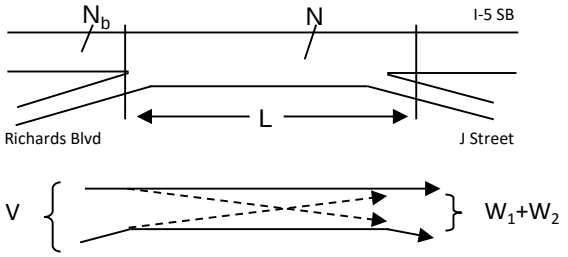
Data Input		
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,300

Project Information	
Project	Richards Blvd State Office Complex EIR
Scenario	Cumulative No Project PM Peak Hour
Freeway	I-5 SB
On-ramp	Richards Blvd
Off-ramp	J Street

	Total Weaving Section (V)	On-ramp to Mainline (W_1)	Mainline to Off-ramp (W_2)
Volume (vph)*	7,367	1,028	1,309
Truck Percentage	10%	4%	4%
PCE for Trucks	1.5	1.5	1.5
Volume (pcph)	7,721	1,049	1,335



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)?	Y
If optional exit lane, then "Y". Otherwise "N".	
2. In the chart to the left, which two speed curves is the red "x" between?	**40 MPH** and **45 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	41.5
4. Weaving Intensity Factor (k)	2.39
5. Service Volume (SV, pcph)	
SV = (1/N)*[V + (k - 1)*min(W_1, W_2)]	1,835
6. Level of Service (LOS)	E

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

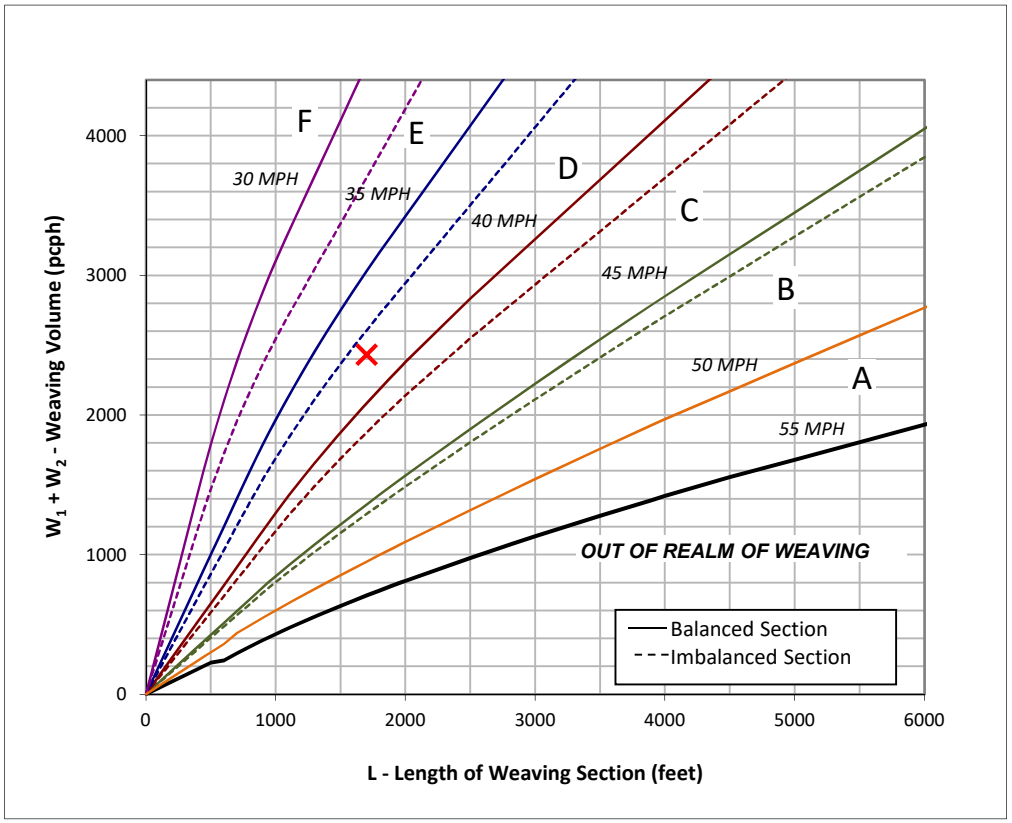
Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections* , Jack E. Leisch & Associates, September 1983 and *Highway Design Manual* , California Department of Transportation, 2014

Leisch Method for Weaving Analysis

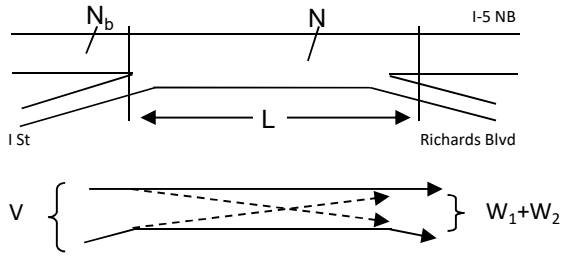
Data Input		
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	1,700

Project Information	
Project	Richards Blvd State Office Complex EIR
Scenario	Cumulative Plus Project AM Peak Hour
Freeway	I-5 NB
On-ramp	I St
Off-ramp	Richards Blvd

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	7,989	Volume (vph)*	941	Volume (vph)*	1,444
Truck Percentage	10%	Truck Percentage	4%	Truck Percentage	4%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	8,372	Volume (pcph)	960	Volume (pcph)	1,473



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? *If optional exit lane, then "Y". Otherwise "N".*	N
2. In the chart to the left, which two speed curves is the red "x" between?	**35 MPH** and **40 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	36.2
4. Weaving Intensity Factor (k)	2.74
5. Service Volume (SV, pcph) $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$	2,008
6. Level of Service (LOS)	F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

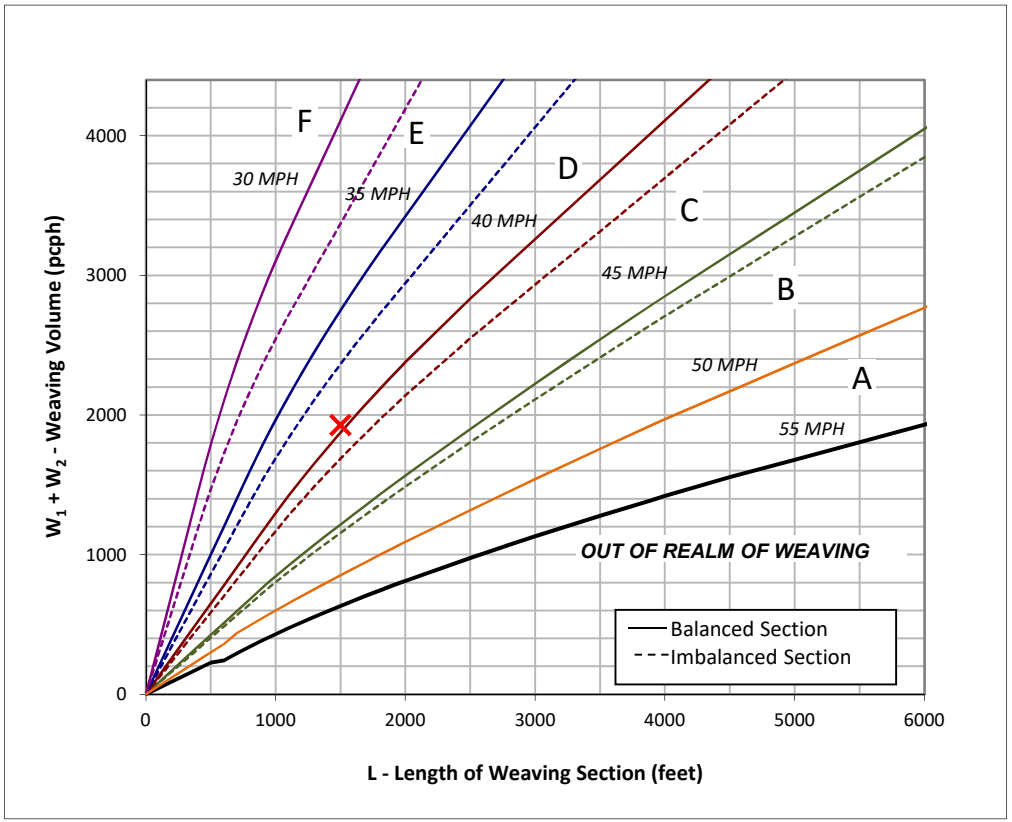
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Leisch Method for Weaving Analysis

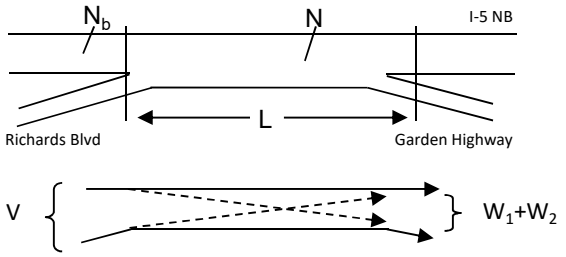
Data Input		
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	1,500

Project Information	
Project	Richards Blvd State Office Complex EIR
Scenario	Cumulative Plus Project AM Peak Hour
Freeway	I-5 NB
On-ramp	Richards Blvd
Off-ramp	Garden Highway

	Total Weaving Section (V)	On-ramp to Mainline (W_1)	Mainline to Off-ramp (W_2)
Volume (vph)*	7,981	1,001	889
Truck Percentage	10%	4%	4%
PCE for Trucks	1.5	1.5	1.5
Volume (pcph)	8,364	1,021	907



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   If optional exit lane, then "Y". Otherwise "N".
2. In the chart to the left, which two speed curves is the red "x" between?
   40 MPH and **45 MPH**
   If left of the 30 MPH curve, LOS is F. Select "-".
   If below the 55 MPH curve, out of the realm of weaving.
3. Interpolated Weaving Speed (S_w, mph) **37.7**
4. Weaving Intensity Factor (k) **2.66**
5. Service Volume (SV, pcph) **1,974**
   SV = (1/N)*[V + (k - 1)*min(W_1, W_2)]
6. Level of Service (LOS) **F**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

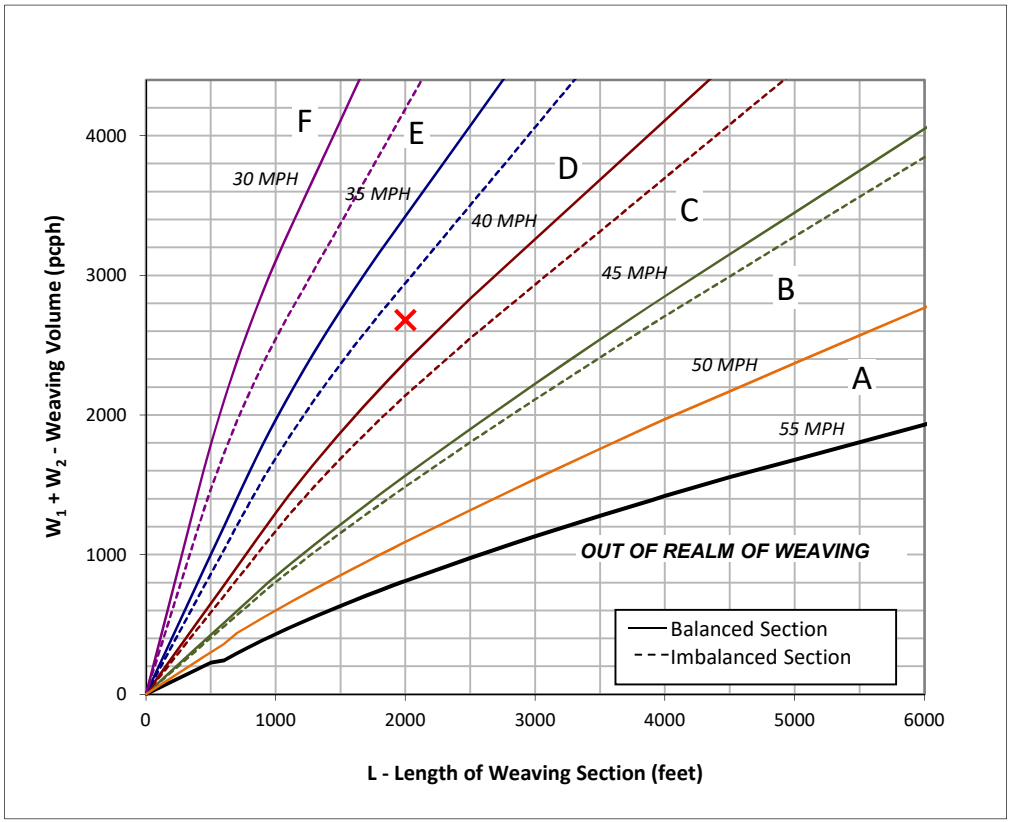
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Leisch Method for Weaving Analysis

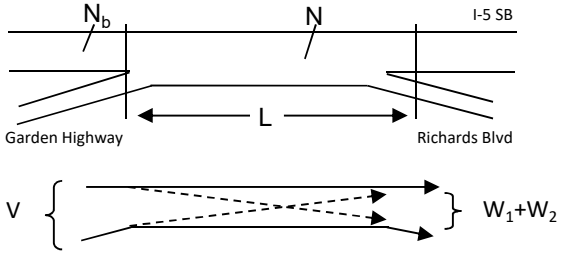
Data Input		
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,000

Project Information	
Project	Richards Blvd State Office Complex EIR
Scenario	Cumulative Plus Project AM Peak Hour
Freeway	I-5 SB
On-ramp	Garden Highway
Off-ramp	Richards Blvd

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	8,038	Volume (vph)*	649	Volume (vph)*	1,979
Truck Percentage	10%	Truck Percentage	4%	Truck Percentage	4%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	8,424	Volume (pcph)	662	Volume (pcph)	2,019



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)?	Y
If optional exit lane, then "Y". Otherwise "N".	
2. In the chart to the left, which two speed curves is the red "x" between?	**35 MPH** and **40 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	38.5
4. Weaving Intensity Factor (k)	2.98
5. Service Volume (SV, pcph) $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$	1,946
6. Level of Service (LOS)	F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

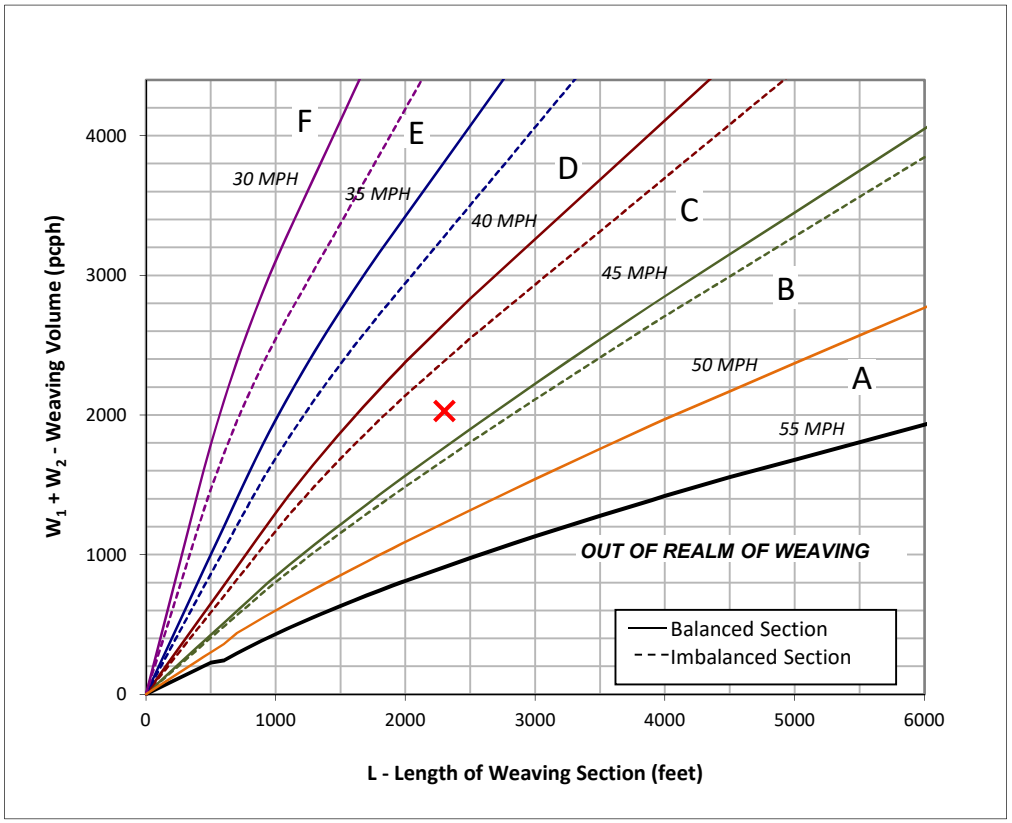
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Leisch Method for Weaving Analysis

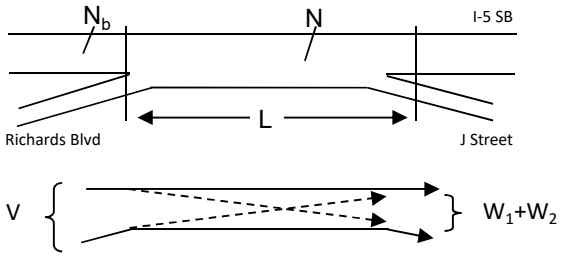
Data Input		
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,300

Project Information	
Project	Richards Blvd State Office Complex EIR
Scenario	Cumulative Plus Project AM Peak Hour
Freeway	I-5 SB
On-ramp	Richards Blvd
Off-ramp	J Street

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	6,238	Volume (vph)*	734	Volume (vph)*	1,255
Truck Percentage	10%	Truck Percentage	4%	Truck Percentage	4%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	6,537	Volume (pcph)	749	Volume (pcph)	1,280



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? *If optional exit lane, then "Y". Otherwise "N".*	Y
2. In the chart to the left, which two speed curves is the red "x" between?	**40 MPH** and **45 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	43.5
4. Weaving Intensity Factor (k)	2.16
5. Service Volume (SV, pcph) $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$	1,482
6. Level of Service (LOS)	D

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

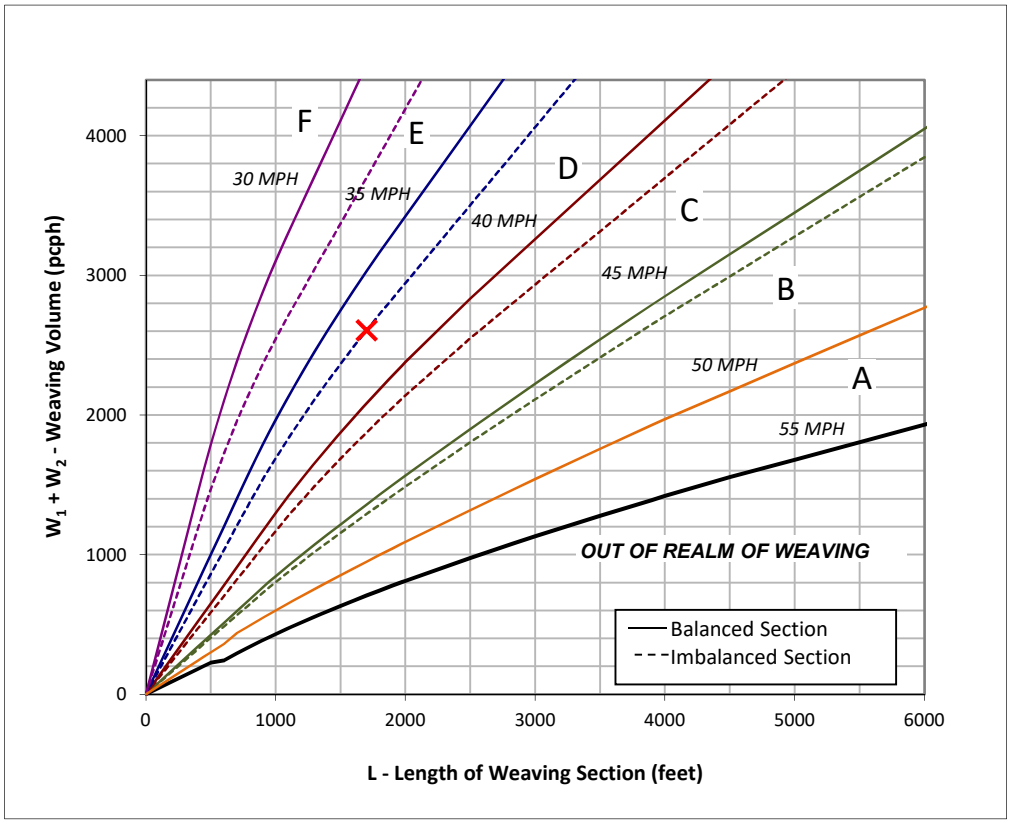
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Leisch Method for Weaving Analysis

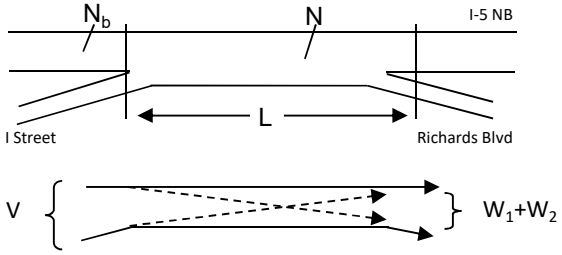
Data Input		
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	1,700

Project Information	
Project	Richards Blvd State Office Complex EIR
Scenario	Cumulative Plus Project PM Peak Hour
Freeway	I-5 NB
On-ramp	I Street
Off-ramp	Richards Blvd

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	8,638	Volume (vph)*	1,990	Volume (vph)*	565
Truck Percentage	10%	Truck Percentage	4%	Truck Percentage	4%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	9,053	Volume (pcph)	2,030	Volume (pcph)	576



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)?	N
If optional exit lane, then "Y". Otherwise "N".	
2. In the chart to the left, which two speed curves is the red "x" between?	**35 MPH** and **40 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	35.0
4. Weaving Intensity Factor (k)	2.88
5. Service Volume (SV, pcph) SV = (1/N)*[V + (k - 1)*min(W_1, W_2)]	2,027
6. Level of Service (LOS)	F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

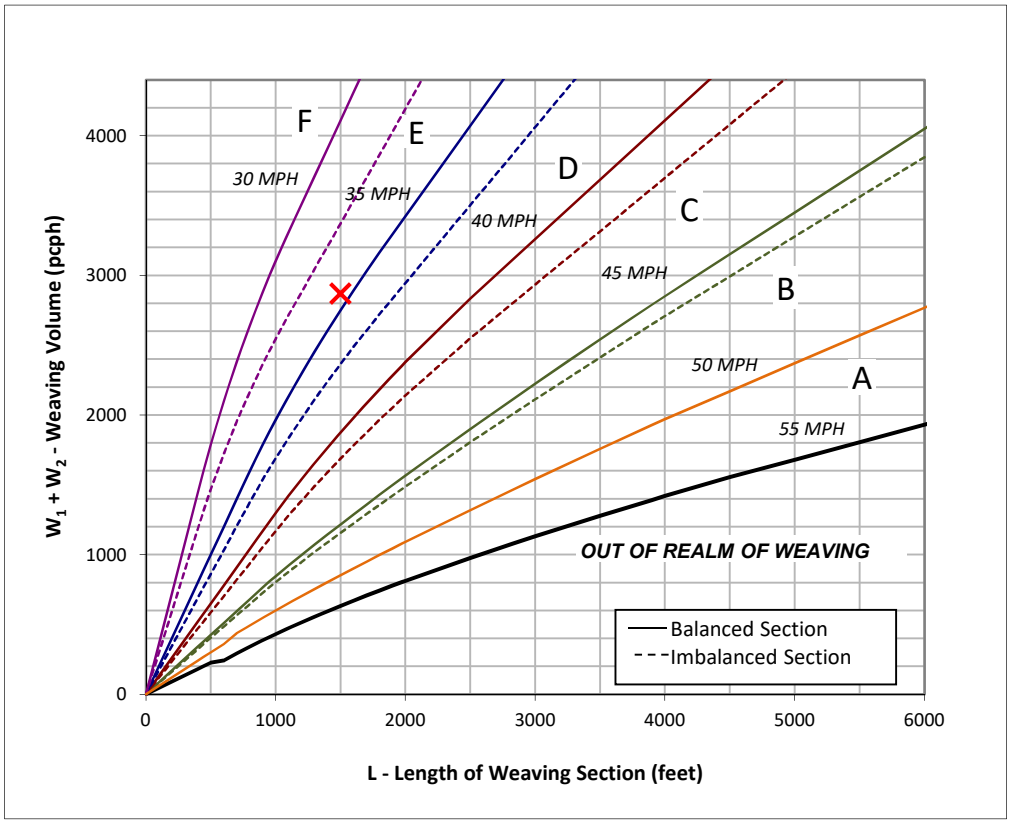
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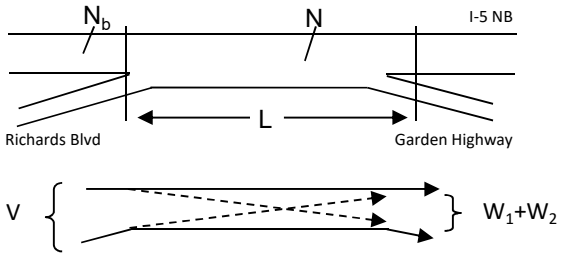
Data Input		
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	1,500

Project Information	
Project	Richards Blvd State Office Complex EIR
Scenario	Cumulative Plus Project PM Peak Hour
Freeway	I-5 NB
On-ramp	Richards Blvd
Off-ramp	Garden Highway

	Total Weaving Section (V)	On-ramp to Mainline (W_1)	Mainline to Off-ramp (W_2)
Volume (vph)*	10,615	1,943	871
Truck Percentage	10%	4%	4%
PCE for Trucks	1.5	1.5	1.5
Volume (pcph)	11,125	1,982	888



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? *If optional exit lane, then "Y". Otherwise "N".*	N
2. In the chart to the left, which two speed curves is the red "x" between?	**30 MPH** and **35 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	32.5
4. Weaving Intensity Factor (k)	2.89
5. Service Volume (SV, pcph) SV = (1/N)*[V + (k - 1)*min(W_1, W_2)]	2,560
6. Level of Service (LOS)	F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

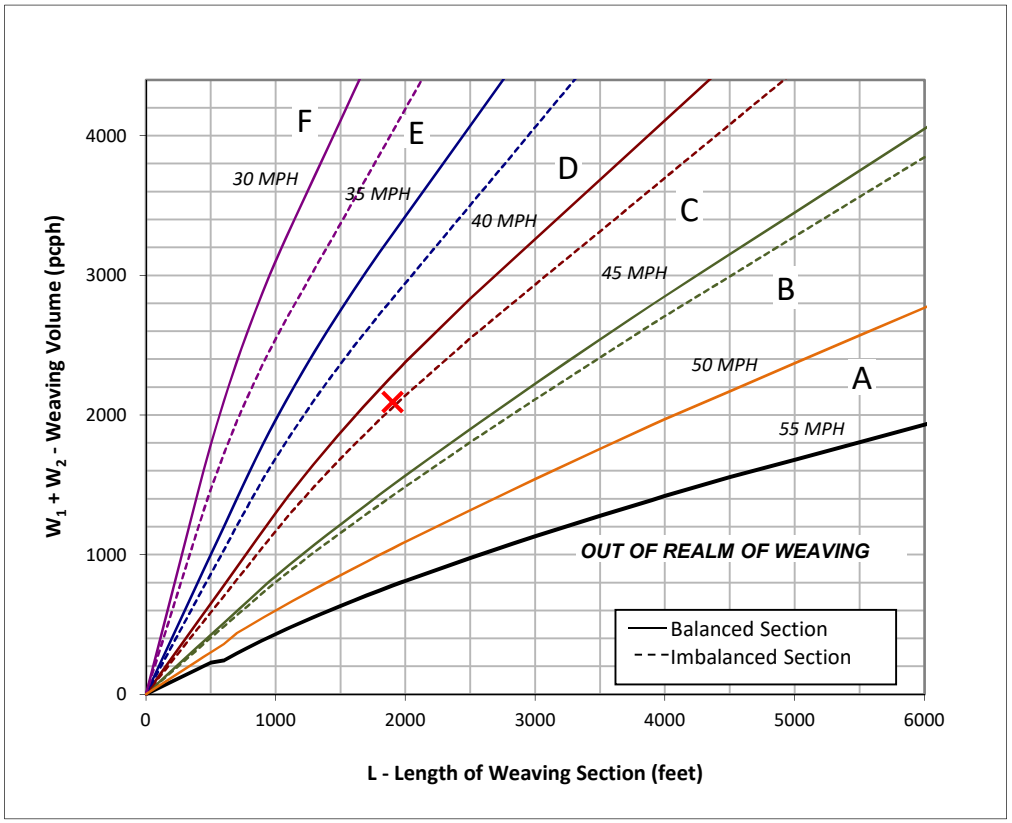
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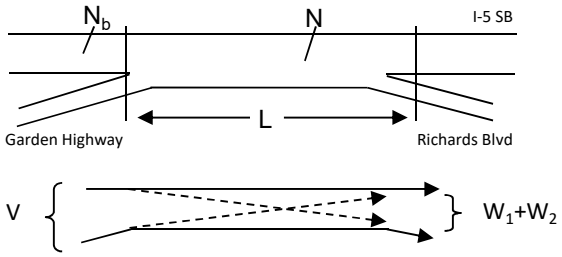
Data Input		
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	1,900

Project Information	
Project	Richards Blvd State Office Complex EIR
Scenario	Cumulative Plus Project PM Peak Hour
Freeway	I-5 SB
On-ramp	Garden Highway
Off-ramp	Richards Blvd

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	8,028	Volume (vph)*	774	Volume (vph)*	1,278
Truck Percentage	10%	Truck Percentage	4%	Truck Percentage	4%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	8,413	Volume (pcph)	789	Volume (pcph)	1,304



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)?	Y
If optional exit lane, then "Y". Otherwise "N".	
2. In the chart to the left, which two speed curves is the red "x" between?	**40 MPH** and **45 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	41.2
4. Weaving Intensity Factor (k)	2.42
5. Service Volume (SV, pcph) $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$	1,906
6. Level of Service (LOS)	F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

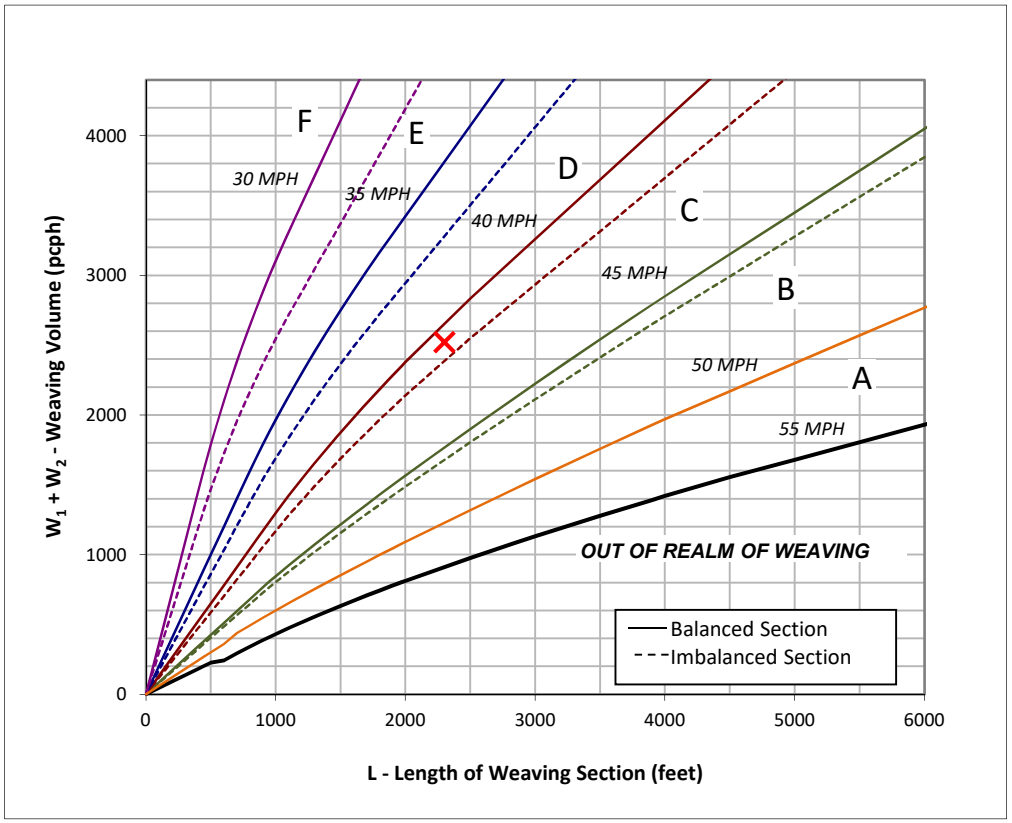
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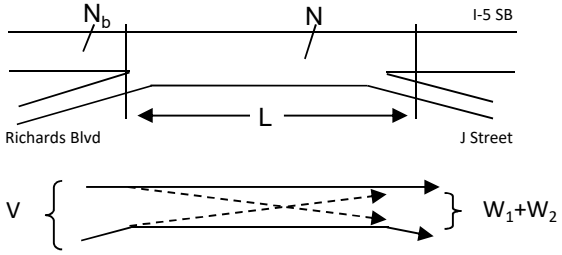
Data Input		
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,300

Project Information	
Project	Richards Blvd State Office Complex EIR
Scenario	Cumulative Plus Project PM Peak Hour
Freeway	I-5 SB
On-ramp	Richards Blvd
Off-ramp	J Street

	Total Weaving Section (V)	On-ramp to Mainline (W_1)	Mainline to Off-ramp (W_2)
Volume (vph)*	7,483	1,115	1,358
Truck Percentage	10%	4%	4%
PCE for Trucks	1.5	1.5	1.5
Volume (pcph)	7,842	1,137	1,385



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? *If optional exit lane, then "Y". Otherwise "N".*	Y
2. In the chart to the left, which two speed curves is the red "x" between?	**35 MPH** and **40 MPH**
If left of the 30 MPH curve, LOS is F. Select "-".	
If below the 55 MPH curve, out of the realm of weaving.	
3. Interpolated Weaving Speed (S_w, mph)	40.6
4. Weaving Intensity Factor (k)	2.48
5. Service Volume (SV, pcph) $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$	1,904
6. Level of Service (LOS)	F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections* , Jack E. Leisch & Associates, September 1983 and *Highway Design Manual* , California Department of Transportation, 2014

Existing Conditions															Existing Conditions	Project Condition							
Existing Employee Auto Commute Trips	Existing Employee Commute VMT	Existing Employee Commute Average Auto Trip Length	Existing Employee Work/Other Auto Trips	Existing Employee Work/Other VMT	Existing Employee Work/Other Average Auto Trip Length	Existing Visitor Auto Trips	Existing Visitor VMT	Existing Visitor Average Auto Trip Length	Existing Service/ Delivery Auto Trips	Existing Service/ Delivery VMT	Existing Service/ Delivery Average Auto Trip Length	Existing Total Auto Trips	Existing Total VMT	Existing Total Average Auto Trip Length		Project Employee Auto Commute Trips	Project Employee Commute VMT	Project Employee Commute Average Auto Trip Length	Project Employee Work/Other Auto Trips	Project Employee Work/Other VMT	Project Employee Work/Other Average Auto Trip Length	Project Visitor Auto Trips	Project Visitor VMT
5,025	69,898	13.9	1,106	3,317	3.0	314	4,369	13.9	92	1,276	13.9	6,537	78,860	12.1		3,256	43,405	13.3	710	2,129	3.0	314	4,187
3,095	47,473	15.3	681	2,043	3.0	193	2,967	15.3	56	867	15.3	4,026	53,349	13.3		2,005	30,279	15.1	437	1,311	3.0	193	2,921
2,854	41,329	14.5	628	1,884	3.0	178	2,583	14.5	52	754	14.5	3,713	46,551	12.5		1,849	26,445	14.3	403	1,209	3.0	178	2,551
10,975	**158,700**	**14.5**	**2,414**	**7,243**	**3.0**	**686**	**9,920**	**14.5**	**200**	**2,897**	**14.5**	**14,275**	**178,760**	**12.5**		**7,111**	**100,129**	**14.1**	**1,550**	**4,650**	**3.0**	**686**	**9,660**

Adjusted VMT 163,168

PROJECT GENERATED VMT

TRIP TYPE	# OF TRIPS	LENGTH	VMT
EMP - Primary	7,111	14.1	100,129
EMP - other	1,550	3.0	4,650
VISITOR	686	14.1	9,660
SERVICE	200	14.1	2,821
		TOTAL	117,260

Project Visitor Average Auto Trip Length	Project Service/ Delivery Auto Trips	Project Service/ Delivery VMT	Project Service/ Delivery Average Auto Trip Length	Project Total Auto Trips	Project Total VMT	Project Total Average Auto Trip Length	Project Conditions	Project Employee Auto Commute Trips	Project Employee Commute VMT	Project Employee Commute Average Auto Trip Length	Project Employee Work/Other Auto Trips	Project Employee Work/Other VMT	Project Employee Work/Other Average Auto Trip Length	Project Visitor Auto Trips	Project Visitor VMT	Project Visitor Average Auto Trip Length	Project Service/ Delivery Auto Trips	Project Service/ Delivery VMT	Project Service/ Delivery Average Auto Trip Length	Project Total Auto Trips	Project Total VMT	Project Total Average Auto Trip Length	Net Change
13.3	92	1,223	13.3	4,372	50,945	11.7		-1,769	-26,493	-0.6	-396	-1,187	0.0	0	-182	-0.6	0	-53	-0.6	-2,165	-27,915	-0.4	
15.1	56	853	15.1	2,692	35,365	13.1		-1,090	-17,194	-0.2	-244	-731	0.0	0	-46	-0.2	0	-14	-0.2	-1,333	-17,985	-0.1	
14.3	52	745	14.3	2,483	30,951	12.5		-1,005	-14,885	-0.2	-225	-674	0.0	0	-32	-0.2	0	-9	-0.2	-1,230	-15,601	-0.1	
14.1	**200**	**2,821**	**14.1**	**9,547**	**117,260**	**12.3**		**-3,864**	**-58,571**	**-0.4**	**-864**	**-2,593**	**0.0**	**0**	**-260**	**-0.4**	**0**	**-76**	**-0.4**	**-4,728**	**-61,500**	**-0.2**	

Adjusted VMT 107,414

PROJECT EFFECT ON VMT -55,753

Cumulative Year No Project

SACOG Boundary Daily VMT (II, IX, XI, XX)	74,458,925
Add Intrazonal Trips	1,164,264
Subtract XX Through Trips VMT	-4,086,005
Add IX & XI Trips Beyond Gateway VMT	22,650,362
Total SACOG Generated Daily VMT	94,187,546

Cumulative Year Plus Project

SACOG Boundary Daily VMT (II, IX, XI, XX)	74,550,664
Add Intrazonal Trips	1,163,942
Subtract XX Through Trips VMT	-4,086,833
Add IX & XI Trips Beyond Gateway VMT	22,646,585
Total SACOG Generated Daily VMT	94,274,359
Change in VMT	86,813