APPENDIX 1-2
DOWNTOWN SPECIFIC PLAN TRANSPORTATION STUDY



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City of San Bernardino

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Prepared for:
PlaceWorks
700 South Flower Street, Suite 600
Los Angeles, CA 90017

Prepared By:

1100 Corporate Center Drive, Suite 201
Monterey Park, CA 91754
www.koacorp.com

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EXECUTIVE SUMMARY

The Downtown Specific Plan is composed of nine zones for planned development through the buildout of the Plan. The year 2040 was analyzed for this document as the future area buildout year, a span of 18 years from the existing timeframe, based on the regional traffic model timeframe. These Plan zones include the planned land uses of retail, office, local industrial, and residential, as a mix of use types within the Downtown area. A summary of the project circulation analysis is provided below.

Trips Generated

- The Plan area trips that would be generated by the proposed uses were calculated by daily and peak hour rates defined by the Institute of Transportation Engineers (ITE) *Trip Generation Manual* source. Credits were included for existing commercial and industrial land uses. Internal trip capture rates and pass-by credits for commercial uses were also included in the calculations.

- The proposed land uses of the Specific Plan, across eleven analyzed zones within the Downtown area, constitute the following total intensities. These are net totals, after the application of proposed use and removed existing uses and the difference between those added and removed trips:

    - 1,418,372 SF of Retail Space
    - 1,180,917 SF of Restaurant Space
    - 4,335,571 SF of Office Space (includes government and general office spaces)
    - 592,240 SF of Light Industrial Space
    - 14,195 Dwelling Units of Multifamily Residential

- The proposed land uses, across the entire Plan area, would generate up to 259,274 daily vehicle trips including 14,411 trips during the AM peak hour and 24,163 trips during the PM peak hour period.

- A Plan alternative was also included in the circulation analysis, focusing on only the former Carousel Mall area, without other development in the remaining Specific Plan land use zones.

Circulation Effects

- The addition of Project traffic under the existing baseline period would affect the level of service at all of the study intersections, in at least one of the peak hours. Most study intersections would operate at LOS F during both peak hour periods, with the exception of the I-215 SB Ramps and 2nd Street intersection, which would continue to operate at LOS C during the AM peak hour.

- All roadway segments would continue to operate within capacity levels with the proposed cross-section and land use changes in the existing period. This occurs in locations where lane reductions are proposed as part of the Plan and in others where such reductions are not proposed.

- The year 2040 is the current model future buildout year, and that year was used for the future period analysis conducted for this study. Model volumes for roadways in the area surrounding the Specific Plan boundaries were compiled for the existing baseline and future buildout time periods of the model. Comparisons between the two sets of volumes were made, and annual growth rates based on averages across the roadways that could be applied to the existing conditions volumes

were defined.

- In the future scenario with the Plan land uses, most of the study intersections are expected to operate at LOS F in both peak hours.

- The addition of trips generated by the Plan land use in the future period would potentially result in capacity being exceeded on the 5th Street segment and one of the 2nd Street segments. Volumes at all of the other study area roadway segments would remain within capacity levels.

- The analyzed Project land use alternative would affect the level of service at intersections at a lesser significance when compared to the proposed scenario in the existing period. Three study intersections would operate at LOS F in both the AM and PM peak hours. Four intersections would operate at LOS E or F in one of the peak hours.

- The addition of project trips under the Plan alternative, and the application of proposed roadway cross-sections would not result in capacity being exceeded at any of the study roadway segments in the existing period.

- Five out of the seven analyzed intersections in the downtown area would operate at LOS F in one or both peak hours in the future period, and a sixth intersection would operate at LOS E in both peak hours.

- The addition of project trips under the Plan alternative, and the application of proposed roadway cross-sections would not result in capacity being exceeded at any of the study roadway segments in the future period.

- For improvement of intersection and roadway segment operations with development of the Specific Plan area, the City can implement traffic signal synchronization and adaptive control improvements to facilitate corridor flow across the area and to and from the freeway interchanges. This will reduce delays that would be caused by the Plan if full buildout of the land uses is reached.

<u>Recommended Roadway Improvements</u>

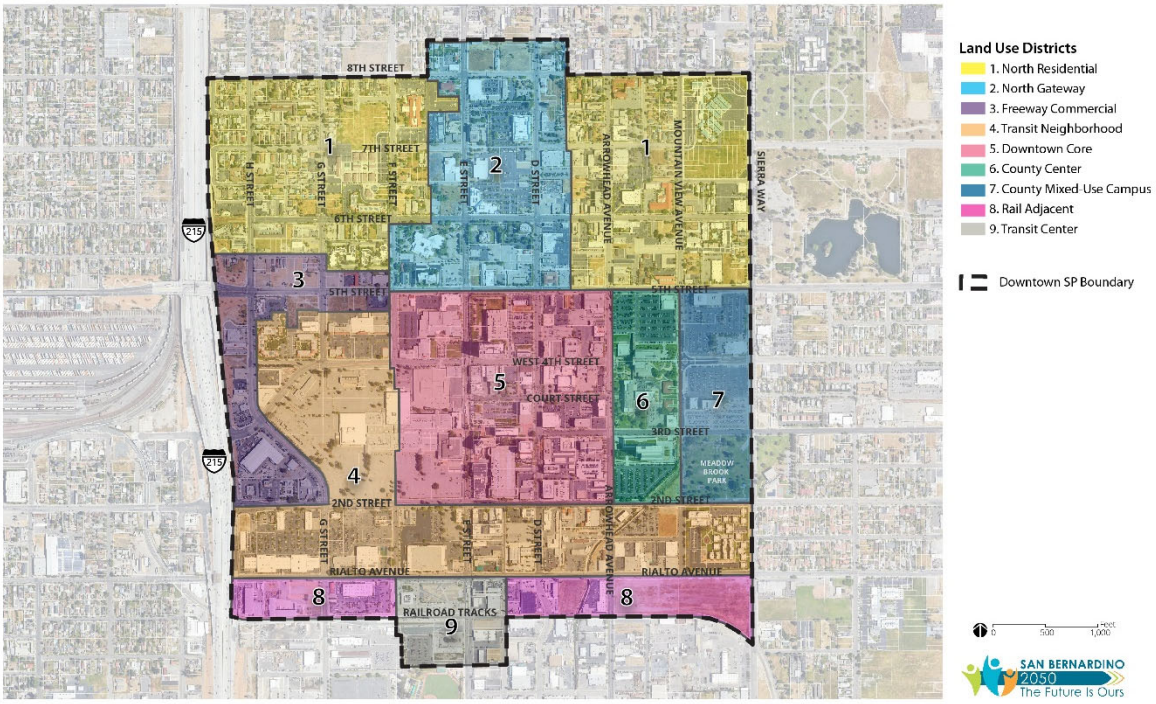
- The recommended Downtown mobility network is a result of the existing conditions transportation analysis conducted for this study, Plan outreach efforts, and is incorporated into the analysis of conditions with the Specific Plan including the land use plan.
- Roadway priorities for the Specific Plan area have been defined, and the related roadway configurations are documented in terms of vehicle travel lane changes, bicycle facility additions, phased roadway widening, and locations where on-street parking removal would be necessary for implementation of the other improvements.

- Roadway cross-sections are attached to this document that illustrate in detail the proposed changes to Plan area roadways.

1.0 DOWNTOWN SPECIFIC PLAN OVERVIEW

The Downtown Specific Plan is composed of nine zones for planned development through the buildout of the Plan. The year 2040 was analyzed for this document as the future area buildout year, a span of 18 years from the existing timeframe, based on the regional traffic model timeframe. These Plan zones include the planned land uses of retail, office, local industrial, and residential, as a mix of use types within the Downtown area.

FIGURE 1 – SPECIFIC PLAN LAND USE ZONES



The nine land use zones of the Plan include the following:

1. North Residential	2. North Gateway	3. Freeway Commercial
4. Transit Neighborhood	5. Downtown Core	6. County Center
7. County Mixed Use Campus	8. Rail Adjacent	9. Transit Center

The local traffic circulation effects and environmental transportation impacts of the proposed Plan land uses within these zones are analyzed in this document. The analysis of land uses incorporates the net change in land use, based on estimates of existing uses, replaced uses, and remaining uses. These patterns are defined in the land use plan for the Specific Plan.

2.0 EXISTING CONDITIONS

The existing circulation conditions in the Plan area are documented within this section, for the study intersections and study roadway segments.

2.1 OPERATIONS ANALYSIS METHODOLOGY

The level of service thresholds applied to the study intersection analysis are defined by City guidelines. Local standards for traffic impact assessment of roadway projects and development projects are defined by the City of San Bernardino *Traffic Impact Analysis Guidelines*, published in August 2020. This document is primarily applied to the review of development projects. Guidelines relevant to the mobility analysis of the General Plan are discussed here.

The Guidelines provide incremental impact standards for projects, at level of service values of C through F. The Guidelines also state that improvement measures must be identified for locations that show an LOS deficiency and operate at LOS D or worse. The LOS values after improvements are implemented must operate at LOS D or better for intersections and LOS C or better for roadway segments.

The incremental impact standards of the guidelines would not apply to the development of the land use plans for this project. The LOS D standard that is defined in the guidelines for deficient/non-deficient operations will be applied, with intersection and roadway segment operations worsened to or within LOS E or F being significant for local circulation impacts.

TABLE 1 – INTERSECTION LEVEL OF SERVICE THRESHOLDS

Level of Service	Intersection Capacity Utilization	Signalized Intersection Control Delay (seconds/vehicle)	Unsignalized Intersection Control Delay (seconds/vehicle) [1]
A	0.000–0.600	0 – 10	0 – 10
B	0.601–0.700	10.1 – 20	10.1 – 15
C	0.701–0.800	20.1 – 35	15.1 – 25
D	0.801–0.900	35.1 – 55	25.1 – 35
E	0.901–1.000	55.1 – 80	35.1 – 50
F	> 1.000	More than 80	More than 50

Note 1: Applies to both boulevard stop and all-way stop intersections

SOURCE: Transportation Research Board, *Highway Capacity Manual* (2010)

The existing circulation conditions in the Downtown Specific Plan area were analyzed based on the compiled peak-period turning movement counts, approach lanes, and traffic controls for intersections. Study roadway segments were analyzed based on the number of travel lanes and daily volumes.

The existing conditions analysis for the study area used both existing and recent vehicle volume counts.

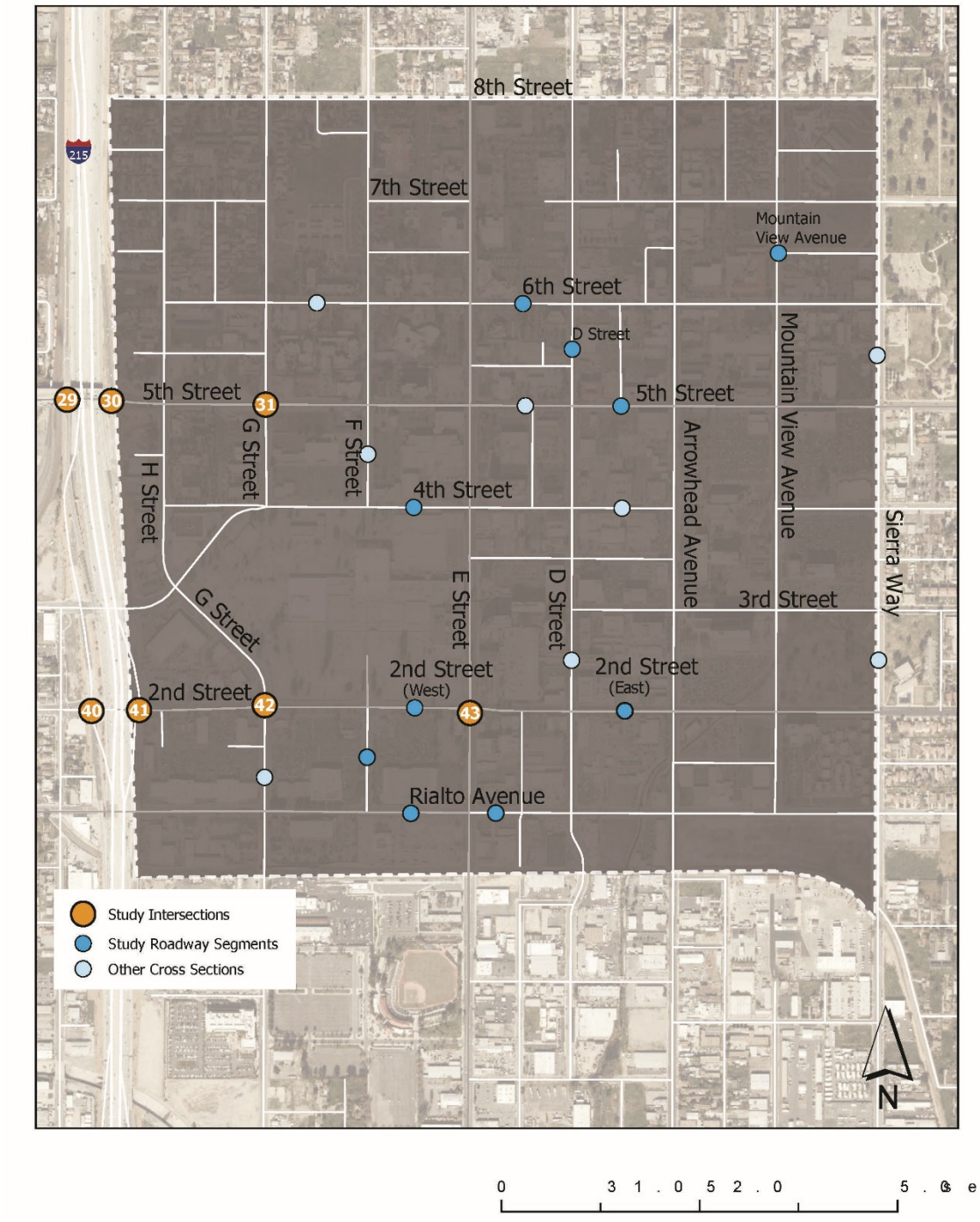
Existing traffic volumes defined for the analysis were validated based on a comparison of current and past data, due to the current reduced traffic levels caused by COVID-19 related activity restrictions. This process assured that normal mobility conditions were documented and analyzed. Historical data was researched and compiled from City sources and traffic data vendors with available datasets for the area, and overlapping new count data was acquired for comparison purposes to the new count volumes. The overall trends defined by the differences between pre-COVID and the year-2021 traffic counts indicated that there was not generally higher volumes in the pre-COVID timeframe, and therefore specific COVID-related adjustments to the new traffic counts were not made.

The locations of the study area intersections and roadway segments within the plan area are shown on Figure 2

The study roadway segment daily volume counts were conducted in August 2021 or September 2021, based on location. The study intersection peak-hour counts were compiled from three sources – previous counts conducted in March 2020 by a traffic count firm, previous counts conducted in 2017 by a traffic count firm, and counts from a previous area traffic study in 2017.

The daily volume count summaries for the study roadway segments are provided in Appendix A, and the peak-period turning movement count summaries for the study intersections are provided in Appendix. B.

FIGURE 2 – STUDY AREA INTERSECTIONS AND ROADWAY SEGMENTS



2.2 EXISTING TRAFFIC OPERATIONS

Existing study area operations were evaluated based on the current roadway and intersection configurations and the compiled volumes. Table 2 provides a summary of the existing Level of Service (LOS) for the study intersections.

TABLE 2 – EXISTING INTERSECTION LEVEL OF SERVICE

Study Intersections		Peak Hour	Existing Conditions (2022)	
			Delay in Sec.	LOS
29	I-215 SB Ramps & 5th Street	AM	47.3	D
		PM	39.0	D
30	I-215 NB Ramps & 5th Street	AM	27.7	C
		PM	55.8	**E**
31	G Street & 5th Street	AM	15.1	B
		PM	23.1	C
40	I-215 SB Ramps & 2nd Street	AM	25.1	C
		PM	39.1	D
41	I-215 NB Ramps & 2nd Street	AM	34.9	D
		PM	41.9	**E**
42	G Street & 2nd Street	AM	41.4	**E**
		PM	36.9	**E**
43	E Street & 2nd Street	AM	174.7	**F**
		PM	56.9	**F**

LOS = Level of Service; HCM delay shown in X.X format.

The study intersections currently operate at levels of service that range from B to F. Four out of the eight analyzed intersections operate at LOS E or F during one or both peak hour periods:

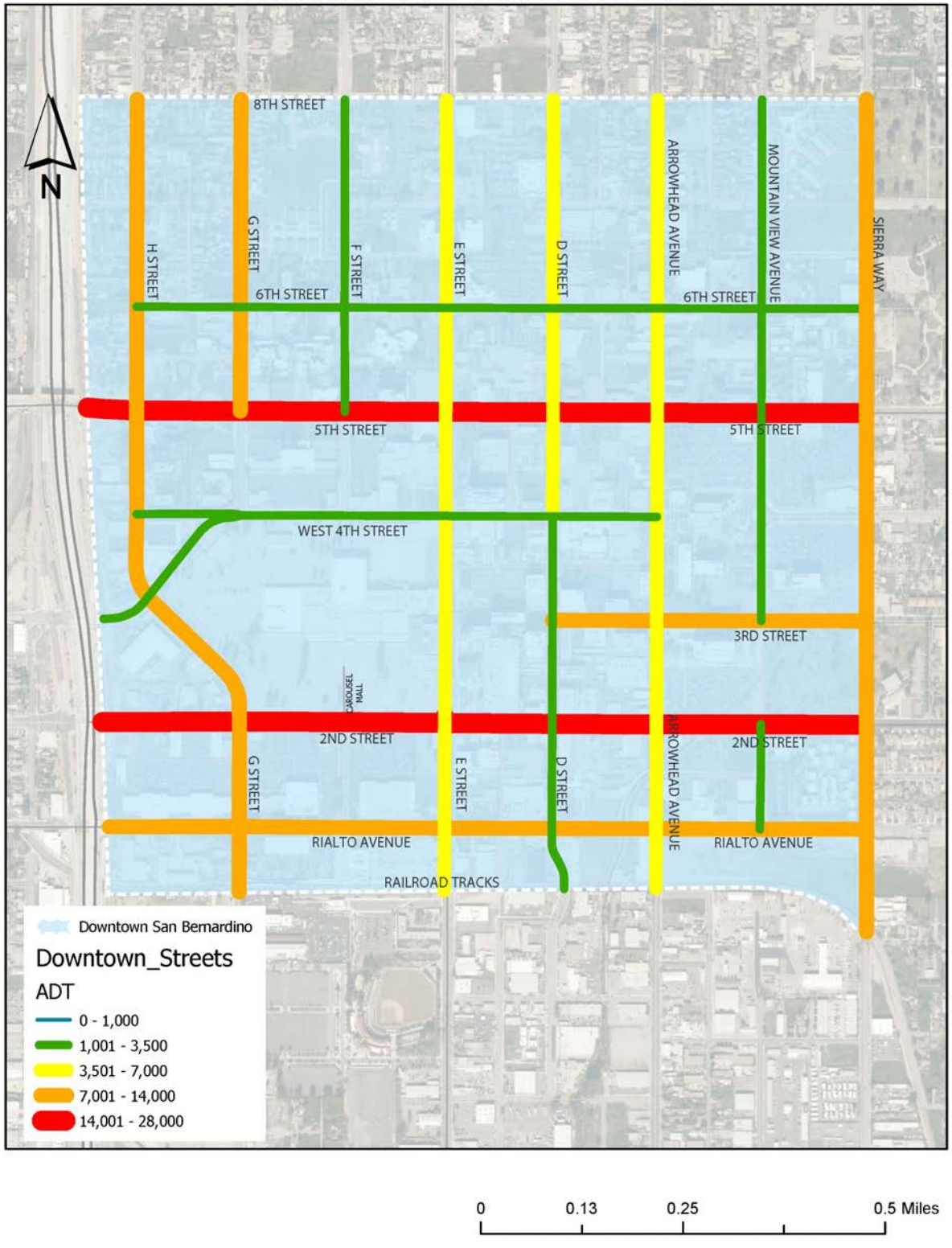
- The intersections of the I-215 Southbound Ramps and 2nd Street and the I-215 Northbound Ramps and 5th Street operate at LOS E during the PM peak hour.
- The intersection of G Street and 2nd Street operates at LOS E during both peak hour periods,
- The intersection of E Street and 2nd Street operates at LOS F during both peak hour periods,

The level of service worksheets for the existing conditions analysis of the study intersections are provided in Appendix C.

TABLE 3 – STUDY ROADWAY SEGMENT CAPACITIES

Roadway	Daily Volume	Lanes	Roadway Capacity	Capacity Used (V/C Ratio)
6th Street	1,512	4	30,000	5%
D Street	5,213	4	30,000	17%
5th Street	21,741	4	40,000	54%
Mountain View Avenue	1,711	4	25,000	7%
4th Street	3,023	3	20,000	15%
2nd Street	16,978	6	60,000	28%
2nd Street	16,978	4	40,000	42%
Rialto Avenue	10,103	4	30,000	34%

FIGURE 3 – STUDY AREA DAILY VEHICLE TRAFFIC VOLUMES



2.3 EXISTING PUBLIC TRANSIT

Area transit service is provided by Omnitrans, Metrolink, and the proposed Redlands Passenger Rail Project (The Arrow) that is expected to begin operations in late 2022. Regional transit connections are available from the City of San Bernardino to Los Angeles, Orange, Riverside and San Diego counties, centered on the Downtown Transit Center at E Street and Rialto Avenue, on the south side of the Downtown area.

The following text describes the specifics of the service provided by each agency. The existing area bus and rail transit lines are illustrated on Figure 4.

Metrolink Commuter Rail

The City of San Bernardino has two Metrolink stations, the San Bernardino - Depot Station located west of Interstate 215 and the San Bernardino - Downtown Station located east of Interstate 215. Trains depart weekdays every 10-20 minutes during peak frequency. Service typically operates during the week from approximately 3:41 AM to 9:43 PM, depending on the station. Weekend service typically operates between 6:38 AM to 7:41 PM. The Downtown Station is the easternmost terminus for the San Bernardino Line, which originates approximately 53 miles to the west at Los Angeles Union Station.

Redlands Passenger Rail Project

This northwest-southeast rail service with San Bernardino as the western terminus, is currently under construction and expected to begin operations in 2022. The service is planned to be called *Arrow,* and will have five stations including the western San Bernardino Downtown Station, and the eastern terminus at University Station just west of Cook Street between Sylvan Boulevard and Central Avenue in the City of Redlands. The five station locations will include San Bernardino Downtown Station, Tippecanoe Station, ESRI Station, Redlands Station and the University Station. Some blending of Metrolink and Arrow service may occur once final operations planning is completed, with some Metrolink trains continuing on an extended route to Redlands, and some Arrow trains serving specific current Metrolink stations to the west.

Arrow trains are expected to operate every 30 minutes during peak hours and 60 minutes during non-peak hours. Service is expected to run between the hours of 5:00 AM to 10:00 PM.

Omnitrans Bus Lines

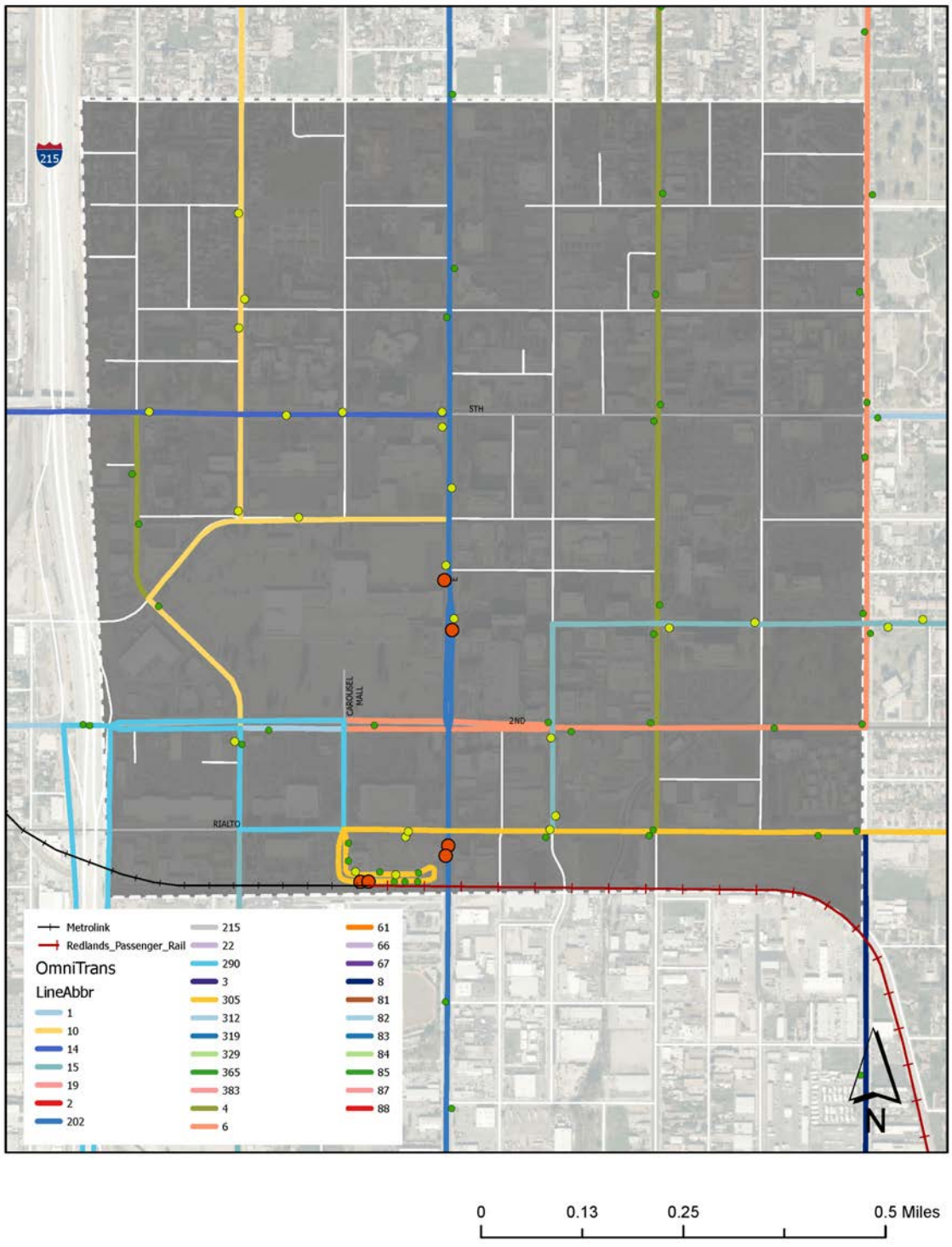
There are currently 27 Omnitrans bus routes within the larger service area of western San Bernardino County, and 14 operate within San Bernardino. These routes connect to the City from various points, with the majority of routes connecting to the Downtown Transit Center. Routes within San Bernardino typically operate every 20-30 minutes during peak hours. Route 1, for example, operates between Colton and San Bernardino every 20 minutes during peak hours and 30 minutes during off-peak hours on weekdays, every 30 minutes on Saturdays, and on Sundays this service operates every 20-25 minutes.

The sBx Green Line operates between Cal State San Bernardino and Loma Linda University every 20 to 30 minutes on weekdays and every 30 minutes on weekends. Some transit lines operate every 60 minutes including Route 10 and Route 312, which operate between San Bernardino and Fontana.

2.4 EXISTING BICYCLE FACILITIES

The Plan area does not currently have a network of bicycle facilities. On Rialto Avenue, on the north side of the Downtown Transit Center, there is a Class III (signed route with sharrow striping in the roadway lanes) on Rialto Avenue. This segment is located between G Street and E Street.

FIGURE 4 – STUDY AREA TRANSIT SERVICE



3.0 PLAN TRIPS AND ROADWAY CHANGES

The proposed land uses of the Specific Plan, across eleven analyzed zones within the Downtown area, constitute the following total intensities. These are net totals, after the application of proposed use and removed existing uses and the difference between those added and removed trips:

- 1,418,372 SF of Retail Space
- 1,180,917 SF of Restaurant Space
- 4,335,571 SF of Office Space (includes government and general office spaces)
- 592,240 SF of Light Industrial Space
- 14,195 Dwelling Units of Multifamily Residential

3.1 SPECIFIC PLAN LAND USE TRIPS

The Plan area trips that would be generated by the proposed uses were calculated by daily and peak hour rates defined by the Institute of Transportation Engineers (ITE) *Trip Generation Manual* source. The applied rates are provided in Table 4 for each use category.

TABLE 4 – TRIP GENERATION RATES APPLIED TO PLAN LAND USES

Land Use Code	Land Use	Daily Total	AM Peak Total	AM Peak In	AM Peak Out	PM Peak Total	PM Peak In	PM Peak Out
821	Shopping Center >40 KSF	94.49	3.53	0.62	0.38	9.03	0.48	0.52
930	Restaurant	97.14	1.43	0.5	0.5	12.55	0.55	0.45
710	General Office	10.84	1.52	0.88	0.12	1.44	0.17	0.83
730	Government Office	22.59	3.34	0.75	0.25	1.71	0.25	0.75
110	Light Industrial	4.87	0.74	0.88	0.12	0.65	0.14	0.86
221	Multifamily (Mid-Rise)	4.54	0.37	0.23	0.77	0.39	0.61	0.39

KSF = 1,000 square feet

Land Use Codes and related rates are defined by the Institute of Transportation Engineers, Trip Generation Manual, 11th Edition

The trip generation calculations included the application of pass-by credits for trips that are estimated to be between another origin and destination, and are not new trips generated by the Plan area commercial uses. The pass-by rates are peak-hour percentages defined by survey data documented by the ITE *Trip Generation Manual*.

The calculations also include internal trip reductions, which are trips that would likely occur between area uses and not generate vehicle trips on area roadways. This is typical in districts such as the Downtown area where there are a mixture of uses in close proximity, and the Plan land uses provide for a greater mix of uses than there is currently, with a higher potential for trips between uses within a single larger visit to the Downtown area. The internal trip capture rates are based on the trips of each land uses and related reductions in external trips (outside of the Downtown). The rates applied for internal trips are based on spreadsheets generated by the National Cooperative Highway Research Program (NCHRP) *Report 684: Enhancing Internal Trip Capture Estimation for Mixed-Use Developments*.

Table 5 provides a trip generation summary that includes the base trip calculations, and total trips after inclusion of the pass-by and internal trip capture credits. The totals at the bottom of the table indicate that the proposed land uses, across the entire Plan area, would generate up to 259,274 daily vehicle trips including 14,411 trips during the AM peak hour and 24,163 trips during the PM peak hour period.

TABLE 5 – SPECIFIC PLAN TOTAL NET TRIP GENERATION

			Daily	AM			PM		
Combined LUs	Intensity	Units	Total	Total	In	Out	Total	In	Out
Shopping Center	1418.372	KSF	134022	5007	3104	1903	12808	6148	6660
Restaurant	1180.917	KSF	114714	1689	844	844	14821	8151	6669
General Office	3488.031	KSF	37810	5302	4666	636	5023	854	4169
Government Office	847.54	KSF	19146	2831	2123	708	1449	362	1087
Light Industrial	592.24	KSF	2884	438	386	53	385	54	331
Multifamily (Mid-Rise)	14195	DU	64445	5252	1208	4044	5536	3377	2159
Total	-	-	**373,022**	**20,519**	**12,331**	**8,188**	**40,021**	**18,946**	**21,075**
With Pass-By Credit	40%		-53609	-2003	-1242	-761	-5123	-2459	-2664
Shopping Center	1418.372	KSF	80413	3004	1863	1142	7685	3689	3996
Restaurant	1180.917	KSF	114714	1689	844	844	14821	8151	6669
General Office	3488.031	KSF	37810	5302	4666	636	5023	854	4169
Government Office	847.54	KSF	19146	2831	2123	708	1449	362	1087
Light Industrial	592.24	KSF	2884	438	386	53	385	54	331
Multifamily (Mid-Rise)	14195	DU	64445	5252	1208	4044	5536	3377	2159
Total			**319413**	**18516**	**11089**	**7427**	**34898**	**16487**	**18411**
With Internal Trip Credit									
			Daily	AM			PM		
Combined LUs	Intensity	Units	Total	Total	In	Out	Total	In	Out
Shopping Center	1418.372	KSF	76923	1925	1262	663	5274	2081	3193
Restaurant	1180.917	KSF	109627	630	222	408	10792	5059	5733
Office - General & Govt	4335.571	KSF	51956	6600	5865	735	3004	913	2091
Light Industrial	592.24	KSF	19444	597	525	72	524	74	450
Multifamily (Mid-Rise)	14195	DU	1324	4659	1093	3566	4569	2984	1585
Total	-	-	**259274**	**14411**	**8967**	**5444**	**24163**	**11111**	**13052**

Table 6 provides the breakdown of the Plan land use trip generation by each analyzed zone, including the trip generation credits. These zones were used as the block-level trip start and end locations for the project analysis.

This total number of trips is a conservative estimate for total trips generated by the Specific Plan land use intensities. The analyzed land use is what will be permitted after Plan adoption, but development of new land use in variation of type or intensity may be less with future development trends, market conditions, and changes in demand. The trip generation analysis therefore shows the maximum possible potential for future conditions.

TABLE 6 – SPECIFIC PLAN TRIP GENERATION BY ZONE

Zone	Land Use	Units	Intensity	Daily Total	AM Peak Hour Total	AM In	AM Out	PM Peak Hour Total	PM In	PM Out
1 West	Shopping Center	KSF	-98.466	-9304	-348	-216	-132	-889	-427	-462
	Restaurant	KSF	-32.822	-3188	-47	-23	-23	-412	-227	-185
	Multifamily (Mid-Rise)	DU	489	2220	181	42	139	191	116	74
	Total		**358**	**-10272**	**-214**	**-197**	**-16**	**-1110**	**-537**	**-573**
				-2774						
	Pass-By Credit (40%)				139	86	53	356	171	185
				-7499	-75	-111	37	-755	-366	-388
	Internal Trip Capture				17	26	-8	234	114	120
	Total			**-7499**	**-57**	**-86**	**28**	**-521**	**-253**	**-268**

Zone	Land Use	Units	Intensity	Daily Total	AM Peak Hour Total	AM In	AM Out	PM Peak Hour Total	PM In	PM Out
1 East	Shopping Center	KSF	39.222	3706	138	86	53	354	170	184
	Restaurant	KSF	13.074	1270	19	9	9	164	90	74
	Multifamily (Mid-Rise)	DU	464	2107	172	39	132	181	110	71
	Total		**516**	**7083**	**329**	**135**	**194**	**699**	**371**	**329**
				1912						
	Pass-By Credit (40%)				-55	-34	-21	-142	-68	-74
				5170	273	100	173	558	303	255
	Internal Trip Capture				-63	-23	-40	-173	-94	-79
	Total			**5170**	**211**	**77**	**133**	**385**	**209**	**176**

Zone	Land Use	Units	Intensity	Daily Total	AM Peak Hour Total	AM In	AM Out	PM Peak Hour Total	PM In	PM Out
2	Shopping Center	KSF	176.174	16647	622	386	236	1591	764	827
	Restaurant	KSF	75.503	7334	108	54	54	948	521	426
	Multifamily (Mid-Rise)	DU	1505	6833	557	128	429	587	358	229
	Total		**1757**	**30814**	**1287**	**568**	**719**	**3125**	**1643**	**1483**
				8320						
	Pass-By Credit (40%)				-249	-154	-95	-636	-305	-331
				22494	1038	413	625	2489	1337	1152
	Internal Trip Capture				-239	-95	-144	-772	-415	-357
	Total			**22494**	**799**	**318**	**481**	**1717**	**923**	**795**

Zone	Land Use	Units	Intensity	Daily Total	AM Peak Hour Total	AM In	AM Out	PM Peak Hour Total	PM In	PM Out
3	Shopping Center	KSF	46.888	4430	166	103	63	423	203	220
	Restaurant	KSF	109.406	10628	156	78	78	1373	755	618
	Multifamily (Mid-Rise)	DU	44	200	16	4	13	17	10	7
	Total		**200**	**15258**	**338**	**185**	**154**	**1814**	**969**	**845**
				4120						
	Pass-By Credit (40%)				-66	-41	-25	-169	-81	-88
				11138	272	144	128	1644	888	757
	Internal Trip Capture				-63	-33	-30	-510	-275	-235
	Total			**11138**	**209**	**111**	**99**	**1135**	**612**	**522**

TABLE 6 – SPECIFIC PLAN TRIP GENERATION BY ZONE (CONTINUED)

Zone				Daily	AM Peak Hour			PM Peak Hour		
	Land Use	Units	Intensity	Total	Total	In	Out	Total	In	Out
	Shopping Center	KSF	393.025	37137	1387	860	527	3549	1704	1845
	Restaurant	KSF	393.025	38178	562	281	281	4932	2713	2220
	General Office	KSF	786.05	8521	1195	1051	143	1132	192	939
	Multifamily (Mid-Rise)	DU	5872	26659	2173	500	1673	2290	1397	893
4	Total		**7444**	**110495**	**5317**	**2692**	**2625**	**11903**	**6006**	**5898**
				29834						
	Pass-By Credit (40%)				-555	-344	-211	-1420	-681	-738
				80661	4762	2348	2414	10484	5324	5160
	Internal Trip Capture				-1095	-540	-555	-3250	-1651	-1599
	Total			**80661**	**3667**	**1808**	**1859**	**7234**	**3674**	**3560**

Zone				Daily	AM Peak Hour			PM Peak Hour		
	Land Use	Units	Intensity	Total	Total	In	Out	Total	In	Out
	Shopping Center	KSF	754.245	71269	2662	1651	1012	6811	3269	3542
	Restaurant	KSF	301.698	29307	431	216	216	3786	2082	1704
	General Office	KSF	1961.307	21261	2981	2623	358	2824	480	2344
	Multifamily (Mid-Rise)	DU	3768	17107	1394	321	1074	1470	896	573
5	Total		**6785**	**138943**	**7469**	**4811**	**2659**	**14891**	**6728**	**8163**
				37515						
	Pass-By Credit (40%)				-1065	-660	-405	-2724	-1308	-1417
				101428	6404	4150	2254	12167	5421	6746
	Internal Trip Capture				-1473	-955	-518	-3772	-1680	-2091
	Total			**101428**	**4931**	**3196**	**1736**	**8395**	**3740**	**4655**

Zone				Daily	AM Peak Hour			PM Peak Hour		
	Land Use	Units	Intensity	Total	Total	In	Out	Total	In	Out
	Government Office	KSF	847.54	19146	2831	2123	708	1449	362	1087
	Total		**848**	**19146**	**2831**	**2123**	**708**	**1449**	**362**	**1087**
6				5169						
				13977	2831	2123	708	1449	362	1087
	Internal Trip Capture				-651	-488	-163	-449	-112	-337
	Total			**13977**	**2180**	**1635**	**545**	**1000**	**250**	**750**

Zone				Daily	AM Peak Hour			PM Peak Hour		
	Land Use	Units	Intensity	Total	Total	In	Out	Total	In	Out
	Shopping Center	KSF	107.284	10137	379	235	144	969	465	504
	Restaurant	KSF	42.914	4169	61	31	31	539	296	242
	General Office	KSF	278.939	3024	424	373	51	402	68	333
	Multifamily (Mid-Rise)	DU	1184	5375	438	101	337	462	282	180
7	Total		**1613**	**22705**	**1302**	**739**	**563**	**2371**	**1111**	**1260**
				6130						
	Pass-By Credit (40%)				-151	-94	-58	-388	-186	-202
				16575	1151	645	505	1983	925	1058
	Internal Trip Capture				-265	-148	-116	-615	-287	-328
	Total			**16575**	**886**	**497**	**389**	**1368**	**638**	**730**

Zone				Daily	AM Peak Hour			PM Peak Hour		
	Land Use	Units	Intensity	Total	Total	In	Out	Total	In	Out
	Restaurant	KSF	253.817	24656	363	181	181	3185	1752	1433
	Light Industrial	KSF	592.24	2884	438	386	53	385	54	331
	Multifamily (Mid-Rise)	DU	262	1189	97	22	75	102	62	40
8	Total		**1108**	**28729**	**898**	**589**	**309**	**3673**	**1868**	**1804**
				7757						
				20973	898	589	309	3673	1868	1804
	Internal Trip Capture				-207	-136	-71	-1138	-579	-559
	Total			**20973**	**692**	**454**	**238**	**2534**	**1289**	**1245**

Zone				Daily	AM Peak Hour			PM Peak Hour		
	Land Use	Units	Intensity	Total	Total	In	Out	Total	In	Out
	Restaurant	KSF	24.302	2361	35	17	17	305	168	137
	General Office	KSF	461.735	5005	702	618	84	665	113	552
	Multifamily (Mid-Rise)	DU	607	2756	225	52	173	237	144	92
9	Total		**1093**	**10122**	**961**	**687**	**275**	**1207**	**425**	**781**
				2733						
				7389	961	687	275	1207	425	781
	Internal Trip Capture				-221	-158	-63	-374	-132	-242
	Total			**7389**	**740**	**529**	**211**	**833**	**293**	**539**

3.2 SPECIFIC PLAN AREA ROADWAY IMPROVEMENTS

As part of the Specific Plan process, existing transportation conditions and future potential roadway improvements for mobility enhancements were developed and refined. The improvements were developed to accommodate more modes of travel in the Downtown area, providing for bicycle, transit user, pedestrian, and vehicle travel modes in a more balanced way. A roadway network in a core city area with a mix of uses in close proximity, where trips between local districts and neighborhoods can be done with more mode choices, needs to have balanced mobility facilities on the roadways that accommodates those travel modes.

The recommended Downtown mobility network is a result of the existing conditions transportation analysis conducted for this study, Plan outreach efforts, and is incorporated into the analysis of conditions with the Specific Plan including the land use plan.

Figure 5 illustrates the roadway priorities defined for the Specific Plan, and Figure 6 illustrates the related roadway configurations in terms of vehicle travel lane changes, bicycle facility additions, phased roadway widening, and locations where on-street parking removal would be necessary for implementation of the other improvements.

Appendix D provides roadway cross-sections that illustrate in detail the proposed changes to Plan area roadways. The locations of the analyzed cross-sections are shown

FIGURE 5 – SPECIFIC PLAN ROADWAY PRIORITIES BY MODE OF TRAVEL

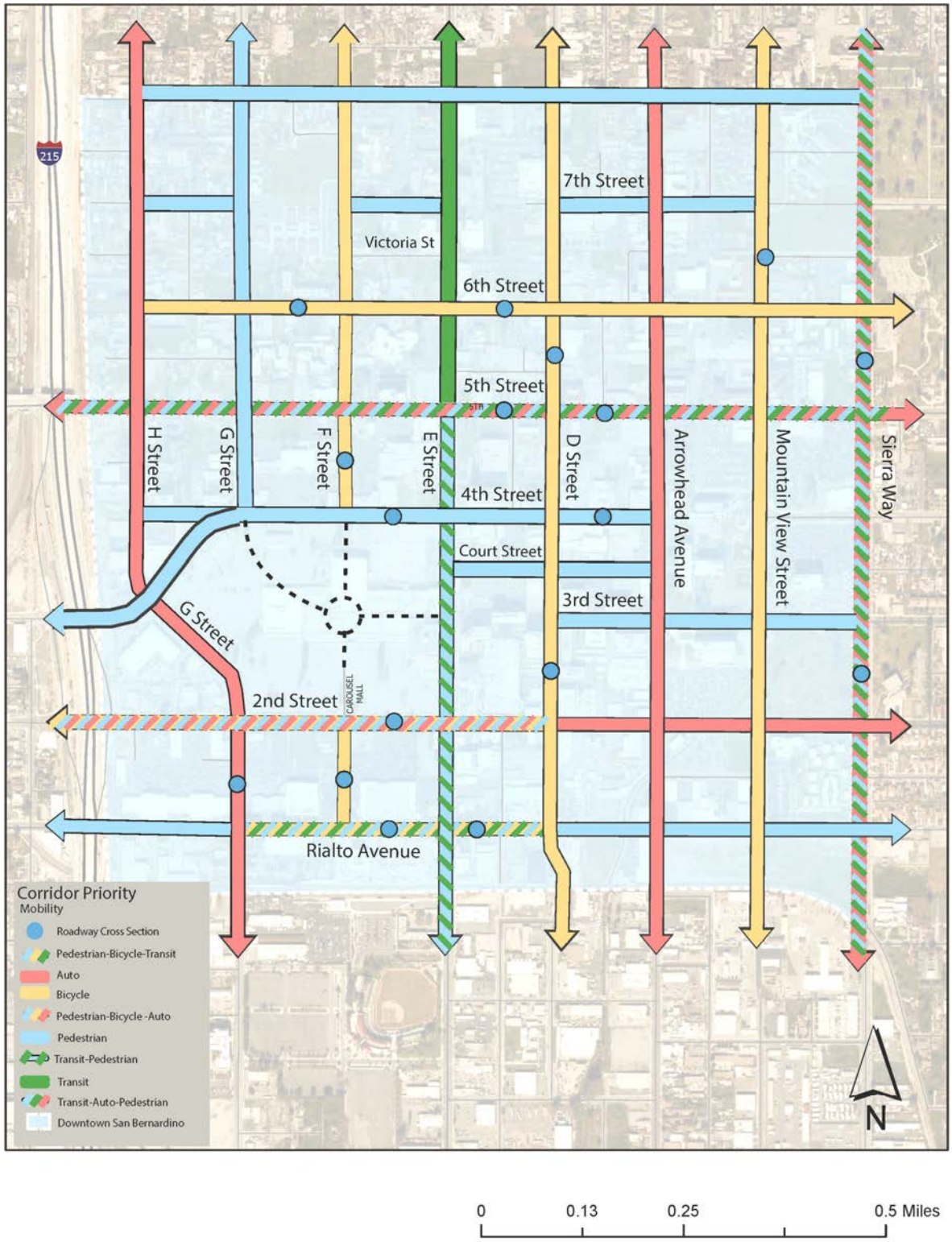
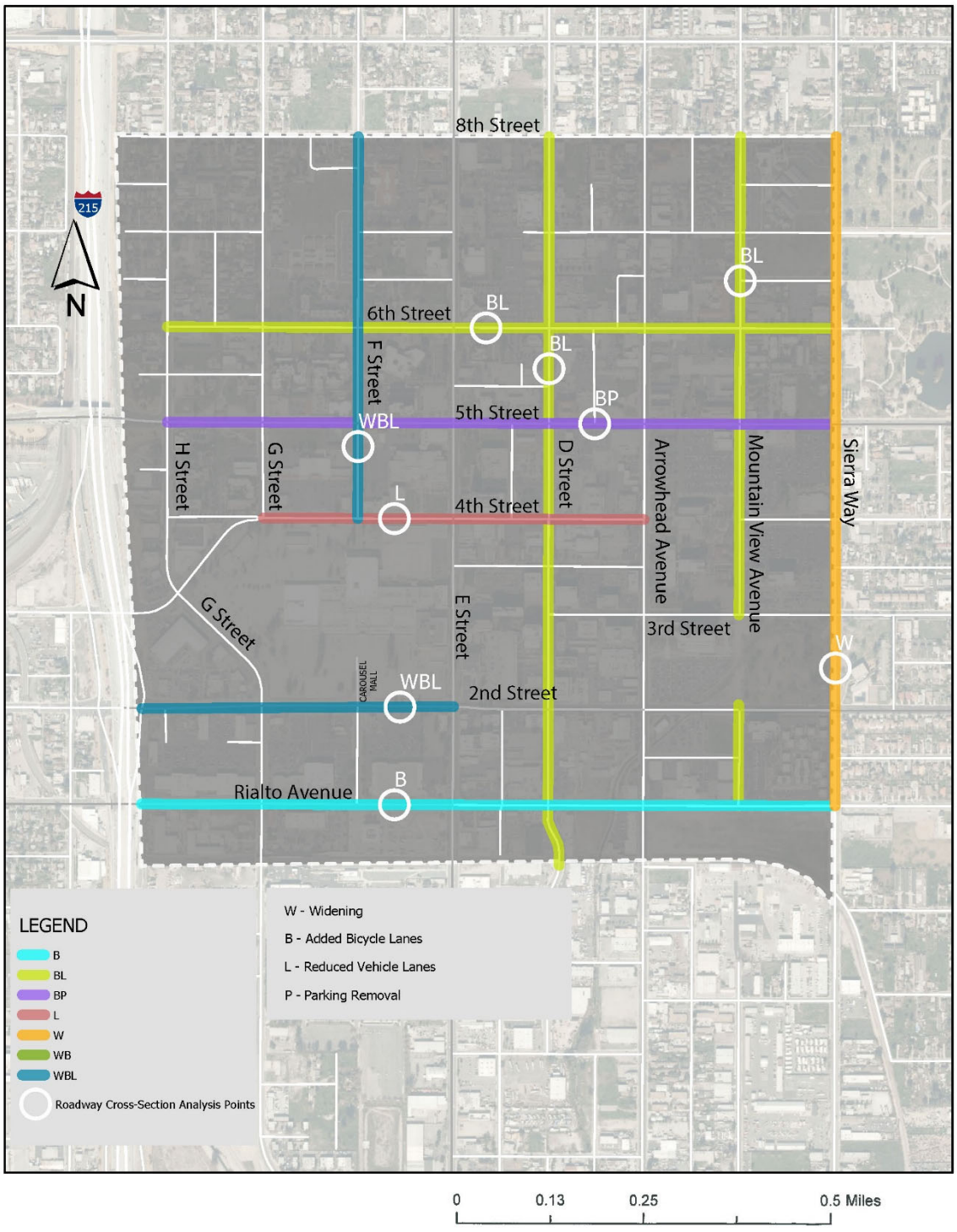


FIGURE 6 – ROADWAY CONFIGURATION CHANGES PROPOSED FOR PLAN



4.0 PROPOSED PROJECT CIRCULATION EFFECTS

The circulation effects of trips generated by all of the Specific Plan land uses are evaluated in this section, for both the existing timeframe and the future buildout timeframe.

4.1 EXISTING TIMEFRAME

Trips estimated to be generated by the Plan land uses were added to the existing volumes as an input to the analysis within this section. Table 7 provides the analysis of existing conditions and existing with-project (Plan) land uses at the study intersections.

TABLE 7 - EXISTING WITH-PROJECT LEVEL OF SERVICE AT STUDY INTERSECTIONS

Study Intersections		Peak Hour	Existing Conditions (2022)		Existing with Project Conditions (2022)	
			Delay in Sec.	LOS	Delay in Sec.	LOS
29	I-215 SB Ramps & 5th Street	AM	47.3	D	74.0	**E**
		PM	29.0	C	93.3	**F**
30	I-215 NB Ramps & 5th Street	AM	27.0	C	81.4	**F**
		PM	36.7	D	>100	**F**
31	G Street & 5th Street	AM	15.1	B	>100	**F**
		PM	15.8	B	>100	**F**
40	I-215 SB Ramps & 2nd Street	AM	25.1	C	27.9	C
		PM	30.4	C	>200	**F**
41	I-215 NB Ramps & 2nd Street	AM	34.9	D	>100	**F**
		PM	28.0	D	>200	**F**
42	G Street & 2nd Street	AM	41.2	**E**	>200	**F**
		PM	28.4	D	>200	**F**
43	E Street & 2nd Street	AM	41.2	**E**	>200	**F**
		PM	29.3	D	>200	**F**

LOS = Level of Service; HCM delay shown in X.X format.

The addition of Project traffic would affect the level of service at all of the study intersections, in at least one of the peak hours. Most study intersections would operate at LOS F during both peak hour periods, with the exception of the I-215 SB Ramps and 2nd Street intersection, which would continue to operate at LOS C during the AM peak hour.

For improvement of intersection operations with development of the Specific Plan area, the City can implement traffic signal synchronization and adaptive control improvements to facilitate corridor flow across the area and to and from the freeway interchanges. This will reduce delays that would be caused by the Plan if full buildout of the land uses is reached.

The level of service worksheets for the existing with-project conditions analysis of the study intersections are provided in Appendix E.

Table 8 provides the analysis of existing conditions and existing with-project (Plan) roadway configurations at the study roadway segments. This analysis did not include trips generated by new Plan land uses.

TABLE 8 - STUDY ROADWAY SEGMENT CAPACITIES WITH PROPOSED CROSS-SECTION CHANGES

Roadway	Daily Volume	Lanes	Roadway Capacity	Capacity Used (V/C Ratio)	Roadway Capacity with Plan Lane Reductions	Capacity Used (V/C Ratio)
6th Street	1,512	4	30,000	5%	15,000	10%
D Street	5,213	4	30,000	17%	12,000	43%
5th Street	21,741	4	40,000	54%	40,000	54%
Mountain View Avenue	1,711	4	25,000	7%	10,000	17%
4th Street	3,023	3	20,000	15%	20,000	15%
2nd Street	16,978	6	60,000	28%	40,000	42%
2nd Street	16,978	4	40,000	42%	40,000	42%
Rialto Avenue	10,103	4	30,000	34%	12,000	84%

The proposed roadways changes that would include lane reductions at specific locations such as Rialto Avenue, 6th Street, D Street, Mountain View Street, and part of 2nd Street, would result in slightly higher use of roadway occupancies such as Rialto Avenue where 84 percent would be utilized. All values including this percentage would remain well within capacity.

Table 9 provides the analysis of existing conditions and existing with-project (Plan) land uses and roadway configurations at the study roadway segments.

TABLE 9 - STUDY ROADWAY SEGMENT CAPACITIES WITH CROSS-SECTION CHANGES AND PLAN LAND USE

Roadway	Added Trips from Plan	New Lanes	New Roadway Capacity	Total Vehicle Volume	Capacity Used (V/C Ratio)	New Remaining Capacity
6th Street	**718**	2	15,000	2,230	15%	85%
D Street	**760**	2	12,000	5,973	50%	50%
5th Street	**17,172**	4	40,000	38,913	97%	3%
Mountain View Avenue	**2,122**	2	10,000	3,833	38%	62%
4th Street	**11,532**	2	20,000	14,555	73%	27%
2nd Street	**19,952**	4	40,000	36,930	92%	8%
2nd Street	**13,070**	4	40,000	30,048	75%	25%
Rialto Avenue	**7,182**	2	21,000	17,285	82%	18%

All roadway segments would continue to operate within capacity levels with the proposed cross-section and land use changes. This occurs in locations where lane reductions are proposed as part of the Plan and in others where such reductions are not proposed. The planned lane reductions on 6th Street, D Street, Mountain View Avenue, 4th Street, a western portion of 2nd Street, and Rialto Avenue are included in the analysis.

4.2 FUTURE TIMEFRAME

Future no-project baseline volumes were defined by comparison of existing baseline and future buildout volumes in the San Bernardino Transportation Analysis Model (SBTAM), the regional traffic model for San Bernardino County.

The year 2040 is the current model future buildout year, and that year was used for the future period analysis conducted for this study. Model volumes for roadways in the area surrounding the Specific Plan boundaries were compiled for the existing baseline and future buildout time periods of the model. Comparisons between the two sets of volumes were made, and annual growth rates based on averages across the roadways that could be applied to the existing conditions volumes were defined. The resulting volumes defined the future no-project conditions analysis.

Table 10 provides the analysis of future no-project and future with-project conditions, including Plan land uses and roadway configurations at the study intersections.

TABLE 10 – PROJECT EFFECTS ON STUDY INTERSECTIONS IN FUTURE PERIOD

Study Intersections		Peak Hour	Future (2040) without Project		Future (2040) with Project	
			Delay in Sec.	LOS	Delay in Sec.	LOS
29	I-215 SB Ramps & 5th Street	AM	45.7	D	>100	**F**
		PM	33.8	C	>200	**F**
30	I-215 NB Ramps & 5th Street	AM	30.8	D	>100	**F**
		PM	63.7	**F**	>200	**F**
31	G Street & 5th Street	AM	21.3	C	>100	**F**
		PM	20.9	C	>200	**F**
40	I-215 SB Ramps & 2nd Street	AM	24.6	C	30.8	C
		PM	40.1	D	>200	**F**
41	I-215 NB Ramps & 2nd Street	AM	43.0	**E**	>100	**F**
		PM	43.5	**E**	>200	**F**
42	G Street & 2nd Street	AM	80.8	**F**	>200	**F**
		PM	34.3	D	>200	**F**
43	E Street & 2nd Street	AM	80.3	**F**	>200	**F**
		PM	33.9	D	>200	**F**

LOS = Level of Service; HCM delay shown in X.X format.

For improvement of intersection operations with development of the Specific Plan area, the City can implement traffic signal synchronization and adaptive control improvements to facilitate corridor flow across the area and to and from the freeway interchanges. This will reduce delays that would be caused by the Plan if full buildout of the land uses is reached.

The level of service worksheets are provided in Appendix F for the future with-project conditions analysis of the study intersections, and the worksheets for the future with-project conditions analysis are provided in Appendix G.

Table 11 provides the analysis of future no-project and future with-project conditions, including project (Plan) land uses and roadway configurations, at the study roadway segments.

TABLE 11 – PROJECT EFFECTS ON ROADWAY SEGMENTS IN FUTURE PERIOD

Roadway	2040 Volumes	Added Trips from Plan	New Lanes	New Roadway Capacity	Total Vehicle Volume	Capacity Used (V/C Ratio)	Remaining Capacity
6th Street	1,868	**718**	2	15,000	2,586	17%	83%
D Street	6,441	**760**	2	12,000	7,201	60%	40%
5th Street	26,861	**17,172**	4	40,000	44,033	110%	-10%
Mountain View Avenue	2,114	**2,122**	2	10,000	4,236	42%	58%
4th Street	3,735	**11,532**	2	20,000	15,267	76%	24%
2nd Street	20,976	**19,952**	4	40,000	40,928	102%	-2%
2nd Street	20,976	**13,070**	4	40,000	34,046	85%	15%
Rialto Avenue	12,482	**7,182**	2	21,000	19,664	94%	6%

5.0 PROJECT ALTERNATIVE CIRCULATION EFFECTS

The circulation effects of trips generated by only the Specific Plan land uses within the former mall area (Transit Neighborhood zone) and adjacent area (Downtown Core zone), are evaluated in this section for both the existing timeframe and the future buildout timeframe. This is defined as a project alternative for the circulation analysis.

5.1 EXISTING TIMEFRAME

Trips estimated to be generated by the Plan alternative land uses, as defined for this section, were added to the existing volumes. Table 12 provides the analysis of existing conditions and existing with-project (Plan) alternative land uses at the study intersections.

TABLE 12 – PROJECT ALTERNATIVE EFFECTS ON STUDY INTERSECTIONS IN EXISTING PERIOD

Study Intersections		Peak Hour	Existing Conditions (2022)		Alternative Existing with Project Conditions (2022)	
			Delay in Sec.	LOS	Delay in Sec.	LOS
29	I-215 SB Ramps & 5th Street	AM	47.3	D	49.9	D
		PM	40.6	D	50.5	D
30	I-215 NB Ramps & 5th Street	AM	27.7	C	38.6	D
		PM	55.8	**E**	93.7	**F**
31	G Street & 5th Street	AM	15.1	B	38.7	D
		PM	24.3	C	69.4	**E**
40	I-215 SB Ramps & 2nd Street	AM	25.1	C	26.0	C
		PM	39.1	D	>100	**F**
41	I-215 NB Ramps & 2nd Street	AM	34.9	D	80.4	**F**
		PM	41.9	**E**	>100	**F**
42	G Street & 2nd Street	AM	41.4	**E**	>100	**F**
		PM	36.9	**E**	>200	**F**
43	E Street & 2nd Street	AM	174.7	**F**	>200	**F**
		PM	59.1	**F**	>200	**F**

LOS = Level of Service; HCM delay shown in X.X format.

The analyzed Project land use alternative would affect the level of service at intersections at a lesser significance when compared to the proposed scenario. Three study intersections would operate at LOS F in both the AM and PM peak hours. Four intersections would operate at LOS E or F in one of the peak hours.

For improvement of intersection operations with development of the analyzed Specific Plan alternative, the City can implement traffic signal synchronization and adaptive control improvements to facilitate corridor flow across the area and to and from the freeway interchanges. This will reduce delays that would be caused by the Plan if full buildout of the land uses is reached.

The level of service worksheets for the existing with-project alternative conditions analysis of the study intersections are provided in Appendix H.

Table 13 provides the analysis of existing and existing with-project alternative conditions, including the analyzed Plan alternative land uses and the roadway configurations at the study roadway segments.

TABLE 13 – PROJECT ALTERNATIVE EFFECTS ON STUDY ROADWAY SEGMENTS IN EXISTING PERIOD

Roadway	Added Trips from Plan	New Lanes	New Roadway Capacity	Total Vehicle Volume	Capacity Used (V/C Ratio)	New Remaining Capacity
6th Street	**0**	2	15,000	1,512	10%	90%
D Street	**760**	2	12,000	5,973	50%	50%
5th Street	**4,200**	4	40,000	25,941	65%	35%
Mountain View Avenue	**0**	2	10,000	1,711	17%	83%
4th Street	**11,532**	2	20,000	14,555	73%	27%
2nd Street	**12,298**	4	40,000	29,276	73%	27%
2nd Street	**5,980**	4	40,000	22,958	57%	43%
Rialto Avenue	**1,775**	2	21,000	11,878	57%	43%

The addition of project trips under this Plan alternative analysis, and the application of proposed roadway cross-sections would not result in capacity being exceeded at any of the study roadway segments in the existing period.

5.2 FUTURE TIMEFRAME

The future no-project conditions were defined by the same volumes analyzed in Section 4.2.

Table 14 provides the analysis of future no-project and with-project alternative conditions, including the analyzed Plan alternative land uses and the planned roadway configurations at the study intersections.

TABLE 14 – PROJECT ALTERNATIVE EFFECTS ON STUDY INTERSECTIONS IN FUTURE PERIOD

	Study Intersections	Peak Hour	Future (2040) Without Project		Future (2040) with Project Alternative	
			Delay in Sec.	LOS	Delay in Sec.	LOS
29	I-215 SB Ramps & 5th Street	AM	65.4	**E**	70.8	**E**
		PM	53.2	D	77.7	**E**
30	I-215 NB Ramps & 5th Street	AM	32.3	D	62.8	**F**
		PM	87.0	**F**	>100	**F**
31	G Street & 5th Street	AM	21.3	C	74.8	**E**
		PM	42.8	D	>100	**F**
40	I-215 SB Ramps & 2nd Street	AM	27.3	C	28.3	C
		PM	53.8	D	>100	**F**
41	I-215 NB Ramps & 2nd Street	AM	51.5	**F**	>100	**F**
		PM	66.9	**F**	>100	**F**
42	G Street & 2nd Street	AM	82.2	**F**	>100	**F**
		PM	64.4	**F**	>200	**F**
43	E Street & 2nd Street	AM	264.1	**F**	>200	**F**
		PM	>100	**F**	>200	**F**

LOS = Level of Service; HCM delay shown in X.X format.

In the future period with the Plan alternative, the study intersections are expected to operate at levels of service that range from C to F. Five out of the seven analyzed intersections in the downtown area would operate at LOS F in one or both peak hours, and a sixth intersection (the I-215 Southbound Ramps and 5th Street) would operate at LOS E in both peak hours. At the intersection of the I-215 Southbound Ramps and 2nd Street, the LOS would be C in the AM peak hour and F in the PM peak hour.

For improvement of intersection operations with development of the Specific Plan area, the City can implement traffic signal synchronization and adaptive control improvements to facilitate corridor flow across the area and to and from the freeway interchanges. This will reduce delays that would be caused by the Plan if full buildout of the land uses is reached.

The level of service worksheets for the future with-project alternative conditions analysis of the study intersections are provided in Appendix I.

Table 15 provides the analysis of future no-project and future with-project Plan alternative conditions, including the analyzed Plan alternative land uses and the roadway configurations at the study roadway segments.

TABLE 15 – PROJECT ALTERNATIVE EFFECTS ON STUDY ROADWAY SEGMENTS IN FUTURE PERIOD

Roadway	2040 Volumes	Added Trips from Plan	New Lanes	New Roadway Capacity	Total Vehicle Volume	Capacity Used (V/C Ratio)	Remaining Capacity
6th Street	1868	**0**	2	15,000	1,868	12%	88%
D Street	6441	**760**	2	12,000	7,201	60%	40%
5th Street	26861	**4,200**	4	40,000	31,061	78%	22%
Mountain View Avenue	2114	**0**	2	10,000	2,114	21%	79%
4th Street	3735	**11,532**	2	20,000	15,267	76%	24%
2nd Street	20976	**12,298**	4	40,000	33,274	83%	17%
2nd Street	20976	**5,980**	4	40,000	26,956	67%	33%
Rialto Avenue	12482	**1,775**	2	21,000	14,257	68%	32%

The addition of project trips under this alternative analysis, and the application of proposed roadway cross-sections would not result in capacity being exceeded at any of the study roadway segments in the future period.

APPENDIX A – ROADWAY DAILY TRAFFIC COUNT DATA SHEETS

Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

2nd St Bet. I-125 NB Ramps & E St

Day: Thursday
Date: 8/19/2021

City: San Bernardino
Project #: CA21_030065_039

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	9,471	7,507	16,978

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00	0	0	22		16		38		12:00	0	0	167		240		407	
00:15	0	0	19		9		28		12:15	0	0	151		168		319	
00:30	0	0	19		10		29		12:30	0	0	154		148		302	
00:45	0	0	10	70	8	43	18	113	12:45	0	0	158	630	130	686	288	1316
01:00	0	0	11		15		26		13:00	0	0	164		127		291	
01:15	0	0	14		6		20		13:15	0	0	158		125		283	
01:30	0	0	11		9		20		13:30	0	0	126		135		261	
01:45	0	0	10	46	5	35	15	81	13:45	0	0	133	581	127	514	260	1095
02:00	0	0	10		9		19		14:00	0	0	139		143		282	
02:15	0	0	10		6		16		14:15	0	0	164		140		304	
02:30	0	0	10		4		14		14:30	0	0	158		131		289	
02:45	0	0	8	38	9	28	17	66	14:45	0	0	136	597	123	537	259	1134
03:00	0	0	9		16		25		15:00	0	0	152		123		275	
03:15	0	0	17		10		27		15:15	0	0	140		114		254	
03:30	0	0	9		16		25		15:30	0	0	127		151		278	
03:45	0	0	17	52	5	47	22	99	15:45	0	0	150	569	134	522	284	1091
04:00	0	0	11		13		24		16:00	0	0	137		176		313	
04:15	0	0	21		17		38		16:15	0	0	153		152		305	
04:30	0	0	20		13		33		16:30	0	0	112		198		310	
04:45	0	0	37	89	9	52	46	141	16:45	0	0	128	530	172	698	300	1228
05:00	0	0	41		27		68		17:00	0	0	113		233		346	
05:15	0	0	54		33		87		17:15	0	0	116		184		300	
05:30	0	0	50		28		78		17:30	0	0	113		207		320	
05:45	0	0	72	217	17	105	89	322	17:45	0	0	107	449	129	753	236	1202
06:00	0	0	69		33		102		18:00	0	0	107		129		236	
06:15	0	0	103		37		140		18:15	0	0	98		97		195	
06:30	0	0	125		37		162		18:30	0	0	103		99		202	
06:45	0	0	195	492	27	134	222	626	18:45	0	0	98	406	79	404	177	810
07:00	0	0	211		57		268		19:00	0	0	109		86		195	
07:15	0	0	261		101		362		19:15	0	0	87		80		167	
07:30	0	0	276		112		388		19:30	0	0	96		59		155	
07:45	0	0	292	1040	72	342	364	1382	19:45	0	0	90	382	62	287	152	669
08:00	0	0	242		68		310		20:00	0	0	69		78		147	
08:15	0	0	185		61		246		20:15	0	0	82		66		148	
08:30	0	0	213		71		284		20:30	0	0	68		58		126	
08:45	0	0	193	833	112	312	305	1145	20:45	0	0	64	283	42	244	106	527
09:00	0	0	157		85		242		21:00	0	0	50		50		100	
09:15	0	0	137		97		234		21:15	0	0	64		46		110	
09:30	0	0	167		99		266		21:30	0	0	61		29		90	
09:45	0	0	129	590	105	386	234	976	21:45	0	0	38	213	32	157	70	370
10:00	0	0	133		102		235		22:00	0	0	47		52		99	
10:15	0	0	139		99		238		22:15	0	0	42		41		83	
10:30	0	0	135		105		240		22:30	0	0	26		23		49	
10:45	0	0	142	549	123	429	265	978	22:45	0	0	31	146	29	145	60	291
11:00	0	0	159		118		277		23:00	0	0	20		21		41	
11:15	0	0	140		120		260		23:15	0	0	24		18		42	
11:30	0	0	133		155		288		23:30	0	0	17		15		32	
11:45	0	0	164	596	193	586	357	1182	23:45	0	0	12	73	7	61	19	134
TOTALS				4612		2499		**7111**	**TOTALS**				4859		5008		**9867**
SPLIT %				64.9%		35.1%		**41.9%**	**SPLIT %**				49.2%		50.8%		**58.1%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	9,471	7,507	16,978

AM Peak Hour				07:15		11:30		**07:15**	**PM Peak Hour**				12:30		16:45		**12:00**
AM Pk Volume				1071		756		**1424**	**PM Pk Volume**				634		796		**1316**
Pk Hr Factor				0.917		0.788		**0.918**	**Pk Hr Factor**				0.966		0.854		**0.808**
7 - 9 Volume	0	0		1873		654		**2527**	**4 - 6 Volume**	0	0		979		1451		**2430**
7 - 9 Peak Hour				07:15		07:15		**07:15**	**4 - 6 Peak Hour**				16:00		16:45		**16:45**
7 - 9 Pk Volume	0	0		1071		353		**1424**	**4 - 6 Pk Volume**	0	0		530		796		**1266**
Pk Hr Factor	0.000	0.000		0.917		0.788		**0.918**	**Pk Hr Factor**	0.000	0.000		0.866		0.854		**0.915**

Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

4th St Bet. G St & F St

Day: Tuesday
Date: 8/10/2021

City: San Bernardino
Project #: CA21_030065_037

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,469	1,554	3,023

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00	0	0	2		2		4		12:00	0	0	26		39		65	
00:15	0	0	6		3		9		12:15	0	0	32		34		66	
00:30	0	0	2		5		7		12:30	0	0	24		31		55	
00:45	0	0	2	12	1	11	3	23	12:45	0	0	26	108	26	130	52	238
01:00	0	0	4		0		4		13:00	0	0	44		35		79	
01:15	0	0	0		7		7		13:15	0	0	27		28		55	
01:30	0	0	1		2		3		13:30	0	0	33		23		56	
01:45	0	0	2	7	1	10	3	17	13:45	0	0	20	124	25	111	45	235
02:00	0	0	3		3		6		14:00	0	0	17		31		48	
02:15	0	0	3		0		3		14:15	0	0	20		25		45	
02:30	0	0	1		0		1		14:30	0	0	21		28		49	
02:45	0	0	2	9	2	5	4	14	14:45	0	0	22	80	37	121	59	201
03:00	0	0	1		2		3		15:00	0	0	26		40		66	
03:15	0	0	4		2		6		15:15	0	0	18		29		47	
03:30	0	0	2		1		3		15:30	0	0	20		30		50	
03:45	0	0	1	8	1	6	2	14	15:45	0	0	25	89	36	135	61	224
04:00	0	0	0		2		2		16:00	0	0	31		28		59	
04:15	0	0	0		0				16:15	0	0	26		23		49	
04:30	0	0	3		2		5		16:30	0	0	35		56		91	
04:45	0	0	3	6	2	6	5	12	16:45	0	0	22	114	43	150	65	264
05:00	0	0	3		1		4		17:00	0	0	22		87		109	
05:15	0	0	4		2		6		17:15	0	0	24		51		75	
05:30	0	0	9		8		17		17:30	0	0	20		48		68	
05:45	0	0	12	28	6	17	18	45	17:45	0	0	25	91	30	216	55	307
06:00	0	0	10		9		19		18:00	0	0	23		23		46	
06:15	0	0	10		14		24		18:15	0	0	17		21		38	
06:30	0	0	13		9		22		18:30	0	0	12		13		25	
06:45	0	0	17	50	2	34	19	84	18:45	0	0	14	66	19	76	33	142
07:00	0	0	18		11		29		19:00	0	0	14		14		28	
07:15	0	0	39		9		48		19:15	0	0	9		18		27	
07:30	0	0	27		6		33		19:30	0	0	4		16		20	
07:45	0	0	32	116	7	33	39	149	19:45	0	0	13	40	13	61	26	101
08:00	0	0	36		13		49		20:00	0	0	11		23		34	
08:15	0	0	26		9		35		20:15	0	0	11		19		30	
08:30	0	0	26		16		42		20:30	0	0	17		8		25	
08:45	0	0	30	118	15	53	45	171	20:45	0	0	5	44	8	58	13	102
09:00	0	0	21		13		34		21:00	0	0	5		9		14	
09:15	0	0	21		14		35		21:15	0	0	4		9		13	
09:30	0	0	22		12		34		21:30	0	0	9		9		18	
09:45	0	0	15	79	17	56	32	135	21:45	0	0	11	29	5	32	16	61
10:00	0	0	23		18		41		22:00	0	0	11		8		19	
10:15	0	0	19		12		31		22:15	0	0	8		6		14	
10:30	0	0	21		21		42		22:30	0	0	7		8		15	
10:45	0	0	18	81	26	77	44	158	22:45	0	0	7	33	6	28	13	61
11:00	0	0	22		25		47		23:00	0	0	11		10		21	
11:15	0	0	26		20		46		23:15	0	0	9		6		15	
11:30	0	0	22		30		52		23:30	0	0	7		5		12	
11:45	0	0	29	99	27	102	56	201	23:45	0	0	11	38	5	26	16	64
TOTALS				613		410		**1023**	**TOTALS**				856		1144		**2000**
SPLIT %				59.9%		40.1%		**33.8%**	**SPLIT %**				42.8%		57.2%		**66.2%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,469	1,554	3,023

AM Peak Hour				07:15		11:45		**11:45**	**PM Peak Hour**				12:45		16:30		**16:30**
AM Pk Volume				134		131		**242**	**PM Pk Volume**				130		237		**340**
Pk Hr Factor				0.859		0.840		**0.917**	**Pk Hr Factor**				0.739		0.681		**0.780**
7 - 9 Volume	0	0		234		86		**320**	**4 - 6 Volume**	0	0		205		366		**571**
7 - 9 Peak Hour				07:15		08:00		**08:00**	**4 - 6 Peak Hour**				16:00		16:30		**16:30**
7 - 9 Pk Volume	0	0		134		53		**171**	**4 - 6 Pk Volume**	0	0		114		237		**340**
Pk Hr Factor	0.000	0.000		0.859		0.828		**0.872**	**Pk Hr Factor**	0.000	0.000		0.814		0.681		**0.780**

Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

W Rialto Ave Bet. I-215 & E St

Day: Tuesday
Date: 8/17/2021

City: San Bernardino
Project #: CA21_030065_044

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	4,289	5,814	10,103

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00	0	0	1		12		13		12:00	0	0	61		102		163	
00:15	0	0	4		9		13		12:15	0	0	53		106		159	
00:30	0	0	3		10		13		12:30	0	0	85		117		202	
00:45	0	0	8	16	2	33	10	49	12:45	0	0	65	264	93	418	158	682
01:00	0	0	2		10		12		13:00	0	0	66		105		171	
01:15	0	0	5		5		10		13:15	0	0	71		94		165	
01:30	0	0	8		9		17		13:30	0	0	86		104		190	
01:45	0	0	5	20	10	34	15	54	13:45	0	0	80	303	104	407	184	710
02:00	0	0	11		4		15		14:00	0	0	55		85		140	
02:15	0	0	6		5		11		14:15	0	0	89		90		179	
02:30	0	0	7		10		17		14:30	0	0	73		111		184	
02:45	0	0	7	31	6	25	13	56	14:45	0	0	72	289	98	384	170	673
03:00	0	0	4		5		9		15:00	0	0	84		106		190	
03:15	0	0	4		10		14		15:15	0	0	80		115		195	
03:30	0	0	7		3		10		15:30	0	0	99		132		231	
03:45	0	0	10	25	6	24	16	49	15:45	0	0	87	350	147	500	234	850
04:00	0	0	7		12		19		16:00	0	0	109		144		253	
04:15	0	0	8		13		21		16:15	0	0	78		103		181	
04:30	0	0	15		14		29		16:30	0	0	87		147		234	
04:45	0	0	17	47	24	63	41	110	16:45	0	0	78	352	163	557	241	909
05:00	0	0	17		11		28		17:00	0	0	95		170		265	
05:15	0	0	12		16		28		17:15	0	0	75		153		228	
05:30	0	0	29		29		58		17:30	0	0	74		130		204	
05:45	0	0	31	89	26	82	57	171	17:45	0	0	70	314	107	560	177	874
06:00	0	0	33		22		55		18:00	0	0	51		89		140	
06:15	0	0	26		30		56		18:15	0	0	51		80		131	
06:30	0	0	32		34		66		18:30	0	0	49		61		110	
06:45	0	0	59	150	44	130	103	280	18:45	0	0	53	204	96	326	149	530
07:00	0	0	61		69		130		19:00	0	0	43		80		123	
07:15	0	0	91		87		178		19:15	0	0	36		66		102	
07:30	0	0	105		76		181		19:30	0	0	34		55		89	
07:45	0	0	113	370	86	318	199	688	19:45	0	0	32	145	43	244	75	389
08:00	0	0	84		68		152		20:00	0	0	36		73		109	
08:15	0	0	68		66		134		20:15	0	0	24		32		56	
08:30	0	0	67		67		134		20:30	0	0	24		47		71	
08:45	0	0	75	294	73	274	148	568	20:45	0	0	23	107	44	196	67	303
09:00	0	0	48		76		124		21:00	0	0	23		37		60	
09:15	0	0	66		100		166		21:15	0	0	14		42		56	
09:30	0	0	53		77		130		21:30	0	0	14		19		33	
09:45	0	0	56	223	82	335	138	558	21:45	0	0	26	77	23	121	49	198
10:00	0	0	62		87		149		22:00	0	0	19		27		46	
10:15	0	0	72		64		136		22:15	0	0	17		33		50	
10:30	0	0	51		81		132		22:30	0	0	16		28		44	
10:45	0	0	59	244	82	314	141	558	22:45	0	0	18	70	16	104	34	174
11:00	0	0	69		62		131		23:00	0	0	8		28		36	
11:15	0	0	68		84		152		23:15	0	0	12		11		23	
11:30	0	0	60		75		135		23:30	0	0	9		13		22	
11:45	0	0	68	265	78	299	146	564	23:45	0	0	11	40	14	66	25	106
TOTALS				1774		1931		3705	TOTALS				2515		3883		6398
SPLIT %				47.9%		52.1%		36.7%	SPLIT %				39.3%		60.7%		63.3%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	4,289	5,814	10,103

AM Peak Hour				07:15		11:45		07:15	PM Peak Hour				15:15		16:30			16:30
AM Pk Volume				393		403		710	PM Pk Volume				375		633			968
Pk Hr Factor				0.869		0.861		0.892	Pk Hr Factor				0.860		0.931			0.913
7 - 9 Volume	0	0		664		592		1256	4 - 6 Volume	0	0		666		1117			1783
7 - 9 Peak Hour				07:15		07:00		07:15	4 - 6 Peak Hour				16:00		16:30			16:30
7 - 9 Pk Volume	0	0		393		318		710	4 - 6 Pk Volume	0	0		352		633			968
Pk Hr Factor	0.000	0.000		0.869		0.914		0.892	Pk Hr Factor	0.000	0.000		0.807		0.931			0.913

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of San Bernardino
5th Street
W/ Mountain View Avenue
24 Hour Directional Volume Count

SBC008
Site Code: 041-21468

Start Time	08-Sep-21 Wed	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		50	171			23	162				
12:15		24	164			21	151				
12:30		26	195			38	140				
12:45		25	170	125	700	27	182	109	635	234	1335
01:00		26	208			26	160				
01:15		25	160			11	174				
01:30		30	174			23	173				
01:45		27	178	108	720	20	173	80	680	188	1400
02:00		15	157			28	165				
02:15		13	157			32	196				
02:30		17	194			19	198				
02:45		28	174	73	682	23	172	102	731	175	1413
03:00		23	190			21	186				
03:15		41	192			38	**177**				
03:30		39	194			27	**217**				
03:45		38	212	141	788	39	**205**	125	785	266	1573
04:00		19	202			37	**241**				
04:15		28	190			65	165				
04:30		47	**229**			67	219				
04:45		40	**228**	134	849	67	164	236	789	370	1638
05:00		34	**205**			78	232				
05:15		63	**196**			96	200				
05:30		76	168			96	206				
05:45		83	183	256	752	77	158	347	796	603	1548
06:00		75	174			72	159				
06:15		84	149			93	131				
06:30		123	119			114	143				
06:45		198	134	480	576	134	120	413	553	893	1129
07:00		182	126			157	116				
07:15		**187**	107			142	105				
07:30		**225**	108			144	107				
07:45		**238**	103	832	444	122	83	565	411	1397	855
08:00		**209**	98			152	84				
08:15		169	91			121	70				
08:30		149	104			143	75				
08:45		170	84	697	377	138	61	554	290	1251	667
09:00		149	84			141	76				
09:15		153	76			153	55				
09:30		137	66			131	53				
09:45		128	75	567	301	118	57	543	241	1110	542
10:00		127	65			140	76				
10:15		140	49			140	43				
10:30		142	52			164	45				
10:45		152	58	561	224	122	54	566	218	1127	442
11:00		140	61			**152**	38				
11:15		137	50			**159**	28				
11:30		137	40			**189**	38				
11:45		174	40	588	191	**176**	26	676	130	1264	321
Total		4562	6604	4562	6604	4316	6259	4316	6259	8878	12863
Combined Total		11166		11166		10575		10575		21741	
AM Peak	-	07:15	-	-	-	11:00	-	-	-	-	-
Vol.	-	859	-	-	-	676	-	-	-	-	-
P.H.F.		0.902				0.894					
PM Peak	-	-	04:30	-	-	-	03:15	-	-	-	-
Vol.	-	-	858	-	-	-	840	-	-	-	-
P.H.F.			0.937				0.871				
Percentage		40.9%	59.1%			40.8%	59.2%				
ADT/AADT		ADT 21,741		AADT 21,741							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of San Bernardino
6th Street
W/ Mountain View Avenue
24 Hour Directional Volume Count

SBC007
Site Code: 041-21468

Start Time	08-Sep-21 Wed	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		2	15			1	14				
12:15		1	24			0	11				
12:30		3	22			1	12				
12:45		2	18	8	79	1	13	3	50	11	129
01:00		4	17			2	5				
01:15		1	20			2	18				
01:30		1	15			0	10				
01:45		2	20	8	72	0	17	4	50	12	122
02:00		4	17			0	7				
02:15		0	15			2	10				
02:30		3	20			2	14				
02:45		1	12	8	64	0	14	4	45	12	109
03:00		2	21			0	12				
03:15		3	20			1	14				
03:30		1	21			0	7				
03:45		1	14	7	76	1	12	2	45	9	121
04:00		2	22			1	9				
04:15		0	15			1	**13**				
04:30		3	**22**			3	**7**				
04:45		0	**25**	5	84	1	**13**	6	42	11	126
05:00		1	**17**			2	**26**				
05:15		0	**23**			2	10				
05:30		0	14			2	7				
05:45		0	18	1	72	1	6	7	49	8	121
06:00		0	21			1	9				
06:15		1	5			2	10				
06:30		1	13			4	5				
06:45		4	13	6	52	8	2	15	26	21	78
07:00		3	4			5	3				
07:15		10	10			8	5				
07:30		9	6			10	9				
07:45		11	12	33	32	7	3	30	20	63	52
08:00		9	8			9	5				
08:15		**15**	8			9	2				
08:30		**15**	4			10	3				
08:45		**21**	5	60	25	**14**	2	42	12	102	37
09:00		**18**	4			**10**	2				
09:15		15	5			**10**	3				
09:30		13	4			**15**	2				
09:45		16	4	62	17	10	3	45	10	107	27
10:00		14	2			8	1				
10:15		11	2			4	1				
10:30		14	5			12	1				
10:45		15	3	54	12	11	3	35	6	89	18
11:00		15	3			11	3				
11:15		13	1			5	0				
11:30		18	4			7	4				
11:45		23	3	69	11	14	3	37	10	106	21
Total		321	596	321	596	230	365	230	365	551	961
Combined Total		917		917		595		595		1512	
AM Peak	-	08:15	-	-	-	08:45	-	-	-	-	-
Vol.	-	69	-	-	-	49	-	-	-	-	-
P.H.F.		0.821				0.817					
PM Peak	-	-	04:30	-	-	-	04:15	-	-	-	-
Vol.	-	-	87	-	-	-	59	-	-	-	-
P.H.F.			0.870				0.567				
Percentage		35.0%	65.0%			38.7%	61.3%				
ADT/AADT		ADT 1,512		AADT 1,512							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of San Bernardino
D Street
N/ 6th Street
24 Hour Directional Volume Count

SBC005
Site Code: 041-21468

Start Time	08-Sep-21 Wed	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		4	62			0	43				
12:15		3	49			5	46				
12:30		2	33			2	40				
12:45		3	52	12	196	5	43	12	172	24	368
01:00		4	47			1	53				
01:15		3	60			2	51				
01:30		3	55			1	33				
01:45		2	60	12	222	3	44	7	181	19	403
02:00		4	58			6	38				
02:15		5	61			0	37				
02:30		2	61			4	54				
02:45		3	56	14	236	3	45	13	174	27	410
03:00		1	42			2	38				
03:15		2	46			2	39				
03:30		2	43			4	33				
03:45		3	55	8	186	0	40	8	150	16	336
04:00		2	51			4	39				
04:15		3	**67**			1	40				
04:30		4	**70**			9	42				
04:45		4	**57**	13	245	5	33	19	154	32	399
05:00		6	**56**			6	**47**				
05:15		6	61			2	**58**				
05:30		6	53			3	**55**				
05:45		9	59	27	229	11	**45**	22	205	49	434
06:00		14	45			7	40				
06:15		18	39			18	33				
06:30		20	39			12	32				
06:45		30	44	82	167	19	38	56	143	138	310
07:00		17	54			13	47				
07:15		22	47			16	21				
07:30		21	33			23	25				
07:45		31	32	91	166	41	40	93	133	184	299
08:00		36	27			22	20				
08:15		35	35			22	19				
08:30		31	34			25	32				
08:45		45	34	147	130	18	52	87	123	234	253
09:00		42	17			34	15				
09:15		21	20			25	16				
09:30		**53**	22			31	14				
09:45		**55**	19	171	78	42	13	132	58	303	136
10:00		**53**	17			34	25				
10:15		**50**	12			35	13				
10:30		52	7			36	15				
10:45		33	6	188	42	40	7	145	60	333	102
11:00		45	4			**37**	10				
11:15		57	5			**41**	5				
11:30		52	3			**39**	3				
11:45		47	7	201	19	**43**	6	160	24	361	43
Total		966	1916	966	1916	754	1577	754	1577	1720	3493
Combined Total		2882		2882		2331		2331		5213	
AM Peak	-	09:30	-	-	-	11:00	-	-	-	-	-
Vol.	-	211	-	-	-	160	-	-	-	-	-
P.H.F.		0.959				0.930					
PM Peak	-	-	04:15	-	-	-	05:00	-	-	-	-
Vol.	-	-	250	-	-	-	205	-	-	-	-
P.H.F.			0.893				0.884				
Percentage		33.5%	66.5%			32.3%	67.7%				
ADT/AADT		ADT 5,213		AADT 5,213							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of San Bernardino
Mountain View Avenue
N/ 4th Street
24 Hour Directional Volume Count

SBC015
Site Code: 041-21468

Start Time	08-Sep-21 Wed	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		0	24			3	**16**				
12:15		0	14			1	**16**				
12:30		2	7			0	**28**				
12:45		0	12	2	57	1	**21**	5	81	7	138
01:00		0	10			1	14				
01:15		0	15			1	16				
01:30		0	13			0	13				
01:45		0	6	0	44	0	13	2	56	2	100
02:00		0	8			0	10				
02:15		0	19			1	13				
02:30		0	14			0	16				
02:45		1	13	1	54	1	12	2	51	3	105
03:00		0	11			0	13				
03:15		0	11			1	7				
03:30		0	12			1	8				
03:45		0	7	0	41	1	10	3	38	3	79
04:00		1	33			0	5				
04:15		0	16			0	5				
04:30		0	35			1	8				
04:45		0	13	1	97	1	10	2	28	3	125
05:00		0	**111**			1	8				
05:15		0	**36**			2	10				
05:30		2	**58**			3	3				
05:45		0	**17**	2	222	3	1	9	22	11	244
06:00		1	18			8	4				
06:15		1	8			10	3				
06:30		2	4			21	1				
06:45		2	8	6	38	59	2	98	10	104	48
07:00		4	2			48	1				
07:15		6	0			**70**	0				
07:30		8	0			**64**	2				
07:45		11	0	29	2	**66**	0	248	3	277	5
08:00		6	0			**50**	0				
08:15		8	0			27	0				
08:30		5	1			18	1				
08:45		6	0	25	1	19	0	114	1	139	2
09:00		12	1			13	1				
09:15		8	1			10	1				
09:30		14	2			13	0				
09:45		16	0	50	4	12	0	48	2	98	6
10:00		14	1			10	0				
10:15		10	0			9	2				
10:30		14	0			14	0				
10:45		14	0	52	1	11	1	44	3	96	4
11:00		**15**	0			12	2				
11:15		**10**	0			9	1				
11:30		**18**	1			15	0				
11:45		**18**	1	61	2	9	1	45	4	106	6
Total		229	563	229	563	620	299	620	299	849	862
Combined Total		792		792		919		919		1711	
AM Peak	-	11:00	-	-	-	07:15	-	-	-	-	-
Vol.	-	61	-	-	-	250	-	-	-	-	-
P.H.F.		0.847				0.893					
PM Peak	-	-	05:00	-	-	-	12:00	-	-	-	-
Vol.	-	-	222	-	-	-	81	-	-	-	-
P.H.F.			0.500				0.723				
Percentage		28.9%	71.1%			67.5%	32.5%				
ADT/AADT		ADT 1,711		AADT 1,711							

APPENDIX B – INTERSECTION PEAK-HOUR COUNT DATA SHEETS

National Data & Surveying Services

Intersection Turning Movement Count

Location: I-215 NB Ramps & 2nd St
City: San Bernardino
Control: Signalized

Project ID: Historical
Date: 10/24/2017

Total

NS/EW Streets:	I-215 NB Ramps				I-215 NB Ramps				2nd St				2nd St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.3	0.3	1.3	0	0	0	0	0	2	2	0	0	0	4	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	19	24	171	0	0	0	0	0	27	106	0	0	0	60	20	0	427
7:15 AM	20	28	239	0	0	0	0	0	44	138	0	0	0	77	31	0	577
7:30 AM	30	20	218	0	0	0	0	0	42	155	0	1	0	80	49	0	595
7:45 AM	32	52	216	0	0	0	0	0	54	148	0	0	0	72	53	0	627
8:00 AM	29	34	200	0	0	0	0	0	26	99	0	0	0	45	43	0	476
8:15 AM	39	35	219	0	0	0	0	0	31	84	0	0	0	68	27	0	503
8:30 AM	34	19	214	0	0	0	0	0	30	92	0	0	0	75	40	0	504
8:45 AM	34	16	163	0	0	0	0	0	19	106	0	0	0	101	36	0	475
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	237	228	1640	0	0	0	0	0	273	928	0	1	0	578	299	0	4184
APPROACH %'s :	11.26%	10.83%	77.91%	0.00%					22.71%	77.20%	0.00%	0.08%	0.00%	65.91%	34.09%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	111	134	873	0	0	0	0	0	166	540	0	1	0	274	176	0	2275
PEAK HR FACTOR :	0.867	0.644	0.913	0.000	0.000	0.000	0.000	0.000	0.769	0.871	0.000	0.250	0.000	0.856	0.830	0.000	0.907
	0.932								0.875				0.872				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.3	0.3	1.3	0	0	0	0	0	2	2	0	0	0	4	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	31	13	96	0	0	0	0	0	50	90	0	0	0	172	116	0	568
4:15 PM	29	9	81	0	0	0	0	0	51	65	0	0	0	161	100	0	496
4:30 PM	34	8	97	0	0	0	0	0	46	83	0	0	0	222	120	0	610
4:45 PM	26	9	101	0	0	0	0	0	47	85	0	0	0	175	96	0	539
5:00 PM	32	12	94	0	0	0	0	0	46	56	0	0	0	216	140	0	596
5:15 PM	24	8	91	0	0	0	0	0	58	94	0	0	0	194	110	0	579
5:30 PM	33	7	69	0	0	0	0	0	48	65	0	0	0	151	96	0	469
5:45 PM	25	13	104	0	0	0	0	0	51	61	0	0	0	141	96	0	491
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	234	79	733	0	0	0	0	0	397	599	0	0	0	1432	874	0	4348
APPROACH %'s :	22.37%	7.55%	70.08%	0.00%					39.86%	60.14%	0.00%	0.00%	0.00%	62.10%	37.90%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	116	37	383	0	0	0	0	0	197	318	0	0	0	807	466	0	2324
PEAK HR FACTOR :	0.853	0.771	0.948	0.000	0.000	0.000	0.000	0.000	0.849	0.846	0.000	0.000	0.000	0.909	0.832	0.000	0.952
	0.964								0.847				0.894				

National Data & Surveying Services

Intersection Turning Movement Count

Location: I-215 SB Ramps & 2nd St
City: San Bernardino
Control: Signalized

Project ID: Historical
Date: 10/24/2017

Total

NS/EW Streets:	I-215 SB Ramps				I-215 SB Ramps				2nd St				2nd St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	1.5	1	0.5	0	0	3	1	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	93	10	46	0	0	51	22	0	46	37	0	0	305
7:15 AM	0	0	0	0	119	10	42	0	0	67	25	0	56	36	0	0	355
7:30 AM	0	0	0	0	134	17	74	0	0	78	28	0	64	54	0	0	449
7:45 AM	0	0	0	0	120	11	52	0	0	62	21	0	44	46	0	0	356
8:00 AM	0	0	0	0	76	3	42	0	0	41	17	0	38	48	0	0	265
8:15 AM	0	0	0	0	62	9	46	0	0	48	14	0	54	68	0	0	301
8:30 AM	0	0	0	0	71	9	38	0	0	54	37	0	49	44	0	0	302
8:45 AM	0	0	0	0	83	9	25	0	0	53	26	0	77	64	0	0	337
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	758	78	365	0	0	454	190	0	428	397	0	0	2670
APPROACH %'s :					63.11%	6.49%	30.39%	0.00%	0.00%	70.50%	29.50%	0.00%	51.88%	48.12%	0.00%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	0	0	0	466	48	214	0	0	258	96	0	210	173	0	0	1465
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.869	0.706	0.723	0.000	0.000	0.827	0.857	0.000	0.820	0.801	0.000	0.000	0.816
					0.809				0.835				0.811				

NS/EW Streets:	I-215 SB Ramps				I-215 SB Ramps				2nd St				2nd St				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	1.5	1	0.5	0	0	3	1	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	42	32	57	0	0	93	40	0	132	71	0	0	467
4:15 PM	0	0	0	0	29	45	32	0	0	88	34	0	137	65	0	0	430
4:30 PM	0	0	0	0	32	55	39	0	0	100	45	0	180	76	0	0	527
4:45 PM	0	0	0	0	41	39	47	0	0	89	46	0	131	67	0	0	460
5:00 PM	0	0	0	0	35	59	49	0	0	88	44	0	206	68	0	0	549
5:15 PM	0	0	0	0	42	27	50	0	0	85	55	0	129	52	0	0	440
5:30 PM	0	0	0	0	36	19	37	0	0	81	39	0	127	63	0	0	402
5:45 PM	0	0	0	0	21	22	26	0	0	96	42	0	106	60	0	0	373
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	278	298	337	0	0	720	345	0	1148	522	0	0	3648
APPROACH %'s :					30.45%	32.64%	36.91%	0.00%	0.00%	67.61%	32.39%	0.00%	68.74%	31.26%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	0	0	150	180	185	0	0	362	190	0	646	263	0	0	1976
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.893	0.763	0.925	0.000	0.000	0.905	0.864	0.000	0.784	0.865	0.000	0.000	0.900
					0.900				0.952				0.829				

National Data & Surveying Services

Intersection Turning Movement Count

Location: G St & 5th St
City: San Bernardino
Control: Signalized

Project ID: Historical
Date: 3/5/2020

Total

NS/EW Streets:	G St				G St				5th St				5th St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	0	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	2	0	0	9	7	6	0	15	248	5	0	0	136	10	0	438
7:15 AM	1	4	1	0	9	22	10	0	14	307	2	0	2	137	3	0	512
7:30 AM	1	4	1	0	7	14	7	0	17	313	4	0	2	120	8	0	498
7:45 AM	2	9	1	0	11	17	12	0	16	361	8	0	2	127	9	0	575
8:00 AM	1	6	0	0	6	13	19	0	27	297	4	0	3	114	11	0	501
8:15 AM	1	7	0	0	4	14	13	0	26	262	2	0	1	108	4	0	442
8:30 AM	2	4	0	0	9	12	20	0	19	227	8	0	1	121	14	0	437
8:45 AM	2	7	2	0	13	13	16	0	26	232	10	0	5	130	9	0	465
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	10	43	5	0	68	112	103	0	160	2247	43	0	16	993	68	0	3868
APPROACH %'s :	17.24%	74.14%	8.62%	0.00%	24.03%	39.58%	36.40%	0.00%	6.53%	91.71%	1.76%	0.00%	1.49%	92.20%	6.31%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	5	23	3	0	33	66	48	0	74	1278	18	0	9	498	31	0	2086
PEAK HR FACTOR :	0.625	0.639	0.750	0.000	0.750	0.750	0.632	0.000	0.685	0.885	0.563	0.000	0.750	0.909	0.705	0.000	0.907
	0.646				0.896				0.890				0.947				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	0	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	22	1	0	21	28	24	0	20	210	1	0	4	256	29	0	618
4:15 PM	2	12	1	0	20	17	29	0	28	178	8	0	5	227	18	0	545
4:30 PM	1	23	1	0	9	27	31	0	26	192	5	0	9	222	19	0	565
4:45 PM	3	29	4	0	21	27	17	0	20	173	3	0	3	252	25	0	577
5:00 PM	3	23	5	0	13	23	26	1	17	163	4	0	2	291	25	0	596
5:15 PM	4	23	1	0	18	28	23	1	24	173	8	0	4	253	28	0	588
5:30 PM	2	27	4	0	15	21	25	1	24	176	5	0	0	246	28	0	574
5:45 PM	7	22	5	0	13	16	20	0	33	212	14	0	3	212	18	0	575
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	24	181	22	0	130	187	195	3	192	1477	48	0	30	1959	190	0	4638
APPROACH %'s :	10.57%	79.74%	9.69%	0.00%	25.24%	36.31%	37.86%	0.58%	11.18%	86.02%	2.80%	0.00%	1.38%	89.90%	8.72%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	12	102	14	0	67	99	91	3	85	685	20	0	9	1042	106	0	2335
PEAK HR FACTOR :	0.750	0.879	0.700	0.000	0.798	0.884	0.875	0.750	0.885	0.973	0.625	0.000	0.563	0.895	0.946	0.000	0.979
	0.889				0.929				0.963				0.910				

National Data & Surveying Services

Intersection Turning Movement Count

Location: G St & 2nd St
City: San Bernardino
Control: Signalized

Project ID: Historical
Date: 10/24/2017

Total

NS/EW Streets:	G St				G St				2nd St				2nd St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	3	0	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	7	14	15	0	26	21	3	0	8	210	39	0	9	65	7	1	425
7:15 AM	35	28	9	0	38	42	4	0	9	283	52	0	4	62	8	1	575
7:30 AM	38	37	19	1	49	45	4	0	8	298	65	0	15	93	8	3	683
7:45 AM	28	23	11	0	48	42	4	0	7	262	81	0	9	79	15	1	610
8:00 AM	18	25	13	0	23	25	3	0	6	251	41	0	14	66	7	1	493
8:15 AM	22	23	15	0	30	24	2	0	10	251	36	1	8	70	12	1	505
8:30 AM	17	22	15	0	32	32	2	0	13	240	32	0	20	86	17	1	529
8:45 AM	21	24	12	0	20	33	7	1	12	199	34	2	7	105	8	3	488
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	186	196	109	1	266	264	29	1	73	1994	380	3	86	626	82	12	4308
APPROACH %'s :	37.80%	39.84%	22.15%	0.20%	47.50%	47.14%	5.18%	0.18%	2.98%	81.39%	15.51%	0.12%	10.67%	77.67%	10.17%	1.49%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	119	113	52	1	158	154	15	0	30	1094	239	0	42	300	38	6	2361
PEAK HR FACTOR :	0.783	0.764	0.684	0.250	0.806	0.856	0.938	0.000	0.833	0.918	0.738	0.000	0.700	0.806	0.633	0.500	0.864
	0.750				0.834				0.918				0.811				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	3	0	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	65	77	15	0	30	32	15	0	11	133	24	2	14	199	30	2	649
4:15 PM	45	54	14	0	26	40	14	0	6	110	16	6	17	194	21	1	564
4:30 PM	47	66	17	0	13	42	11	0	20	124	18	3	19	261	16	2	659
4:45 PM	42	44	11	0	11	23	10	0	18	131	17	2	19	200	25	0	553
5:00 PM	52	63	19	0	14	24	8	0	12	108	16	4	16	298	17	0	651
5:15 PM	44	71	17	0	12	45	17	0	11	128	16	2	12	216	22	1	614
5:30 PM	41	64	13	0	21	23	13	0	18	95	15	2	17	185	23	1	531
5:45 PM	43	44	11	0	14	23	11	0	18	101	10	2	14	177	16	0	484
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	379	483	117	0	141	252	99	0	114	930	132	23	128	1730	170	7	4705
APPROACH %'s :	38.71%	49.34%	11.95%	0.00%	28.66%	51.22%	20.12%	0.00%	9.51%	77.56%	11.01%	1.92%	6.29%	85.01%	8.35%	0.34%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	185	244	64	0	50	134	46	0	61	491	67	11	66	975	80	3	2477
PEAK HR FACTOR :	0.889	0.859	0.842	0.000	0.893	0.744	0.676	0.000	0.763	0.937	0.931	0.688	0.868	0.818	0.800	0.375	0.940
	0.920				0.777				0.938				0.849				

National Data & Surveying Services

Intersection Turning Movement Count

Location: I-215 SB Ramps & 5th St
City: San Bernardino
Control: Signalized

Project ID: Historical
Date: 3/5/2020

Total

NS/EW Streets:	I-215 SB Ramps				I-215 SB Ramps				5th St				5th St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	1.3	0.3	1.3	0	0	4	0	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	134	0	29	0	0	96	81	0	96	116	0	0	552
7:15 AM	0	0	0	0	174	0	36	0	0	109	114	0	99	102	0	0	634
7:30 AM	0	0	0	0	136	1	42	0	0	146	101	0	96	115	0	0	637
7:45 AM	0	0	0	0	187	1	42	0	0	133	87	0	75	113	0	0	638
8:00 AM	0	0	0	0	151	10	49	0	0	96	61	0	69	122	0	0	558
8:15 AM	0	0	0	0	130	0	51	0	0	122	76	0	66	106	0	0	551
8:30 AM	0	0	0	0	109	0	42	0	0	113	73	0	74	119	0	0	530
8:45 AM	0	0	0	0	111	0	45	0	0	114	95	0	89	106	0	0	560
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	1132	12	336	0	0	929	688	0	664	899	0	0	4660
APPROACH %'s :					76.49%	0.81%	22.70%	0.00%	0.00%	57.45%	42.55%	0.00%	42.48%	57.52%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	648	12	169	0	0	484	363	0	339	452	0	0	2467
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.866	0.300	0.862	0.000	0.000	0.829	0.796	0.000	0.856	0.926	0.000	0.000	0.967
					0.901				0.857				0.937				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	1.3	0.3	1.3	0	0	4	0	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	61	0	50	0	0	113	73	0	106	215	0	0	618
4:15 PM	0	0	0	0	66	1	44	0	0	133	83	0	103	198	0	0	628
4:30 PM	0	0	0	0	72	1	39	0	0	175	73	0	107	191	0	0	658
4:45 PM	0	0	0	0	53	2	47	0	0	130	81	0	112	211	0	0	636
5:00 PM	0	0	0	0	49	2	49	0	0	117	94	0	140	216	0	0	667
5:15 PM	0	0	0	0	65	0	38	0	0	155	75	0	122	200	0	0	655
5:30 PM	0	0	0	0	57	0	38	0	0	156	83	0	118	187	0	0	639
5:45 PM	0	0	0	0	68	0	41	0	0	149	80	0	97	170	0	0	605
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	491	6	346	0	0	1128	642	0	905	1588	0	0	5106
APPROACH %'s :					58.24%	0.71%	41.04%	0.00%	0.00%	63.73%	36.27%	0.00%	36.30%	63.70%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	0	0	239	5	173	0	0	577	323	0	481	818	0	0	2616
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.830	0.625	0.883	0.000	0.000	0.824	0.859	0.000	0.859	0.947	0.000	0.000	0.981
					0.931				0.907				0.912				

National Data & Surveying Services

Intersection Turning Movement Count

Location: I-215 NB Ramps & 5th St
City: San Bernardino
Control: Signalized

Project ID: Historical
Date: 3/5/2020

Total

NS/EW Streets:	I-215 NB Ramps				I-215 NB Ramps				5th St				5th St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.3	0.3	1.3	0	0	0	0	0	2	2	0	0	0	4	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	80	0	103	0	0	0	0	0	41	199	0	0	0	128	56	0	607
7:15 AM	59	0	120	0	0	0	0	0	41	228	0	0	0	147	55	0	650
7:30 AM	52	0	122	0	0	0	0	0	40	257	0	0	0	151	40	0	662
7:45 AM	52	1	160	0	0	0	0	0	39	274	0	0	0	141	43	0	710
8:00 AM	69	1	147	0	0	0	0	0	31	213	0	0	0	122	50	0	633
8:15 AM	59	2	132	0	0	0	0	0	34	224	0	0	0	113	42	0	606
8:30 AM	60	0	123	0	0	0	0	0	43	170	0	0	0	133	49	0	578
8:45 AM	50	0	115	0	0	0	0	0	42	191	0	0	0	145	51	0	594
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	481	4	1022	0	0	0	0	0	311	1756	0	0	0	1080	386	0	5040
APPROACH %'s :	31.92%	0.27%	67.82%	0.00%					15.05%	84.95%	0.00%	0.00%	0.00%	73.67%	26.33%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	232	2	549	0	0	0	0	0	151	972	0	0	0	561	188	0	2655
PEAK HR FACTOR :	0.841	0.500	0.858	0.000	0.000	0.000	0.000	0.000	0.921	0.887	0.000	0.000	0.000	0.929	0.855	0.000	0.935
	0.902								0.897				0.927				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.3	0.3	1.3	0	0	0	0	0	2	2	0	0	0	4	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	103	2	146	0	0	0	0	0	35	144	0	0	0	217	164	0	811
4:15 PM	92	1	131	0	0	0	0	0	43	160	0	0	0	205	139	0	771
4:30 PM	99	0	121	0	0	0	0	0	69	171	0	0	0	205	152	0	817
4:45 PM	90	0	101	0	0	0	0	0	44	136	0	0	0	230	156	0	757
5:00 PM	99	2	101	0	0	0	0	0	48	127	0	0	0	261	186	0	824
5:15 PM	76	0	101	0	0	0	0	0	43	169	0	0	0	246	165	0	800
5:30 PM	89	0	108	0	0	0	0	0	54	161	0	0	0	216	135	0	763
5:45 PM	70	3	127	0	0	0	0	0	39	181	0	0	0	197	133	0	750
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	718	8	936	0	0	0	0	0	375	1249	0	0	0	1777	1230	0	6293
APPROACH %'s :	43.20%	0.48%	56.32%	0.00%					23.09%	76.91%	0.00%	0.00%	0.00%	59.10%	40.90%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	364	2	424	0	0	0	0	0	204	603	0	0	0	942	659	0	3198
PEAK HR FACTOR :	0.919	0.250	0.876	0.000	0.000	0.000	0.000	0.000	0.739	0.882	0.000	0.000	0.000	0.902	0.886	0.000	0.970
	0.898								0.841				0.895				

National Data & Surveying Services

Intersection Turning Movement Count

Location: E St & 2nd St
City: San Bernardino
Control: Signalized

Project ID: 17-06156-003
Date: 10/19/2017

Total

NS/EW Streets:	E St				E St				2nd St				2nd St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	1	1	0	1	2	0	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	14	6	0	0	15	6	0	15	203	4	0	7	67	0	0	339
7:15 AM	1	20	3	0	1	25	5	0	16	302	4	0	3	78	3	0	461
7:30 AM	5	28	5	1	7	33	16	0	20	275	9	0	7	95	0	0	501
7:45 AM	4	31	9	0	5	44	5	0	18	297	10	0	6	71	2	0	502
8:00 AM	14	22	8	0	6	24	2	3	11	248	13	0	6	95	3	1	456
8:15 AM	8	19	12	0	6	23	6	1	23	239	10	0	6	77	1	0	431
8:30 AM	7	41	6	0	6	30	14	0	27	242	9	1	9	99	5	1	497
8:45 AM	13	21	3	0	5	31	11	0	15	217	9	1	9	96	5	0	436
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	54	196	52	1	36	225	65	4	145	2023	68	2	53	678	19	2	3623
APPROACH %'s :	17.82%	64.69%	17.16%	0.33%	10.91%	68.18%	19.70%	1.21%	6.48%	90.39%	3.04%	0.09%	7.05%	90.16%	2.53%	0.27%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	24	101	25	1	19	126	28	3	65	1122	36	0	22	339	8	1	1920
PEAK HR FACTOR :	0.429	0.815	0.694	0.250	0.679	0.716	0.438	0.250	0.813	0.929	0.692	0.000	0.786	0.892	0.667	0.250	0.956
	0.858				0.786				0.941				0.881				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	1	1	0	1	2	0	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	20	54	10	1	6	44	12	0	22	139	10	1	17	194	4	1	535
4:15 PM	13	61	11	0	0	45	24	0	24	128	10	2	12	175	6	0	511
4:30 PM	17	56	13	0	5	45	19	0	9	164	18	0	15	225	7	0	593
4:45 PM	8	60	18	0	3	45	17	1	21	135	9	1	10	176	8	0	512
5:00 PM	17	72	18	0	4	46	14	0	20	110	10	0	15	294	2	0	622
5:15 PM	18	59	13	0	4	48	10	1	17	127	5	1	14	197	4	0	518
5:30 PM	19	61	17	0	3	33	13	0	15	123	9	0	24	179	3	1	500
5:45 PM	17	66	18	0	3	45	18	2	16	121	3	0	11	142	3	0	465
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	129	489	118	1	28	351	127	4	144	1047	74	5	118	1582	37	2	4256
APPROACH %'s :	17.50%	66.35%	16.01%	0.14%	5.49%	68.82%	24.90%	0.78%	11.34%	82.44%	5.83%	0.39%	6.79%	90.97%	2.13%	0.12%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	60	247	62	0	16	184	60	2	67	536	42	2	54	892	21	0	2245
PEAK HR FACTOR :	0.833	0.858	0.861	0.000	0.800	0.958	0.789	0.500	0.798	0.817	0.583	0.500	0.900	0.759	0.656	0.000	0.902
	0.862				0.949				0.847				0.777				

APPENDIX C – EXISTING INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

Vistro File:
J:\...\VISTRO_SAN_BERNARDINO_V6_New_Trip_gen_negs_Optimized_Individual.vistro
Report File: J:\...\EXAM.pdf

Scenario 1 EXAM

8/17/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
29	I-215 SB Ramps & 5th St	Signalized	HCM 6th Edition	EB Right	0.656	47.3	D
30	I-215 NB Ramps & 5th St	Signalized	HCM 6th Edition	EB Left	0.573	27.0	C
31	G St & 5th St	Signalized	HCM 6th Edition	SB Right	0.507	15.1	B
40	I-215 SB Ramps & 2nd St	Signalized	HCM 6th Edition	EB Right	0.345	25.1	C
41	I-215 NB Ramps & 2nd St	Signalized	HCM 6th Edition	EB Left	0.700	34.9	C
42	G St & 2nd St	Signalized	HCM 6th Edition	WB Left	0.591	41.2	D
43	E St & 2nd St	Signalized	HCM 6th Edition	NB Left	0.521	41.2	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 29: I-215 SB Ramps & 5th St

Control Type:	Signalized	Delay (sec / veh):	47.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.656

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	350.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	648	12	169	0	484	363	339	452	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	18.70	18.70	18.70	2.00	18.70	18.70	18.70	18.70	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	648	12	169	0	484	363	339	452	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	162	3	42	0	121	91	85	113	0
Total Analysis Volume [veh/h]	0	0	0	648	12	169	0	484	363	339	452	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	59	0	0	35	0	26	61	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	27	0	0	7	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	R	C	C	L	C
C, Cycle Length [s]		120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		55	55	55	31	31	22	57
g / C, Green / Cycle		0.46	0.46	0.46	0.26	0.26	0.18	0.48
(v / s)_i Volume / Saturation Flow Rate		0.24	0.24	0.14	0.12	0.29	0.13	0.16
s, saturation flow rate [veh/h]		1388	1390	1239	3970	1239	2695	2775
c, Capacity [veh/h]		636	637	568	1026	320	494	1318
d1, Uniform Delay [s]		23.09	23.09	20.39	37.59	44.50	45.77	19.76
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		3.01	3.00	1.34	1.56	91.74	7.55	0.71
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.52	0.52	0.30	0.47	1.13	0.69	0.34
d, Delay for Lane Group [s/veh]		26.10	26.08	21.72	39.14	136.24	53.33	20.47
Lane Group LOS		C	C	C	D	F	D	C
Critical Lane Group		Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		7.10	7.10	3.18	4.16	17.58	5.24	4.08
50th-Percentile Queue Length [ft/ln]		177.38	177.47	79.50	104.01	439.44	130.93	101.90
95th-Percentile Queue Length [veh/ln]		11.46	11.47	5.72	7.49	26.24	8.99	7.34
95th-Percentile Queue Length [ft/ln]		286.60	286.70	143.10	187.22	656.09	224.76	183.42

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	26.09	26.08	21.72	0.00	39.14	136.24	53.33	20.47	0.00
Movement LOS				C	C	C		D	F	D	C	
d_A, Approach Delay [s/veh]	0.00			25.20			80.76			34.55		
Approach LOS	A			C			F			C		
d_I, Intersection Delay [s/veh]	47.27											
Intersection LOS	D											
Intersection V/C	0.656											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.078	2.348	2.814	2.975
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	917	517	950
d_b, Bicycle Delay [s]	60.00	17.60	33.00	16.54
l_b,int, Bicycle LOS Score for Intersection	4.132	2.927	1.909	2.212
Bicycle LOS	D	C	A	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 30: I-215 NB Ramps & 5th St

Control Type:	Signalized	Delay (sec / veh):	27.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.573

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0	0	0	2	0	0
Entry Pocket Length [ft]	100.00	100.00	485.00	100.00	100.00	100.00	100.00	100.00	100.00	120.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	232	2	549	0	0	0	151	972	0	0	561	188
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	2.00	2.00	2.00	18.70	18.70	2.00	2.00	18.70	18.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	232	2	549	0	0	0	151	972	0	0	561	188
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	58	1	137	0	0	0	38	243	0	0	140	47
Total Analysis Volume [veh/h]	232	2	549	0	0	0	151	972	0	0	561	188
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	43	0	0	0	0	15	77	0	0	62	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	0	0	0	17	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	R
C, Cycle Length [s]	120	120	120		120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	39	39	39		11	73	58	58
g / C, Green / Cycle	0.33	0.33	0.33		0.09	0.61	0.48	0.48
(v / s)_i Volume / Saturation Flow Rate	0.17	0.22	0.22		0.06	0.35	0.11	0.15
s, saturation flow rate [veh/h]	1388	1240	1239		2695	2775	5293	1239
c, Capacity [veh/h]	451	403	403		247	1688	2558	599
d1, Uniform Delay [s]	32.82	35.15	35.15		52.44	14.17	17.92	18.88
k, delay calibration	0.50	0.50	0.50		0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.15	9.08	9.10		10.78	1.44	0.20	1.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.51	0.68	0.68		0.61	0.58	0.22	0.31
d, Delay for Lane Group [s/veh]	36.97	44.23	44.25		63.23	15.60	18.11	20.25
Lane Group LOS	D	D	D		E	B	B	C
Critical Lane Group	No	No	Yes		No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.98	7.97	7.96		2.56	7.95	2.28	3.41
50th-Percentile Queue Length [ft/ln]	149.59	199.18	199.10		64.03	198.63	57.11	85.14
95th-Percentile Queue Length [veh/ln]	10.00	12.60	12.59		4.61	12.57	4.11	6.13
95th-Percentile Queue Length [ft/ln]	249.89	314.91	314.80		115.25	314.20	102.80	153.26

Movement, Approach, & Intersection Results

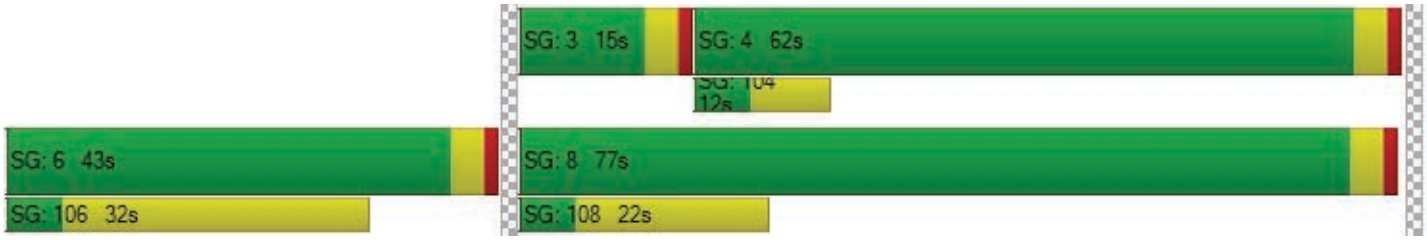
d_M, Delay for Movement [s/veh]	36.97	44.23	44.24	0.00	0.00	0.00	63.23	15.60	0.00	0.00	18.11	20.25
Movement LOS	D	D	D				E	B			B	C
d_A, Approach Delay [s/veh]	42.09			0.00			22.01			18.65		
Approach LOS	D			A			C			B		
d_I, Intersection Delay [s/veh]	26.98											
Intersection LOS	C											
Intersection V/C	0.573											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.468	1.896	2.974	2.925
Crosswalk LOS	B	A	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	0	1217	967
d_b, Bicycle Delay [s]	27.34	60.00	9.20	16.02
l_b,int, Bicycle LOS Score for Intersection	2.852	4.132	2.486	1.869
Bicycle LOS	C	D	B	A

Sequence

Ring 1	-	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 31: G St & 5th St

Control Type:	Signalized	Delay (sec / veh):	15.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.507

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	140.00	100.00	100.00	140.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	5	23	3	33	66	48	74	1278	18	9	498	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	23	3	33	66	48	74	1278	18	9	498	31
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	6	1	8	17	12	19	320	5	2	125	8
Total Analysis Volume [veh/h]	5	23	3	33	66	48	74	1278	18	9	498	31
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	30	0	0	30	0	0	60	0	0	60	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	26	26	26	26	56	56	56	56	56	56
g / C, Green / Cycle	0.29	0.29	0.29	0.29	0.62	0.62	0.62	0.62	0.62	0.62
(v / s)_i Volume / Saturation Flow Rate	0.01	0.01	0.06	0.06	0.11	0.45	0.45	0.03	0.18	0.18
s, saturation flow rate [veh/h]	1229	1281	1291	1179	681	1457	1450	332	1457	1428
c, Capacity [veh/h]	408	370	430	341	431	907	902	178	907	888
d1, Uniform Delay [s]	23.02	23.02	24.07	24.15	11.88	11.58	11.59	22.93	7.86	7.87
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.18	0.20	0.94	1.31	0.86	4.82	4.86	0.54	0.82	0.85
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.04	0.04	0.18	0.20	0.17	0.72	0.72	0.05	0.29	0.30
d, Delay for Lane Group [s/veh]	23.20	23.23	25.01	25.46	12.74	16.41	16.45	23.46	8.69	8.71
Lane Group LOS	C	C	C	C	B	B	B	C	A	A
Critical Lane Group	No	No	Yes	No	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.26	0.25	1.36	1.20	0.87	8.90	8.87	0.16	2.35	2.32
50th-Percentile Queue Length [ft/ln]	6.55	6.16	33.93	29.98	21.77	222.44	221.86	4.07	58.73	57.93
95th-Percentile Queue Length [veh/ln]	0.47	0.44	2.44	2.16	1.57	13.79	13.76	0.29	4.23	4.17
95th-Percentile Queue Length [ft/ln]	11.79	11.10	61.07	53.97	39.18	344.74	344.00	7.32	105.71	104.27

Movement, Approach, & Intersection Results

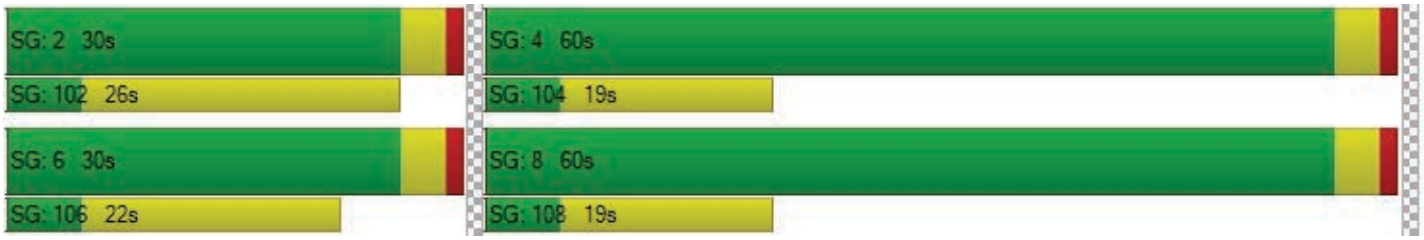
d_M, Delay for Movement [s/veh]	23.20	23.22	23.23	25.01	25.15	25.46	12.74	16.43	16.45	23.46	8.70	8.71
Movement LOS	C	C	C	C	C	C	B	B	B	C	A	A
d_A, Approach Delay [s/veh]	23.22			25.22			16.23			8.95		
Approach LOS	C			C			B			A		
d_I, Intersection Delay [s/veh]	15.09											
Intersection LOS	B											
Intersection V/C	0.507											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.176	2.305	2.774	2.709
Crosswalk LOS	B	B	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	578	578	1244	1244
d_b, Bicycle Delay [s]	22.76	22.76	6.42	6.42
l_b,int, Bicycle LOS Score for Intersection	1.585	1.681	2.690	2.003
Bicycle LOS	A	A	B	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 40: I-215 SB Ramps & 2nd St

Control Type:	Signalized	Delay (sec / veh):	25.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.345

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	466	48	214	0	258	96	210	173	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	18.70	18.70	18.70	2.00	18.70	18.70	18.70	18.70	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	466	48	214	0	258	96	210	173	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	117	12	54	0	65	24	53	43	0
Total Analysis Volume [veh/h]	0	0	0	466	48	214	0	258	96	210	173	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	44	0	0	16	0	30	46	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	27	0	0	7	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	C	C	R	L	C
C, Cycle Length [s]		90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		40	40	40	12	12	26	42
g / C, Green / Cycle		0.44	0.44	0.44	0.13	0.13	0.29	0.47
(v / s)_i Volume / Saturation Flow Rate		0.18	0.18	0.19	0.06	0.08	0.08	0.06
s, saturation flow rate [veh/h]		1388	1400	1127	3970	1239	2695	2775
c, Capacity [veh/h]		617	622	501	529	165	779	1295
d1, Uniform Delay [s]		17.03	17.03	17.14	36.15	36.64	24.68	13.65
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		2.05	2.03	2.65	3.19	14.07	0.85	0.21
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.41	0.41	0.43	0.49	0.58	0.27	0.13
d, Delay for Lane Group [s/veh]		19.08	19.06	19.79	39.34	50.71	25.53	13.87
Lane Group LOS		B	B	B	D	D	C	B
Critical Lane Group		No	No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		3.80	3.83	3.28	1.88	2.60	1.79	1.00
50th-Percentile Queue Length [ft/ln]		95.12	95.83	81.90	47.10	65.01	44.70	25.06
95th-Percentile Queue Length [veh/ln]		6.85	6.90	5.90	3.39	4.68	3.22	1.80
95th-Percentile Queue Length [ft/ln]		171.22	172.49	147.41	84.77	117.01	80.46	45.11

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	19.07	19.06	19.79	0.00	39.34	50.71	25.53	13.87	0.00
Movement LOS				B	B	B		D	D	C	B	
d_A, Approach Delay [s/veh]	0.00			19.28			42.42			20.26		
Approach LOS	A			B			D			C		
d_I, Intersection Delay [s/veh]	25.13											
Intersection LOS	C											
Intersection V/C	0.345											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	1.889	2.310	2.699	2.862
Crosswalk LOS	A	B	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	889	267	933
d_b, Bicycle Delay [s]	45.00	13.89	33.80	12.80
l_b,int, Bicycle LOS Score for Intersection	4.132	2.160	1.754	1.876
Bicycle LOS	D	B	A	A

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 41: I-215 NB Ramps & 2nd St

Control Type:	Signalized	Delay (sec / veh):	34.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.700

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	2	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	245.00	100.00	205.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	111	134	873	0	0	0	167	540	0	0	274	176
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	2.00	2.00	2.00	18.70	18.70	2.00	2.00	18.70	18.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	111	134	873	0	0	0	167	540	0	0	274	176
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	34	218	0	0	0	42	135	0	0	69	44
Total Analysis Volume [veh/h]	111	134	873	0	0	0	167	540	0	0	274	176
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	60	0	0	0	0	9	30	0	0	21	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	0	0	0	14	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	R
C, Cycle Length [s]	90	90	90		90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	56	56	56		5	26	17	17
g / C, Green / Cycle	0.62	0.62	0.62		0.06	0.29	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.08	0.50	0.30		0.06	0.19	0.05	0.14
s, saturation flow rate [veh/h]	1388	1279	1239		2695	2775	5293	1239
c, Capacity [veh/h]	864	796	771		150	802	1000	234
d1, Uniform Delay [s]	6.98	12.74	9.19		42.50	28.25	31.22	34.51
k, delay calibration	0.50	0.50	0.50		0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.31	8.15	2.17		107.80	4.50	0.68	19.82
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.13	0.80	0.48		1.12	0.67	0.27	0.75
d, Delay for Lane Group [s/veh]	7.29	20.88	11.35		150.30	32.75	31.90	54.33
Lane Group LOS	A	C	B		F	C	C	D
Critical Lane Group	No	Yes	No		Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.87	10.06	3.96		3.89	5.49	1.30	4.86
50th-Percentile Queue Length [ft/ln]	21.63	251.38	99.01		97.13	137.34	32.59	121.42
95th-Percentile Queue Length [veh/ln]	1.56	15.26	7.13		6.99	9.34	2.35	8.47
95th-Percentile Queue Length [ft/ln]	38.93	381.39	178.22		174.84	233.44	58.66	211.77

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	7.29	20.88	16.65	0.00	0.00	0.00	150.30	32.75	0.00	0.00	31.90	54.33
Movement LOS	A	C	B				F	C			C	D
d_A, Approach Delay [s/veh]	16.36			0.00			60.52			40.67		
Approach LOS	B			A			E			D		
d_I, Intersection Delay [s/veh]	34.89											
Intersection LOS	C											
Intersection V/C	0.700											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.405	1.949	2.860	2.954
Crosswalk LOS	B	A	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1244	0	578	378
d_b, Bicycle Delay [s]	6.42	45.00	22.76	29.61
l_b,int, Bicycle LOS Score for Intersection	3.404	4.132	2.143	1.745
Bicycle LOS	C	D	B	A

Sequence

Ring 1	-	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 42: G St & 2nd St

Control Type:	Signalized	Delay (sec / veh):	41.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.591

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	130.00	100.00	100.00	100.00	100.00	100.00	220.00	100.00	100.00	260.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	120	113	52	158	154	15	30	1094	239	48	300	38
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	120	113	52	158	154	15	30	1094	239	48	300	38
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	28	13	40	39	4	8	274	60	12	75	10
Total Analysis Volume [veh/h]	120	113	52	158	154	15	30	1094	239	48	300	38
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	30	0	12	33	0	21	39	0	9	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	24	0	0	14	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	38	26	26	38	29	29	17	35	35	5	23	23
g / C, Green / Cycle	0.42	0.29	0.29	0.42	0.32	0.32	0.19	0.39	0.39	0.06	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.12	0.06	0.06	0.15	0.11	0.01	0.02	0.39	0.19	0.03	0.08	0.08
s, saturation flow rate [veh/h]	1029	1457	1308	1066	1457	1239	1388	2775	1239	1388	2775	1377
c, Capacity [veh/h]	469	421	378	517	470	399	262	1079	482	77	709	352
d1, Uniform Delay [s]	16.77	24.16	24.24	17.07	23.11	20.93	30.26	27.50	20.82	41.58	27.12	27.20
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.31	1.07	1.28	1.53	1.86	0.18	0.89	30.86	3.62	32.34	1.16	2.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.26	0.20	0.21	0.31	0.33	0.04	0.11	1.01	0.50	0.62	0.32	0.33
d, Delay for Lane Group [s/veh]	18.09	25.24	25.52	18.59	24.97	21.10	31.14	58.36	24.44	73.91	28.29	29.64
Lane Group LOS	B	C	C	B	C	C	C	F	C	E	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.69	1.47	1.41	2.28	2.66	0.23	0.60	15.57	4.15	1.72	2.03	2.20
50th-Percentile Queue Length [ft/ln]	42.24	36.67	35.17	57.01	66.59	5.83	14.94	389.21	103.87	43.08	50.68	55.02
95th-Percentile Queue Length [veh/ln]	3.04	2.64	2.53	4.10	4.79	0.42	1.08	22.25	7.48	3.10	3.65	3.96
95th-Percentile Queue Length [ft/ln]	76.03	66.00	63.31	102.61	119.86	10.49	26.90	556.22	186.96	77.54	91.23	99.03

Movement, Approach, & Intersection Results

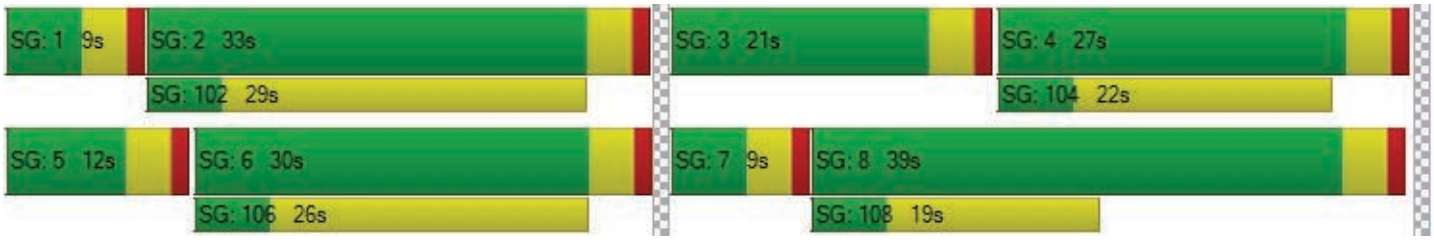
d_M, Delay for Movement [s/veh]	18.09	25.31	25.52	18.59	24.97	21.10	31.14	58.36	24.44	73.91	28.63	29.64
Movement LOS	B	C	C	B	C	C	C	F	C	E	C	C
d_A, Approach Delay [s/veh]	22.31			21.71			51.82			34.36		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	41.23											
Intersection LOS	D											
Intersection V/C	0.591											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.310	2.400	2.905	2.799
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	578	644	778	511
d_b, Bicycle Delay [s]	22.76	20.67	16.81	24.94
l_b,int, Bicycle LOS Score for Intersection	1.795	2.099	2.684	1.772
Bicycle LOS	A	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 43: E St & 2nd St

Control Type:	Signalized	Delay (sec / veh):	41.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.521

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	120.00	100.00	100.00	140.00	100.00	140.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	25	101	25	22	126	28	65	1122	36	23	339	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	101	25	22	126	28	65	1122	36	23	339	8
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	25	6	6	32	7	16	281	9	6	85	2
Total Analysis Volume [veh/h]	25	101	25	22	126	28	65	1122	36	23	339	8
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	30	0	9	30	0	13	42	0	9	38	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	26	26	5	26	26	9	38	38	5	34	34
g / C, Green / Cycle	0.06	0.29	0.29	0.06	0.29	0.29	0.10	0.42	0.42	0.06	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.02	0.07	0.02	0.02	0.09	0.02	0.05	0.40	0.40	0.02	0.08	0.08
s, saturation flow rate [veh/h]	1388	1457	1239	1388	1457	1239	1388	1457	1441	1388	2775	1440
c, Capacity [veh/h]	77	421	358	77	421	358	139	615	609	77	1048	544
d1, Uniform Delay [s]	40.88	24.45	23.22	40.79	24.91	23.28	38.24	25.01	25.02	40.82	18.98	18.99
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.81	1.34	0.38	9.06	1.82	0.43	10.92	25.13	25.43	9.63	0.48	0.92
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.32	0.24	0.07	0.29	0.30	0.08	0.47	0.95	0.95	0.30	0.22	0.22
d, Delay for Lane Group [s/veh]	51.69	25.79	23.60	49.85	26.72	23.71	49.16	50.14	50.45	50.44	19.46	19.92
Lane Group LOS	D	C	C	D	C	C	D	D	D	D	B	B
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.76	1.77	0.42	0.66	2.27	0.47	1.76	15.50	15.39	0.69	1.64	1.78
50th-Percentile Queue Length [ft/ln]	18.98	44.34	10.44	16.44	56.66	11.73	43.97	387.40	384.77	17.27	41.07	44.62
95th-Percentile Queue Length [veh/ln]	1.37	3.19	0.75	1.18	4.08	0.84	3.17	21.95	21.82	1.24	2.96	3.21
95th-Percentile Queue Length [ft/ln]	34.17	79.81	18.79	29.59	101.99	21.11	79.15	548.79	545.62	31.09	73.92	80.31

Movement, Approach, & Intersection Results

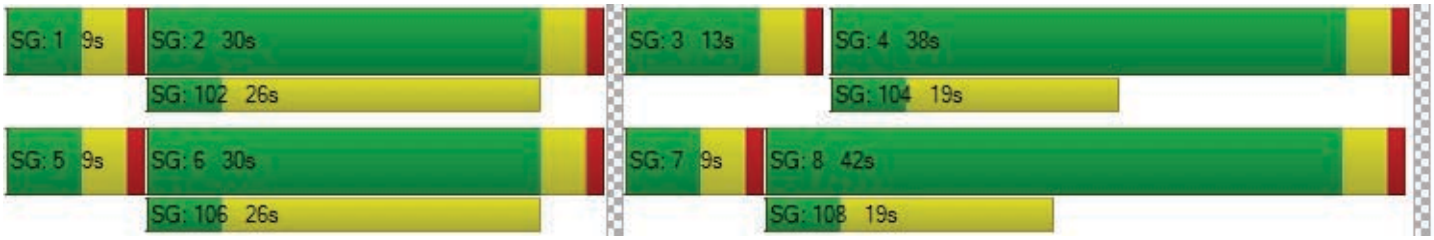
d_M, Delay for Movement [s/veh]	51.69	25.79	23.60	49.85	26.72	23.71	49.16	50.29	50.45	50.44	19.61	19.92
Movement LOS	D	C	C	D	C	C	D	D	D	D	B	B
d_A, Approach Delay [s/veh]	29.72			29.14			50.24			21.53		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	41.16											
Intersection LOS	D											
Intersection V/C	0.521											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.367	2.218	2.717	2.704
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	578	578	844	756
d_b, Bicycle Delay [s]	22.76	22.76	15.02	17.42
l_b,int, Bicycle LOS Score for Intersection	1.809	1.850	2.569	1.763
Bicycle LOS	A	A	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Vistro File:
J:\...\VISTRO_SAN_BERNARDINO_V5_New_Trip_gen_negs_Optimized_Network.vistro
Report File: J:\...\EXPM.pdf

Scenario 2 EXPM

8/17/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
29	I-215 SB Ramps & 5th St	Signalized	HCM 6th Edition	WB Left	0.544	29.0	C
30	I-215 NB Ramps & 5th St	Signalized	HCM 6th Edition	EB Left	0.813	36.7	D
31	G St & 5th St	Signalized	HCM 6th Edition	SB Left	0.527	15.8	B
40	I-215 SB Ramps & 2nd St	Signalized	HCM 6th Edition	EB Right	0.557	30.4	C
41	I-215 NB Ramps & 2nd St	Signalized	HCM 6th Edition	EB Left	0.617	28.0	C
42	G St & 2nd St	Signalized	HCM 6th Edition	EB Left	0.484	28.4	C
43	E St & 2nd St	Signalized	HCM 6th Edition	WB Left	0.449	29.3	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 29: I-215 SB Ramps & 5th St

Control Type:	Signalized	Delay (sec / veh):	29.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.544

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	350.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	239	5	173	0	577	323	481	818	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	18.70	18.70	18.70	2.00	18.70	18.70	18.70	18.70	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	239	5	173	0	577	323	481	818	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	60	1	43	0	144	81	120	205	0
Total Analysis Volume [veh/h]	0	0	0	239	5	173	0	577	323	481	818	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	36	0	0	49	0	35	84	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	27	0	0	7	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	R	C	C	L	C
C, Cycle Length [s]		120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		32	32	32	45	45	31	80
g / C, Green / Cycle		0.27	0.27	0.27	0.38	0.38	0.26	0.67
(v / s)_i Volume / Saturation Flow Rate		0.10	0.11	0.11	0.15	0.26	0.18	0.29
s, saturation flow rate [veh/h]		1388	1341	1239	3970	1239	2695	2775
c, Capacity [veh/h]		370	358	330	1489	465	696	1850
d1, Uniform Delay [s]		36.05	36.05	36.06	27.42	31.70	40.17	9.45
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		3.12	3.23	3.51	0.76	8.34	5.55	0.77
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.39	0.39	0.39	0.39	0.70	0.69	0.44
d, Delay for Lane Group [s/veh]		39.17	39.29	39.57	28.19	40.04	45.73	10.22
Lane Group LOS		D	D	D	C	D	D	B
Critical Lane Group		No	No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		3.83	3.72	3.46	4.14	8.92	6.93	4.97
50th-Percentile Queue Length [ft/ln]		95.79	92.91	86.56	103.61	222.95	173.25	124.22
95th-Percentile Queue Length [veh/ln]		6.90	6.69	6.23	7.46	13.82	11.25	8.62
95th-Percentile Queue Length [ft/ln]		172.43	167.24	155.80	186.50	345.39	281.18	215.62

Movement, Approach, & Intersection Results

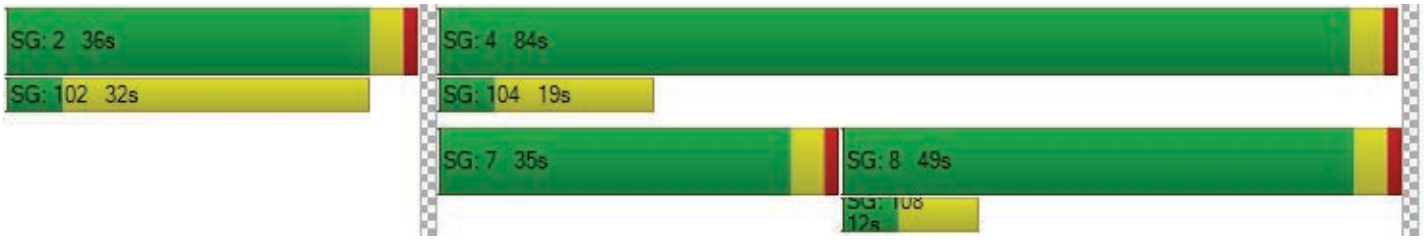
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	39.22	39.29	39.51	0.00	28.19	40.04	45.73	10.22	0.00
Movement LOS				D	D	D		C	D	D	B	
d_A, Approach Delay [s/veh]	0.00			39.34			32.44			23.37		
Approach LOS	A			D			C			C		
d_I, Intersection Delay [s/veh]	29.03											
Intersection LOS	C											
Intersection V/C	0.544											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.124	2.248	2.873	2.998
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	533	750	1333
d_b, Bicycle Delay [s]	60.00	32.27	23.44	6.67
l_b,int, Bicycle LOS Score for Intersection	4.132	2.248	1.931	2.631
Bicycle LOS	D	B	A	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 30: I-215 NB Ramps & 5th St

Control Type:	Signalized	Delay (sec / veh):	36.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.813

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0	0	0	2	0	0
Entry Pocket Length [ft]	100.00	100.00	485.00	100.00	100.00	100.00	100.00	100.00	100.00	120.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	364	2	424	0	0	0	204	603	0	0	942	659
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	2.00	2.00	2.00	18.70	18.70	2.00	2.00	18.70	18.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	364	2	424	0	0	0	204	603	0	0	942	659
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	91	1	106	0	0	0	51	151	0	0	236	165
Total Analysis Volume [veh/h]	364	2	424	0	0	0	204	603	0	0	942	659
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	36	0	0	0	0	14	84	0	0	70	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	0	0	0	17	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	R
C, Cycle Length [s]	120	120	120		120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	32	32	32		10	80	66	66
g / C, Green / Cycle	0.27	0.27	0.27		0.08	0.67	0.55	0.55
(v / s)_i Volume / Saturation Flow Rate	0.20	0.20	0.21		0.08	0.22	0.18	0.53
s, saturation flow rate [veh/h]	1388	1288	1239		2695	2775	5293	1239
c, Capacity [veh/h]	370	343	330		225	1850	2911	681
d1, Uniform Delay [s]	40.20	40.48	40.62		54.54	8.52	14.78	25.96
k, delay calibration	0.50	0.50	0.50		0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.51	14.66	15.92		40.18	0.47	0.30	27.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.74	0.76	0.77		0.91	0.33	0.32	0.97
d, Delay for Lane Group [s/veh]	52.71	55.14	56.54		94.73	8.99	15.08	53.29
Lane Group LOS	D	E	E		F	A	B	D
Critical Lane Group	No	No	Yes		Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	8.64	8.47	8.38		4.31	3.29	3.53	22.23
50th-Percentile Queue Length [ft/ln]	216.08	211.65	209.43		107.68	82.24	88.27	555.80
95th-Percentile Queue Length [veh/ln]	13.46	13.24	13.12		7.71	5.92	6.36	29.96
95th-Percentile Queue Length [ft/ln]	336.62	330.95	328.10		192.77	148.04	158.88	749.12

Movement, Approach, & Intersection Results

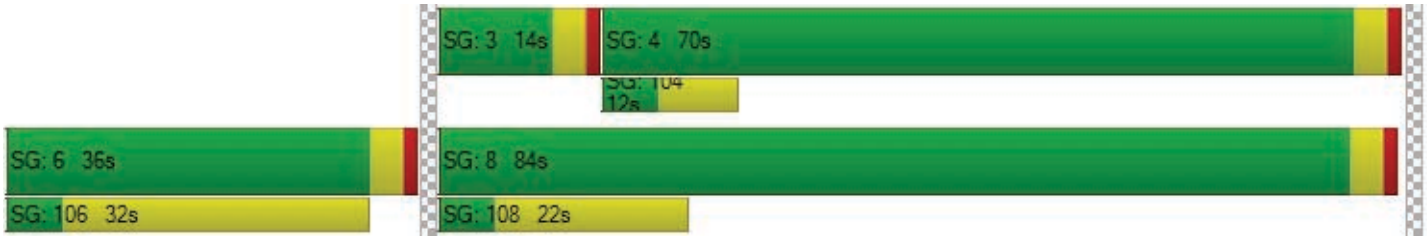
d_M, Delay for Movement [s/veh]	53.36	55.14	56.00	0.00	0.00	0.00	94.73	8.99	0.00	0.00	15.08	53.29
Movement LOS	D	E	E				F	A			B	D
d_A, Approach Delay [s/veh]	54.75			0.00			30.66			30.81		
Approach LOS	D			A			C			C		
d_I, Intersection Delay [s/veh]	36.68											
Intersection LOS	D											
Intersection V/C	0.813											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.469	2.152	2.998	2.975
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	0	1333	1100
d_b, Bicycle Delay [s]	32.27	60.00	6.67	12.15
l_b,int, Bicycle LOS Score for Intersection	2.863	4.132	2.225	2.220
Bicycle LOS	C	D	B	B

Sequence

Ring 1	-	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 31: G St & 5th St

Control Type:	Signalized	Delay (sec / veh):	15.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.527

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	140.00	100.00	100.00	140.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	12	102	14	70	99	91	85	685	20	9	1042	106
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	102	14	70	99	91	85	685	20	9	1042	106
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	26	4	18	25	23	21	171	5	2	261	27
Total Analysis Volume [veh/h]	12	102	14	70	99	91	85	685	20	9	1042	106
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	30	0	0	30	0	0	60	0	0	60	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	26	26	26	26	56	56	56	56	56	56
g / C, Green / Cycle	0.29	0.29	0.29	0.29	0.62	0.62	0.62	0.62	0.62	0.62
(v / s)_i Volume / Saturation Flow Rate	0.05	0.05	0.13	0.11	0.22	0.24	0.24	0.02	0.40	0.40
s, saturation flow rate [veh/h]	1278	1276	1023	1181	382	1457	1443	579	1457	1411
c, Capacity [veh/h]	417	369	357	341	213	907	898	357	907	878
d1, Uniform Delay [s]	23.84	23.93	27.49	25.58	24.64	8.48	8.49	12.42	10.70	10.71
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.80	1.00	2.85	3.22	5.52	1.27	1.28	0.13	3.50	3.62
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.16	0.17	0.36	0.38	0.40	0.39	0.39	0.03	0.64	0.64
d, Delay for Lane Group [s/veh]	24.64	24.93	30.33	28.80	30.16	9.75	9.77	12.55	14.20	14.34
Lane Group LOS	C	C	C	C	C	A	A	B	B	B
Critical Lane Group	No	No	Yes	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.11	1.08	2.59	2.49	1.79	3.39	3.36	0.11	7.26	7.07
50th-Percentile Queue Length [ft/ln]	27.80	27.08	64.65	62.14	44.86	84.72	83.99	2.64	181.40	176.64
95th-Percentile Queue Length [veh/ln]	2.00	1.95	4.65	4.47	3.23	6.10	6.05	0.19	11.67	11.43
95th-Percentile Queue Length [ft/ln]	50.05	48.74	116.37	111.85	80.75	152.49	151.19	4.76	291.85	285.63

Movement, Approach, & Intersection Results

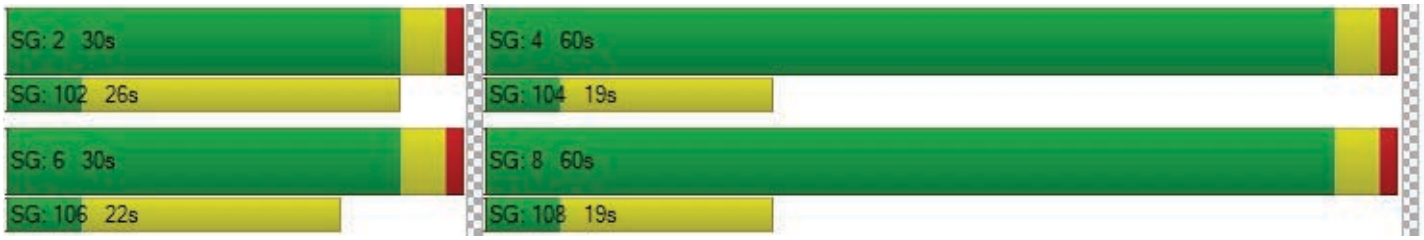
d_M, Delay for Movement [s/veh]	24.64	24.78	24.93	30.33	29.73	28.80	30.16	9.76	9.77	12.55	14.26	14.34
Movement LOS	C	C	C	C	C	C	C	A	A	B	B	B
d_A, Approach Delay [s/veh]	24.78			29.57			11.95			14.25		
Approach LOS	C			C			B			B		
d_I, Intersection Delay [s/veh]	15.76											
Intersection LOS	B											
Intersection V/C	0.527											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.208	2.388	2.786	2.777
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	578	578	1244	1244
d_b, Bicycle Delay [s]	22.76	22.76	6.42	6.42
l_b,int, Bicycle LOS Score for Intersection	1.665	1.774	2.211	2.514
Bicycle LOS	A	A	B	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 40: I-215 SB Ramps & 2nd St

Control Type:	Signalized	Delay (sec / veh):	30.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.557

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	150	180	185	0	362	190	646	263	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	18.70	18.70	18.70	2.00	18.70	18.70	18.70	18.70	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	150	180	185	0	362	190	646	263	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	38	45	46	0	91	48	162	66	0
Total Analysis Volume [veh/h]	0	0	0	150	180	185	0	362	190	646	263	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	36	0	0	22	0	32	54	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	27	0	0	7	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	C	C	R	L	C
C, Cycle Length [s]		90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		32	32	32	18	18	28	50
g / C, Green / Cycle		0.36	0.36	0.36	0.20	0.20	0.31	0.56
(v / s)_i Volume / Saturation Flow Rate		0.11	0.12	0.16	0.09	0.15	0.24	0.09
s, saturation flow rate [veh/h]		1388	1457	1127	3970	1239	2695	2775
c, Capacity [veh/h]		494	518	401	794	248	839	1542
d1, Uniform Delay [s]		20.95	21.32	22.36	31.69	34.02	28.09	9.82
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		1.58	1.84	3.79	1.89	20.06	6.76	0.24
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.30	0.35	0.46	0.46	0.77	0.77	0.17
d, Delay for Lane Group [s/veh]		22.54	23.16	26.15	33.57	54.08	34.84	10.06
Lane Group LOS		C	C	C	C	D	C	B
Critical Lane Group		No	No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		2.44	2.98	3.35	2.41	5.22	6.88	1.25
50th-Percentile Queue Length [ft/ln]		61.04	74.52	83.74	60.28	130.55	171.95	31.16
95th-Percentile Queue Length [veh/ln]		4.40	5.37	6.03	4.34	8.97	11.18	2.24
95th-Percentile Queue Length [ft/ln]		109.88	134.14	150.72	108.50	224.24	279.48	56.09

Movement, Approach, & Intersection Results

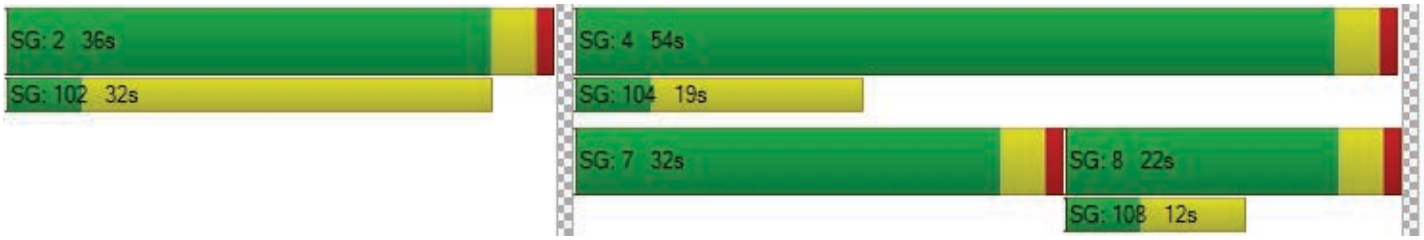
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	22.54	23.16	26.15	0.00	33.57	54.08	34.84	10.06	0.00
Movement LOS				C	C	C		C	D	C	B	
d_A, Approach Delay [s/veh]	0.00			24.05			40.63			27.67		
Approach LOS	A			C			D			C		
d_I, Intersection Delay [s/veh]	30.35											
Intersection LOS	C											
Intersection V/C	0.557											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.212	2.258	2.735	2.900
Crosswalk LOS	B	B	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	711	400	1111
d_b, Bicycle Delay [s]	45.00	18.69	28.80	8.89
l_b,int, Bicycle LOS Score for Intersection	4.132	1.984	1.863	2.310
Bicycle LOS	D	A	A	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 41: I-215 NB Ramps & 2nd St

Control Type:	Signalized	Delay (sec / veh):	28.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.617

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	2	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	245.00	100.00	205.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	116	37	383	0	0	0	197	318	0	0	807	466
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	2.00	2.00	2.00	18.70	18.70	2.00	2.00	18.70	18.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	116	37	383	0	0	0	197	318	0	0	807	466
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	9	96	0	0	0	49	80	0	0	202	117
Total Analysis Volume [veh/h]	116	37	383	0	0	0	197	318	0	0	807	466
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	36	0	0	0	0	12	54	0	0	42	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	0	0	0	14	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	R
C, Cycle Length [s]	90	90	90		90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	32	32	32		8	50	38	38
g / C, Green / Cycle	0.36	0.36	0.36		0.09	0.56	0.42	0.42
(v / s)_i Volume / Saturation Flow Rate	0.08	0.17	0.17		0.07	0.11	0.15	0.38
s, saturation flow rate [veh/h]	1388	1272	1239		2695	2775	5293	1239
c, Capacity [veh/h]	494	452	440		240	1542	2235	523
d1, Uniform Delay [s]	20.39	22.44	22.44		40.30	10.04	17.72	24.08
k, delay calibration	0.50	0.50	0.50		0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.12	3.48	3.58		26.18	0.30	0.45	19.98
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.24	0.47	0.47		0.82	0.21	0.36	0.89
d, Delay for Lane Group [s/veh]	21.51	25.93	26.02		66.48	10.34	18.18	44.06
Lane Group LOS	C	C	C		E	B	B	D
Critical Lane Group	No	No	Yes		Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.83	3.82	3.73		2.99	1.54	2.82	11.54
50th-Percentile Queue Length [ft/ln]	45.68	95.43	93.25		74.63	38.56	70.56	288.46
95th-Percentile Queue Length [veh/ln]	3.29	6.87	6.71		5.37	2.78	5.08	17.11
95th-Percentile Queue Length [ft/ln]	82.23	171.77	167.84		134.33	69.40	127.01	427.74

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	21.51	25.93	25.98	0.00	0.00	0.00	66.48	10.34	0.00	0.00	18.18	44.06
Movement LOS	C	C	C				E	B			B	D
d_A, Approach Delay [s/veh]	25.01			0.00			31.82			27.65		
Approach LOS	C			A			C			C		
d_I, Intersection Delay [s/veh]	27.97											
Intersection LOS	C											
Intersection V/C	0.617											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.263	2.058	2.902	2.968
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	711	0	1111	844
d_b, Bicycle Delay [s]	18.69	45.00	8.89	15.02
l_b,int, Bicycle LOS Score for Intersection	2.444	4.132	1.984	2.085
Bicycle LOS	B	D	A	B

Sequence

Ring 1	-	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 42: G St & 2nd St

Control Type:	Signalized	Delay (sec / veh):	28.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.484

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	130.00	100.00	100.00	100.00	100.00	100.00	220.00	100.00	100.00	260.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	185	244	64	50	134	46	72	491	67	69	975	80
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	185	244	64	50	134	46	72	491	67	69	975	80
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	46	61	16	13	34	12	18	123	17	17	244	20
Total Analysis Volume [veh/h]	185	244	64	50	134	46	72	491	67	69	975	80
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	31	0	11	33	0	11	36	0	12	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	24	0	0	14	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	38	27	27	38	29	29	7	32	32	8	33	33
g / C, Green / Cycle	0.42	0.30	0.30	0.42	0.32	0.32	0.08	0.36	0.36	0.09	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.18	0.11	0.11	0.05	0.09	0.04	0.05	0.18	0.05	0.05	0.25	0.25
s, saturation flow rate [veh/h]	1021	1457	1355	966	1457	1239	1388	2775	1239	1388	2775	1402
c, Capacity [veh/h]	478	437	407	446	470	399	108	987	440	123	1017	514
d1, Uniform Delay [s]	18.17	24.74	24.79	15.95	22.77	21.47	40.37	22.71	19.76	39.31	24.15	24.16
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.36	2.32	2.56	0.51	1.52	0.59	28.12	1.79	0.73	17.05	3.81	7.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.39	0.36	0.37	0.11	0.29	0.12	0.67	0.50	0.15	0.56	0.69	0.69
d, Delay for Lane Group [s/veh]	20.53	27.05	27.35	16.45	24.29	22.06	68.48	24.50	20.49	56.36	27.95	31.56
Lane Group LOS	C	C	C	B	C	C	E	C	C	E	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.78	2.88	2.75	0.66	2.27	0.74	2.37	4.19	1.03	2.03	6.60	7.20
50th-Percentile Queue Length [ft/ln]	69.52	71.91	68.73	16.57	56.84	18.42	59.37	104.78	25.66	50.72	165.12	180.03
95th-Percentile Queue Length [veh/ln]	5.01	5.18	4.95	1.19	4.09	1.33	4.27	7.54	1.85	3.65	10.82	11.60
95th-Percentile Queue Length [ft/ln]	125.14	129.44	123.71	29.82	102.31	33.15	106.87	188.60	46.19	91.29	270.48	290.06

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	20.53	27.16	27.35	16.45	24.29	22.06	68.48	24.50	20.49	56.36	28.97	31.56
Movement LOS	C	C	C	B	C	C	E	C	C	E	C	C
d_A, Approach Delay [s/veh]	24.70			22.14			29.10			30.83		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	28.36											
Intersection LOS	C											
Intersection V/C	0.484											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.319	2.423	2.942	2.758
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	644	711	733
d_b, Bicycle Delay [s]	22.05	20.67	18.69	18.05
l_b,int, Bicycle LOS Score for Intersection	1.966	1.939	2.079	2.178
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 43: E St & 2nd St

Control Type:	Signalized	Delay (sec / veh):	29.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.449

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	120.00	100.00	100.00	140.00	100.00	140.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	60	247	62	18	184	60	69	536	42	54	892	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	60	247	62	18	184	60	69	536	42	54	892	21
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	62	16	5	46	15	17	134	11	14	223	5
Total Analysis Volume [veh/h]	60	247	62	18	184	60	69	536	42	54	892	21
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	32	0	9	30	0	12	39	0	10	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	28	28	5	26	26	8	35	35	6	33	33
g / C, Green / Cycle	0.08	0.31	0.31	0.06	0.29	0.29	0.09	0.39	0.39	0.07	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.04	0.17	0.05	0.01	0.13	0.05	0.05	0.20	0.20	0.04	0.22	0.22
s, saturation flow rate [veh/h]	1388	1457	1239	1388	1457	1239	1388	1457	1421	1388	2775	1440
c, Capacity [veh/h]	108	453	385	77	421	358	123	567	552	93	1017	528
d1, Uniform Delay [s]	40.00	25.71	22.48	40.67	26.04	23.91	39.31	21.02	21.04	40.79	23.04	23.05
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	19.05	4.65	0.89	6.97	3.28	1.01	17.05	3.33	3.44	24.15	2.52	4.80
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.56	0.54	0.16	0.23	0.44	0.17	0.56	0.52	0.52	0.58	0.59	0.59
d, Delay for Lane Group [s/veh]	59.05	30.36	23.37	47.63	29.32	24.92	56.36	24.35	24.47	64.94	25.55	27.85
Lane Group LOS	E	C	C	D	C	C	E	C	C	E	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.84	4.85	1.03	0.53	3.52	1.04	2.03	5.06	4.96	1.77	5.32	5.87
50th-Percentile Queue Length [ft/ln]	45.90	121.23	25.79	13.18	87.99	25.99	50.72	126.39	123.99	44.24	133.00	146.68
95th-Percentile Queue Length [veh/ln]	3.31	8.46	1.86	0.95	6.34	1.87	3.65	8.74	8.61	3.19	9.10	9.84
95th-Percentile Queue Length [ft/ln]	82.63	211.52	46.41	23.73	158.38	46.78	91.29	218.58	215.30	79.64	227.57	245.99

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	59.05	30.36	23.37	47.63	29.32	24.92	56.36	24.41	24.47	64.94	26.30	27.85
Movement LOS	E	C	C	D	C	C	E	C	C	E	C	C
d_A, Approach Delay [s/veh]	33.85			29.57			27.82			28.49		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	29.31											
Intersection LOS	C											
Intersection V/C	0.449											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.428	2.279	2.724	2.712
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	622	578	778	733
d_b, Bicycle Delay [s]	21.36	22.76	16.81	18.05
l_b,int, Bicycle LOS Score for Intersection	2.168	1.992	2.093	2.091
Bicycle LOS	B	A	B	B

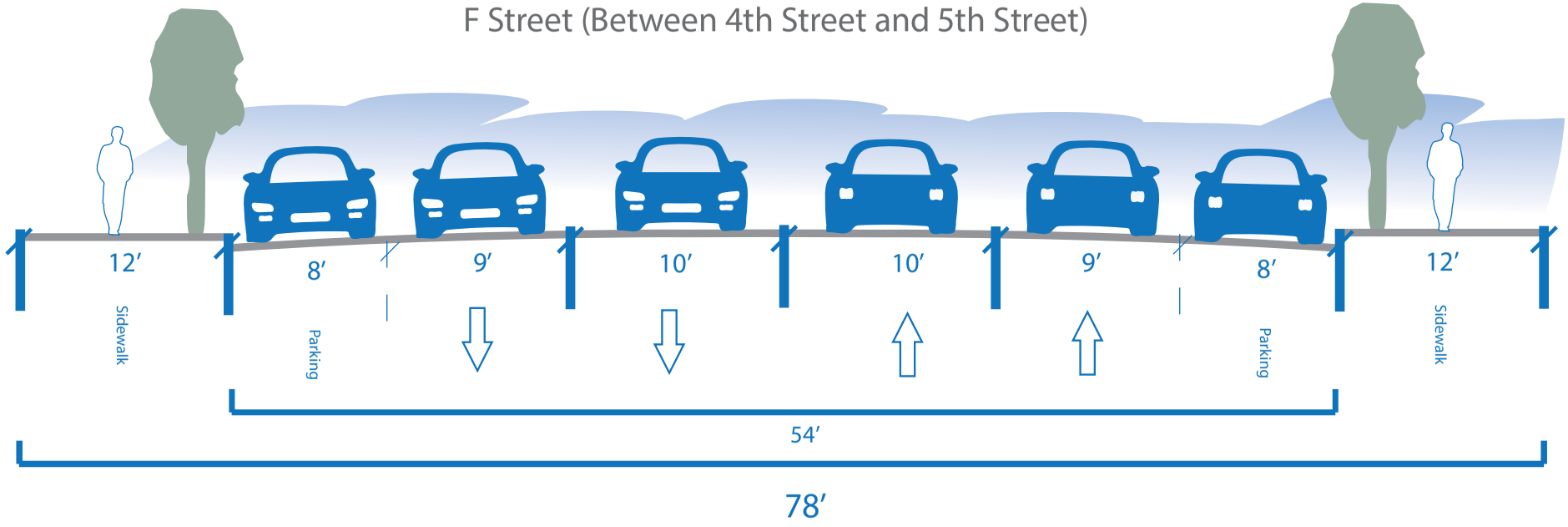
Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

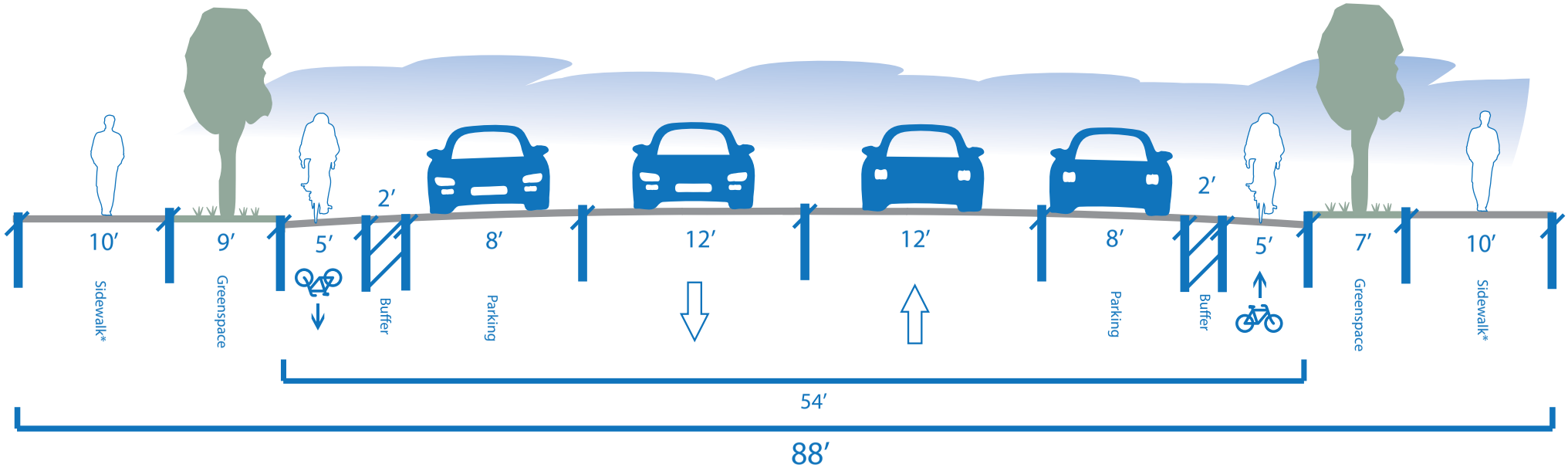


APPENDIX D – ROADWAY CROSS-SECTIONS OF CHANGES UNDER PLAN

Existing



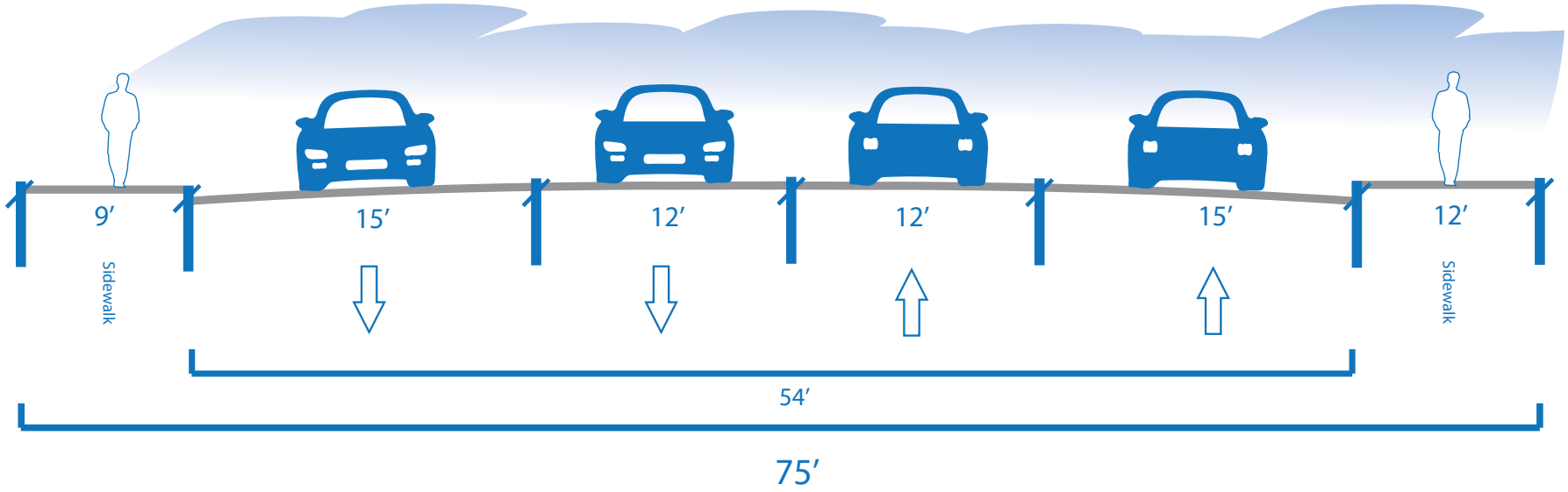
Proposed



*Future development dedications should provide for wider sidewalks

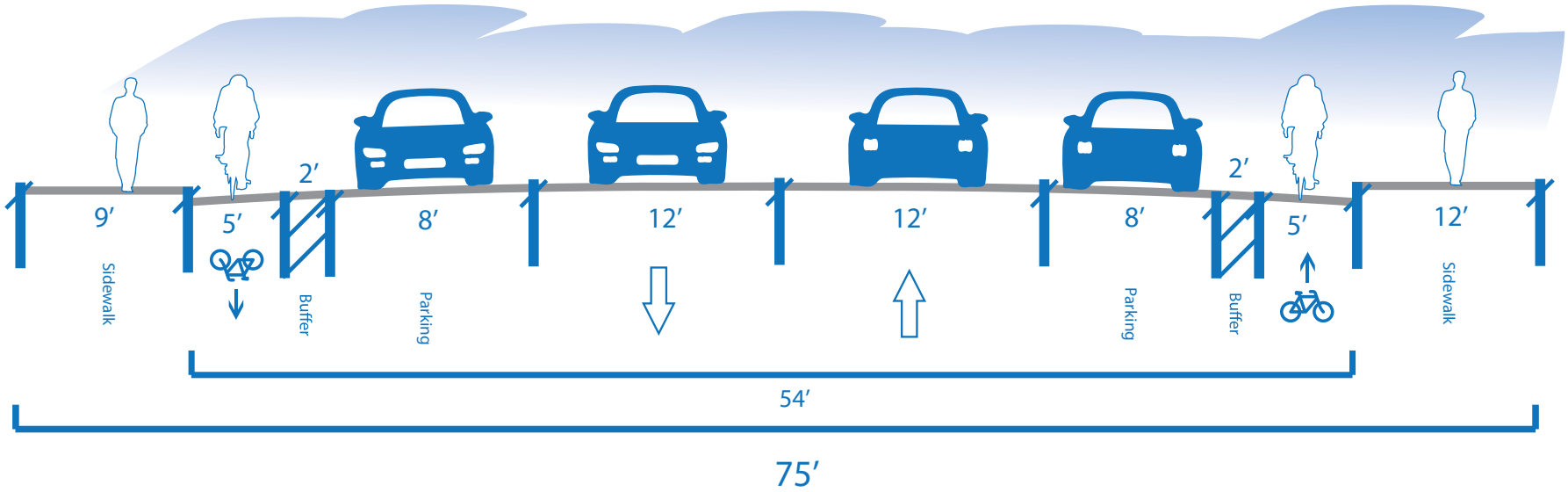
Existing

F Street (Between Rialto Avenue and 2nd Street)



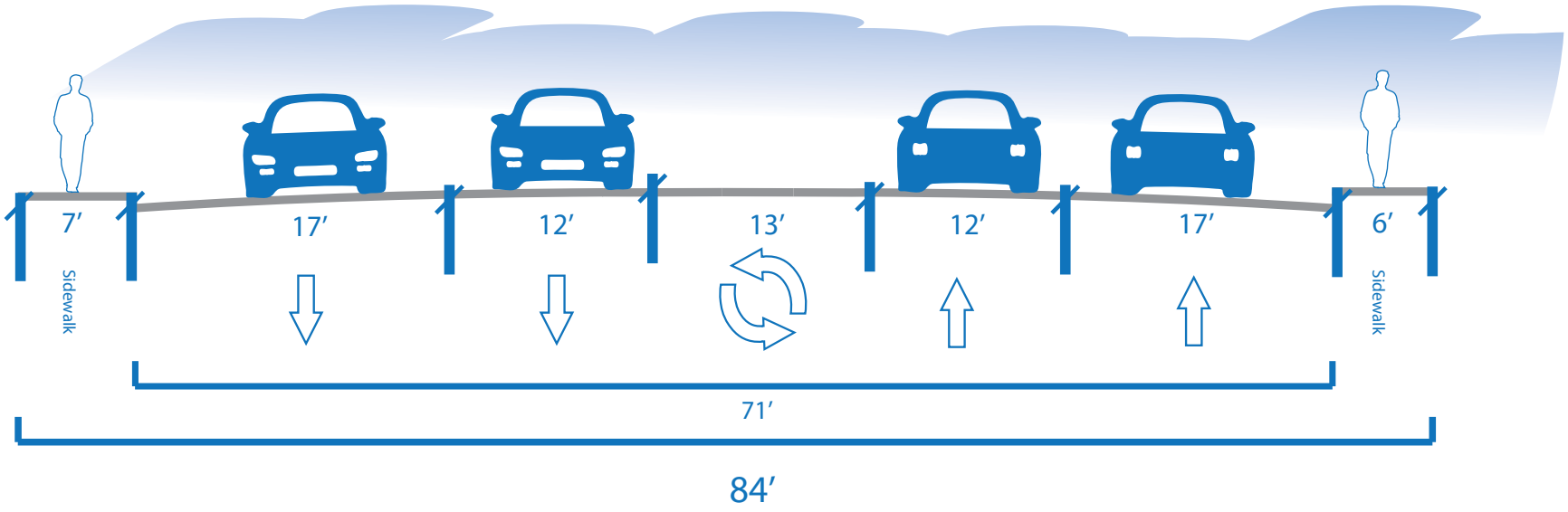
Proposed

F Street (Between Rialto Avenue and 2nd Street)



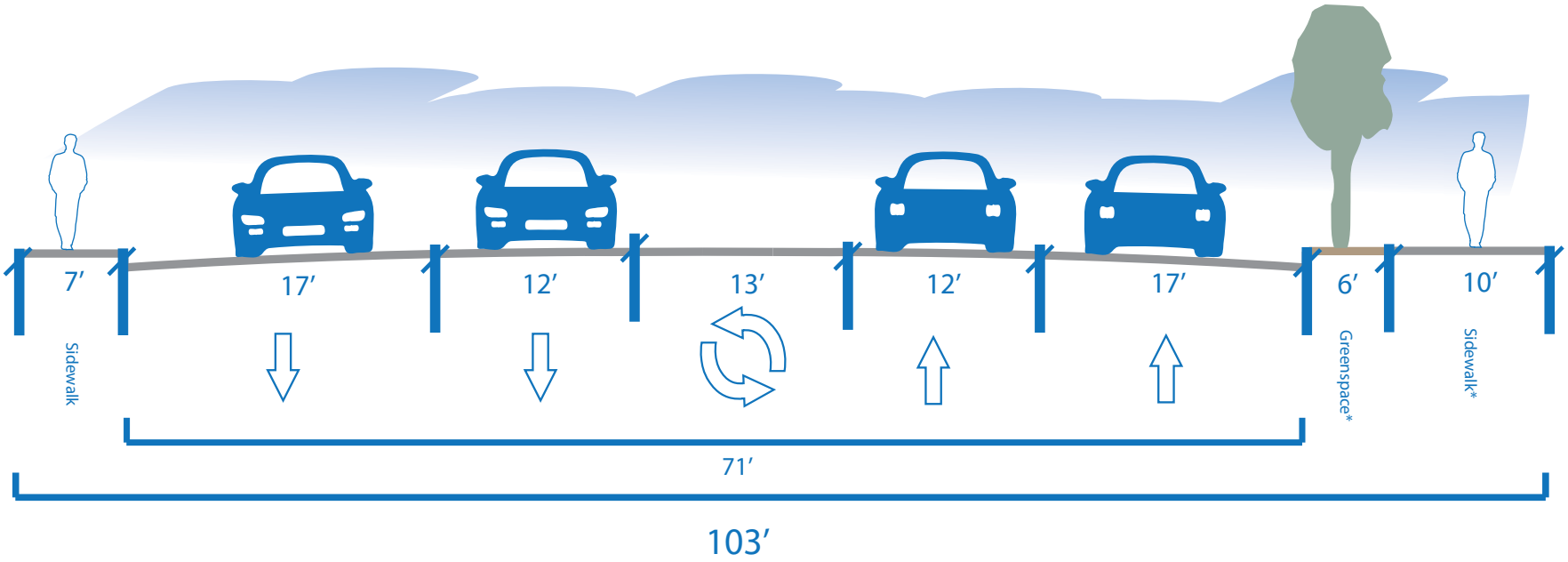
Existing

G Street (Between Rialto Avenue 2nd Street)



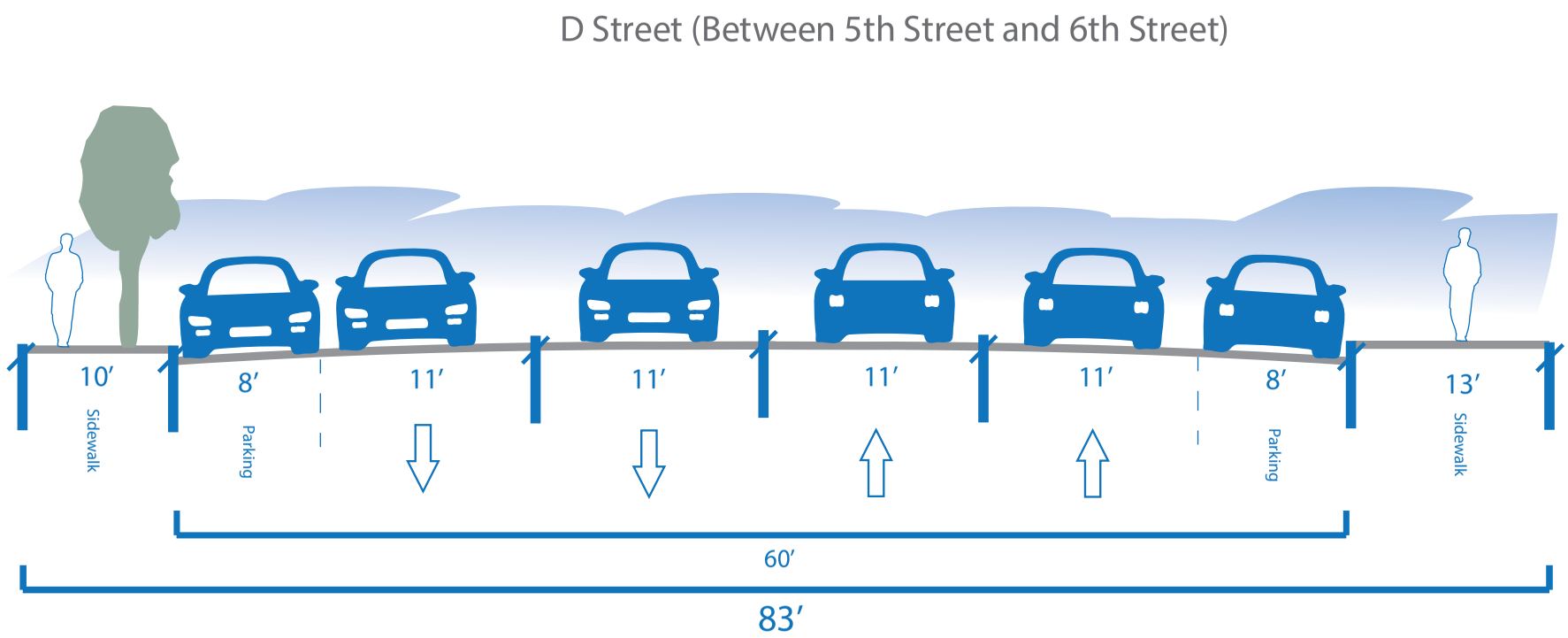
Proposed

G Street (Between Rialto Avenue 2nd Street)

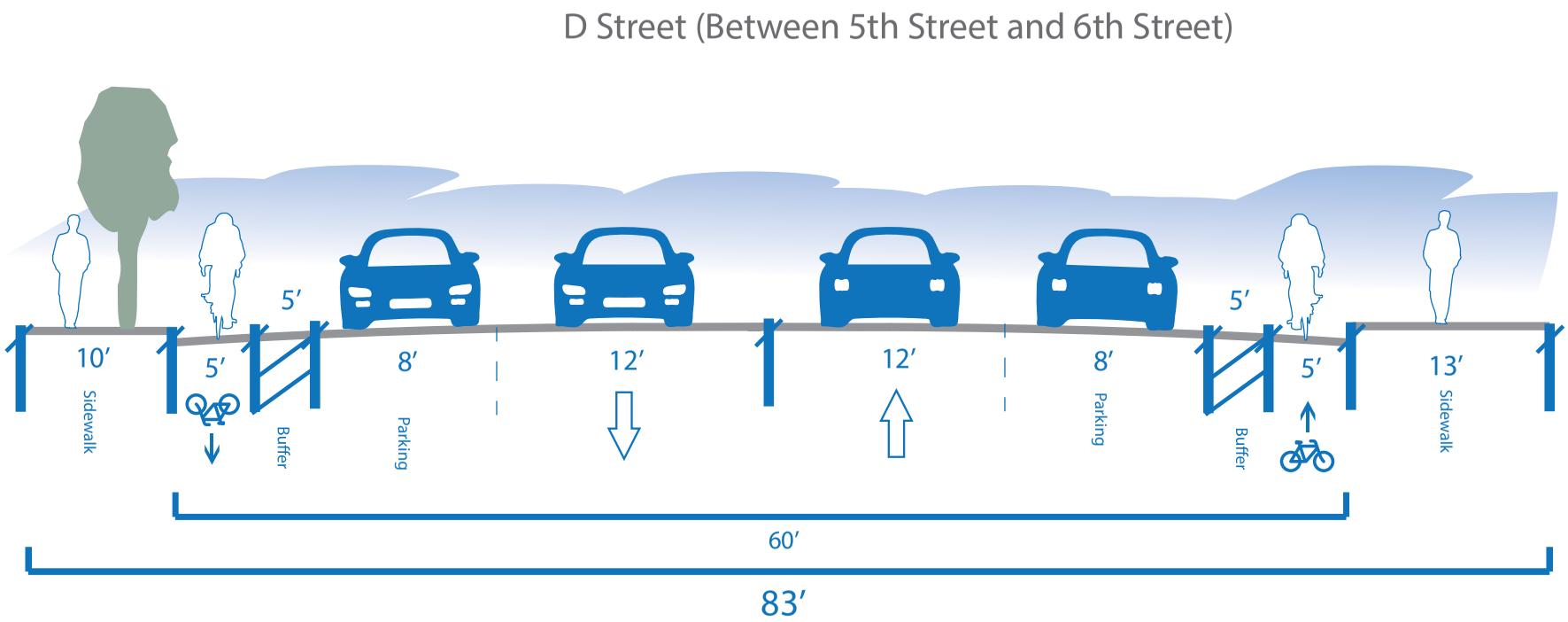


*Future development dedications should provide for wider sidewalks and a parkway

Existing

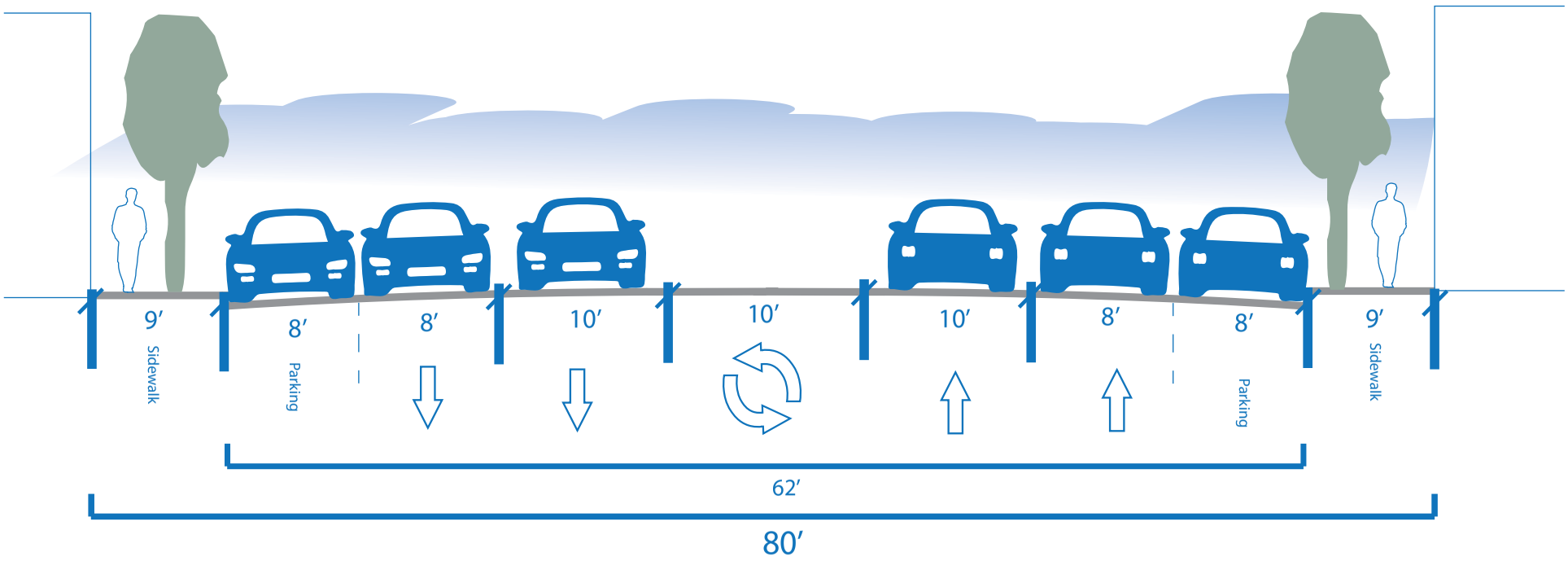


Proposed



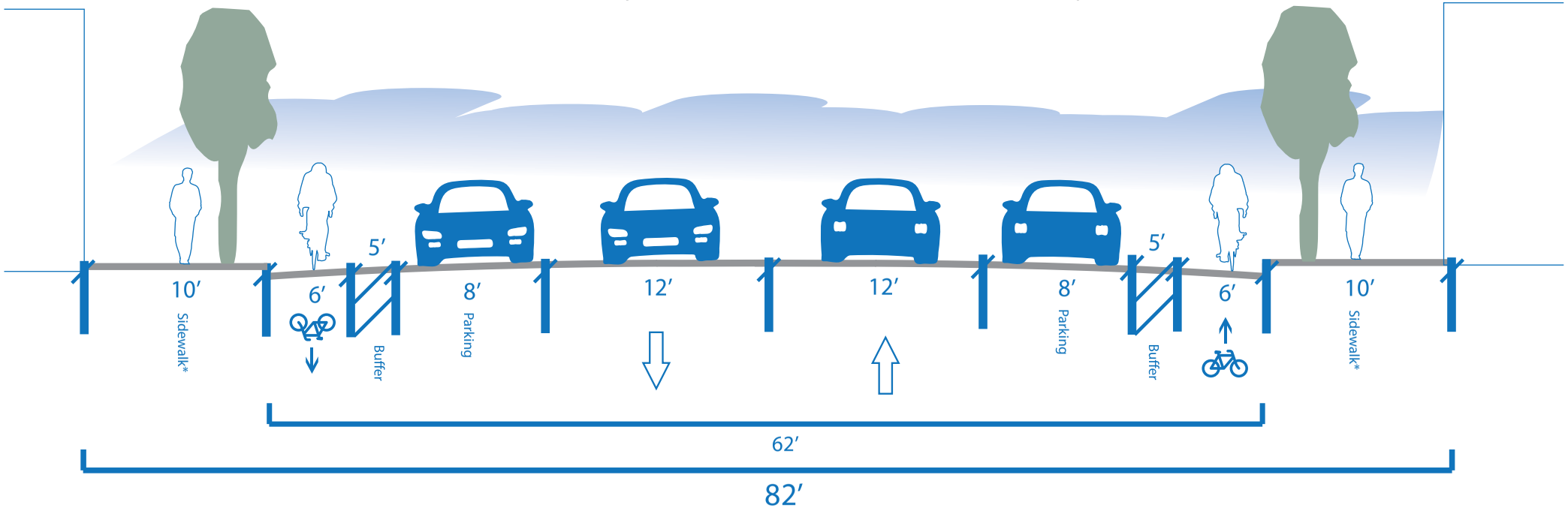
Existing

D Street (Between 2nd Street and 3rd Street)



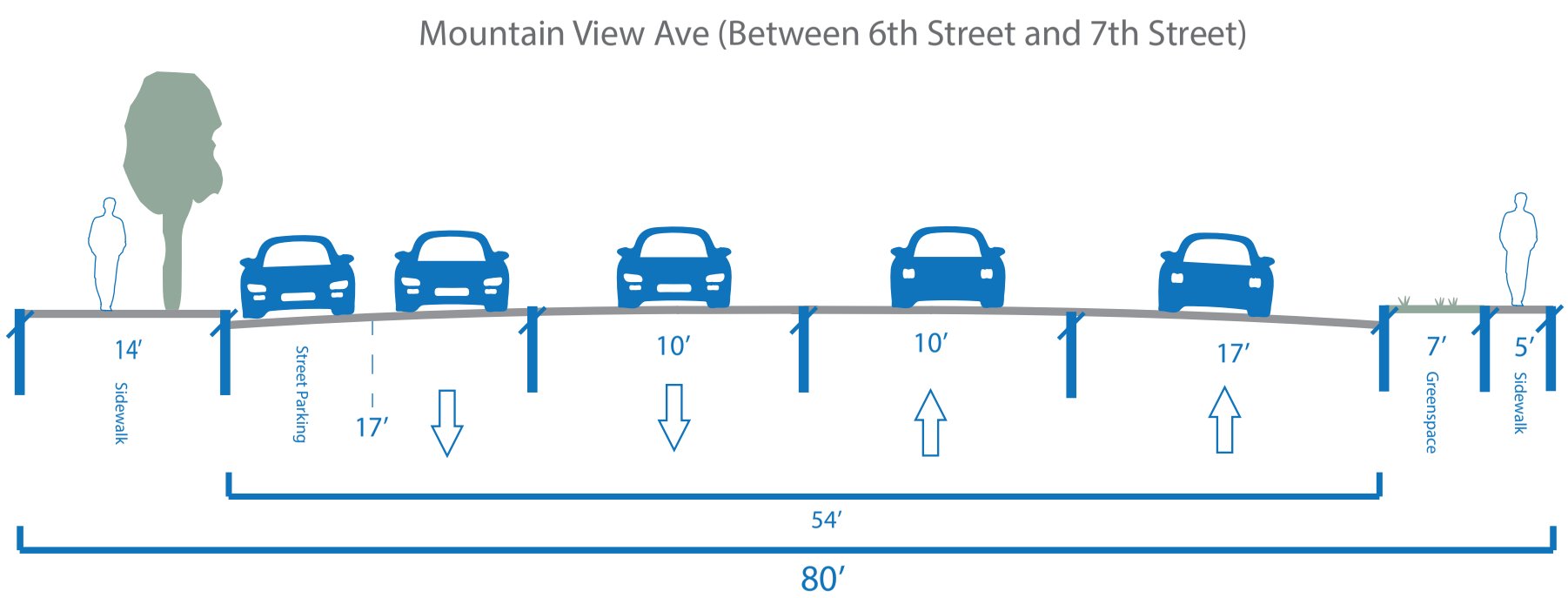
Proposed

D Street (Between 2nd Street and 3rd Street)

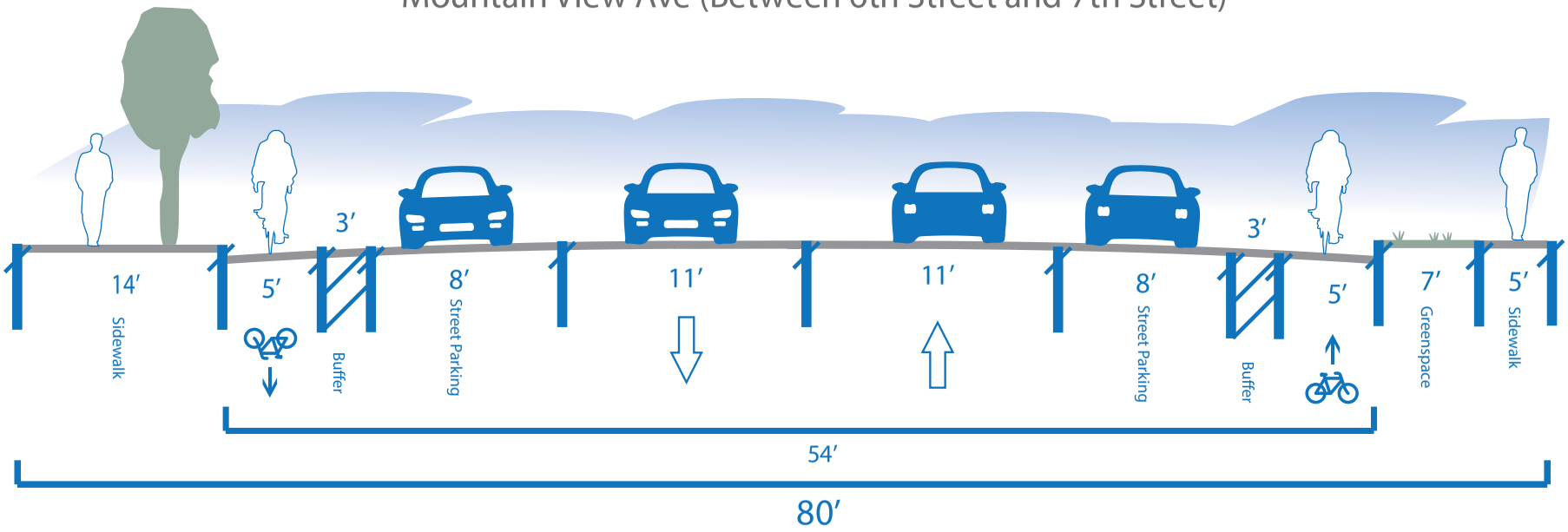


*Future development dedications should provide for wider sidewalks

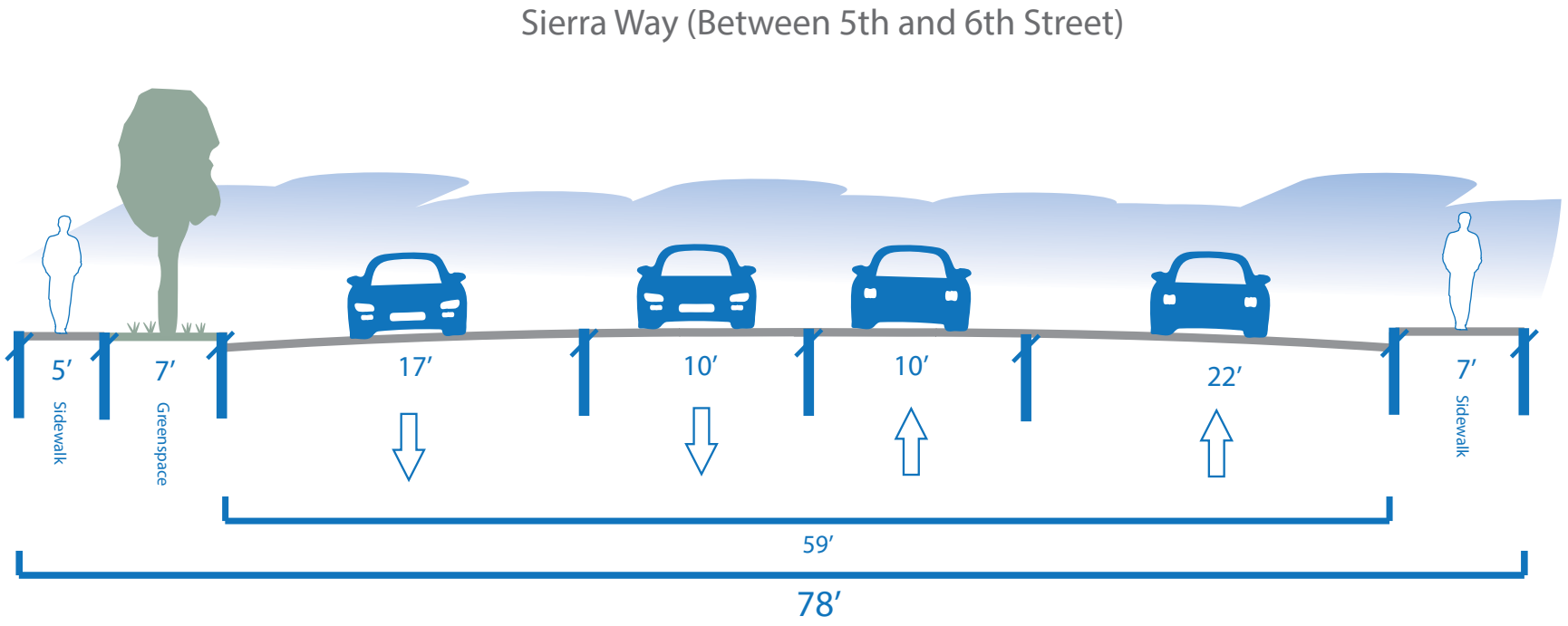
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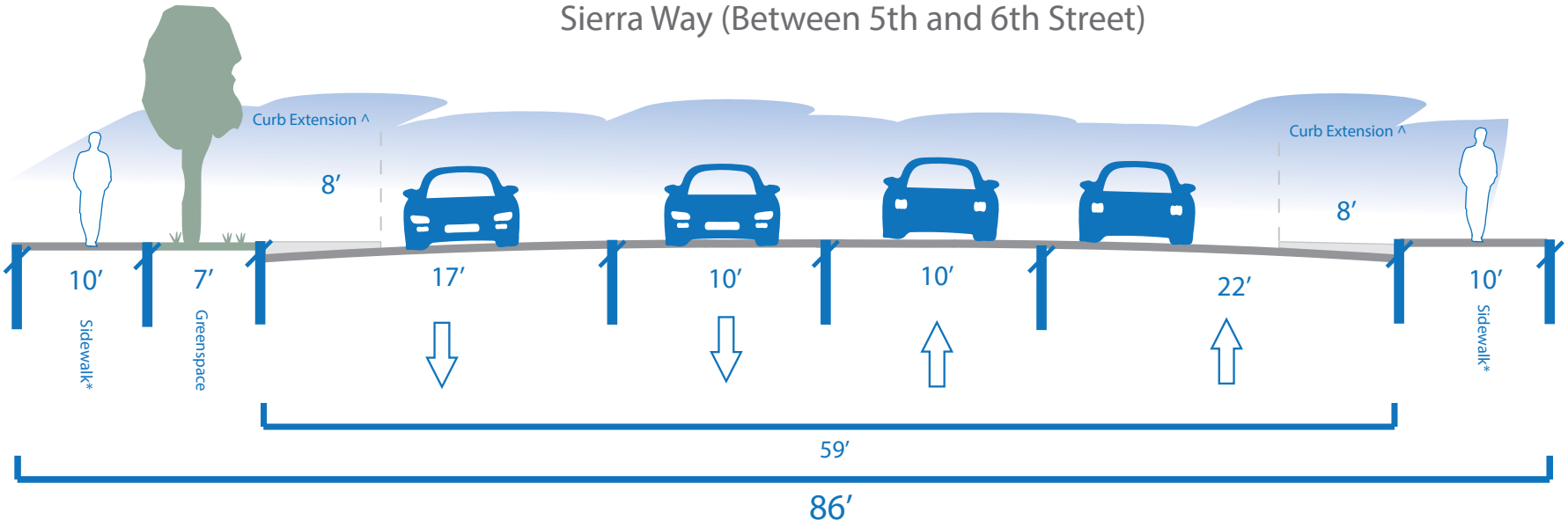
Proposed



Existing



Proposed

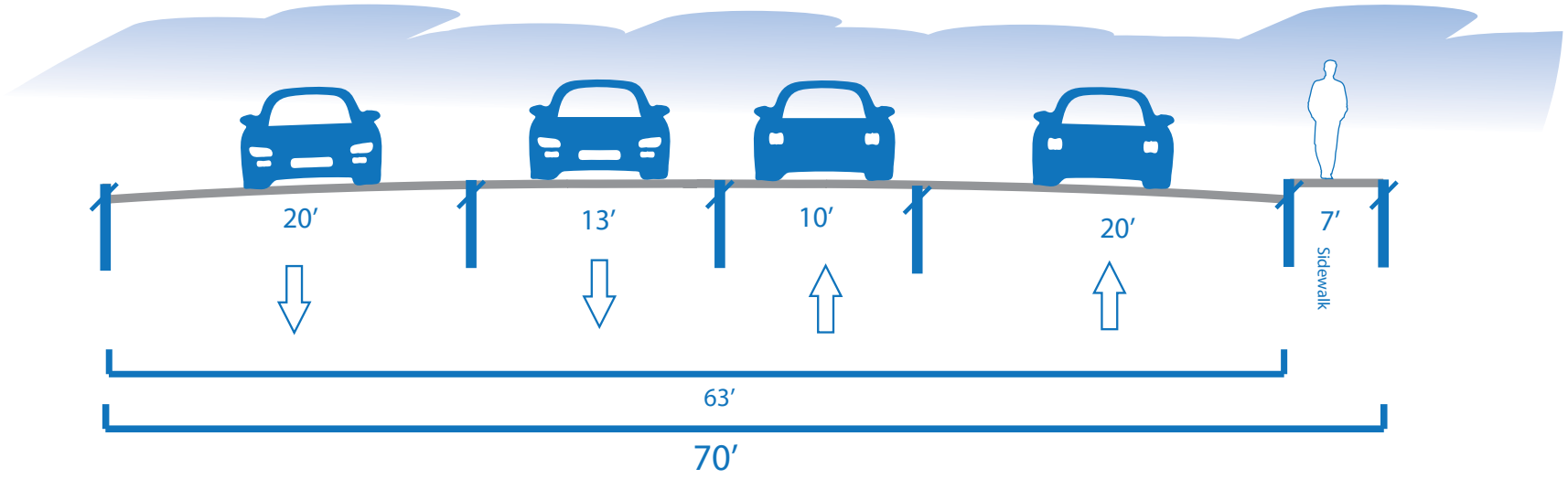


*Future development dedications should provide for wider sidewalks

^ Sidewalk and transit stop extensions would be implemented at major intersections

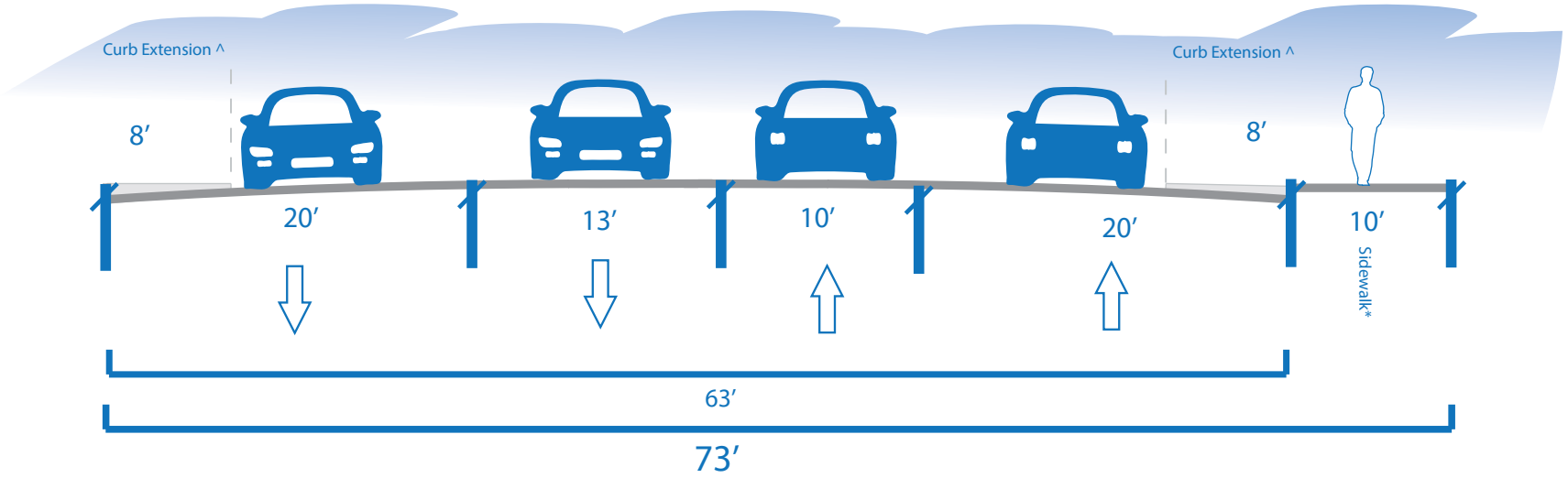
Existing

Sierra Way (Between 2nd Street and 3rd Street)



Proposed

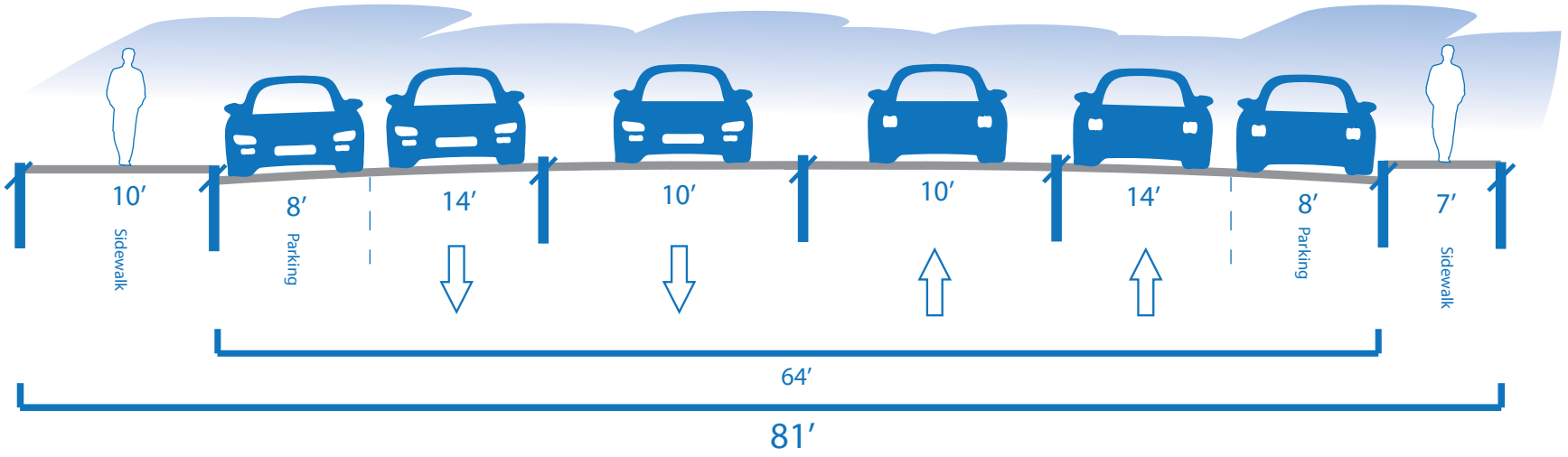
Sierra Way (Between 2nd Street and 3rd Street



*Future development dedications should provide for wider sidewalks
^ Sidewalk and transit stop extensions would be implemented at major intersections

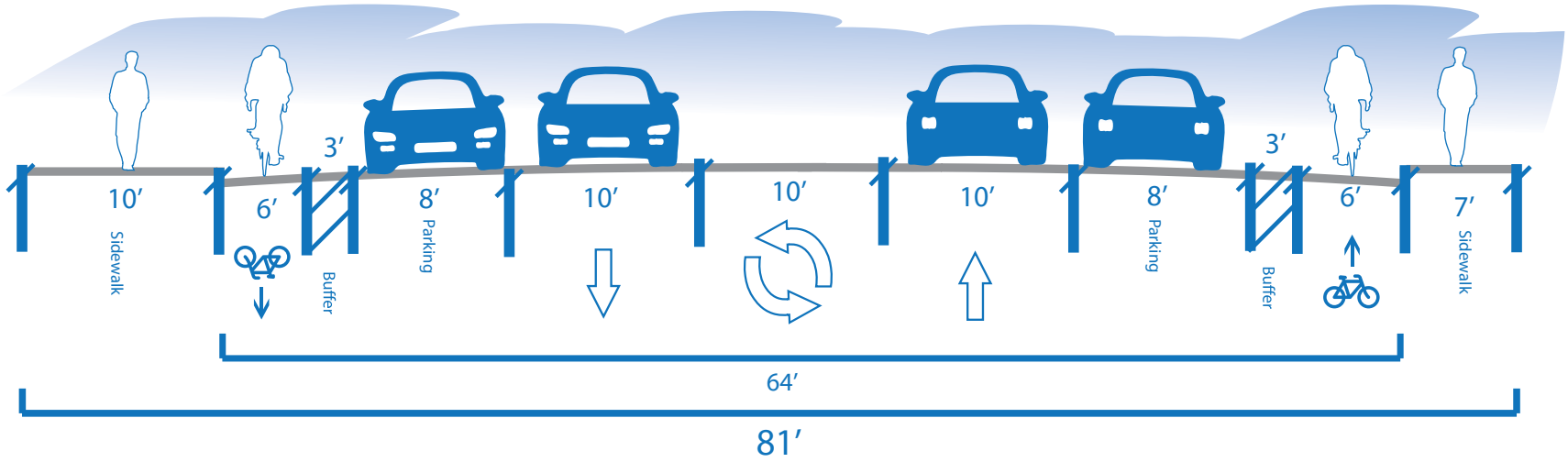
Existing

6th Street (Between E Street and D Street)



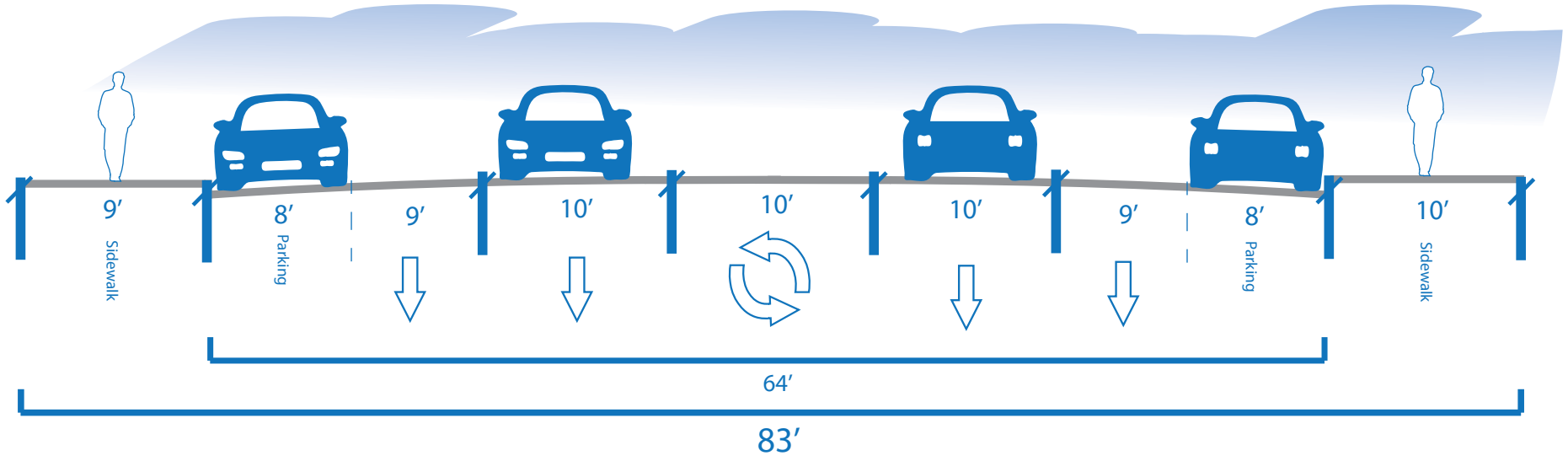
6th Street (Between E Street and D Street)

Proposed



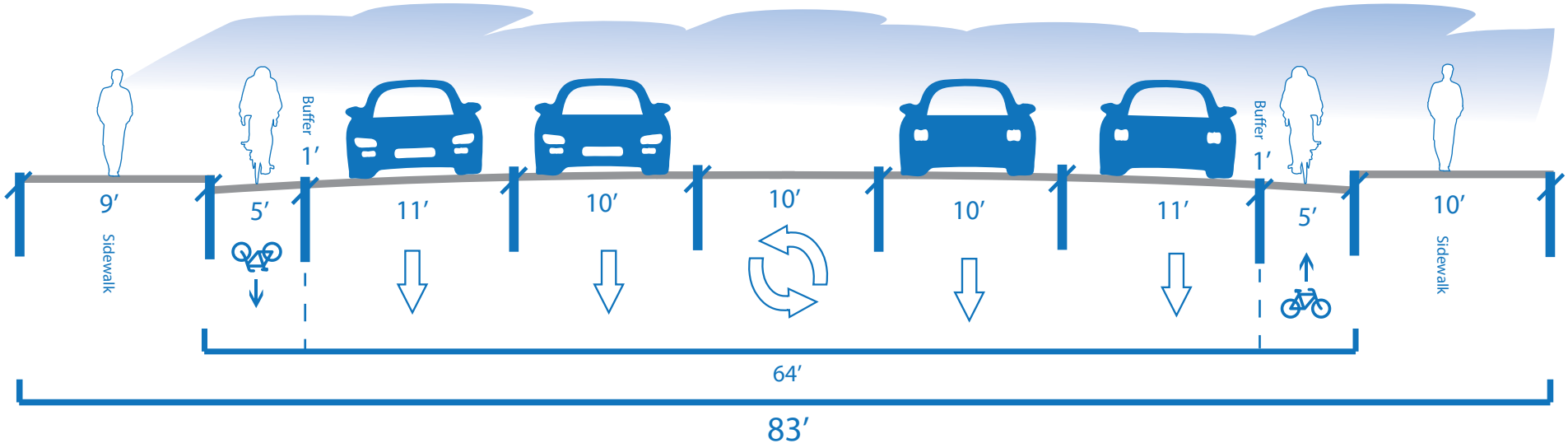
Existing

5th Street (Between D Street and Arrowhead)

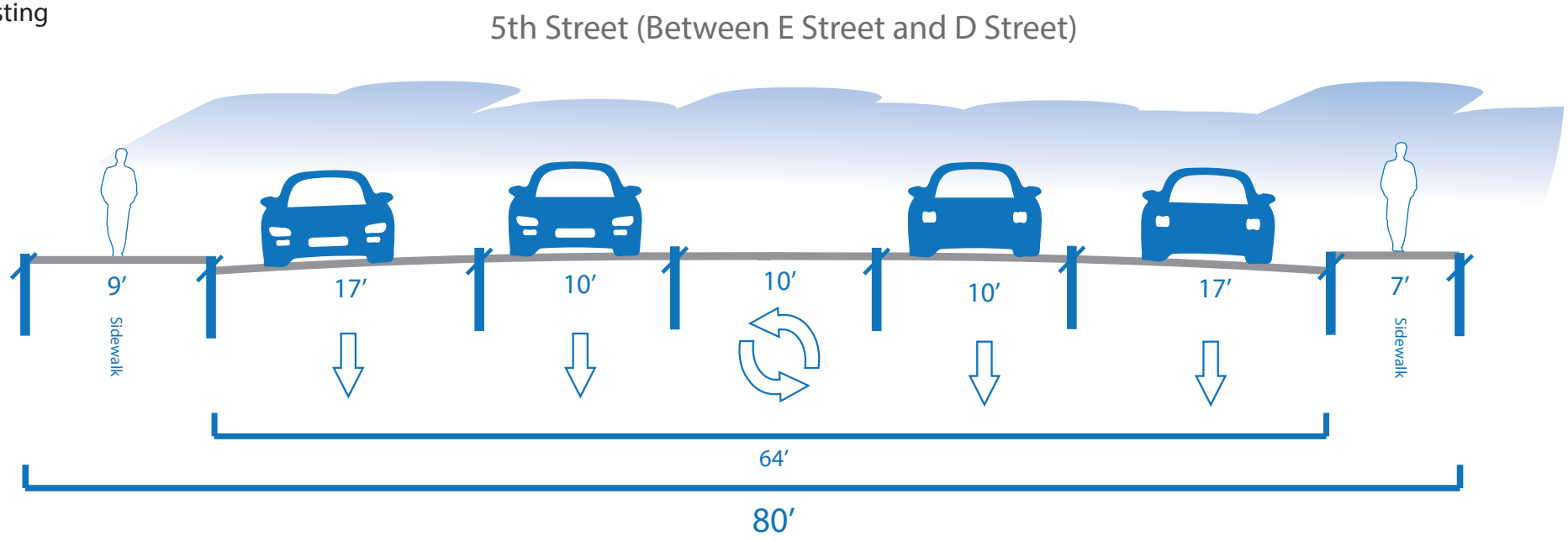


Proposed

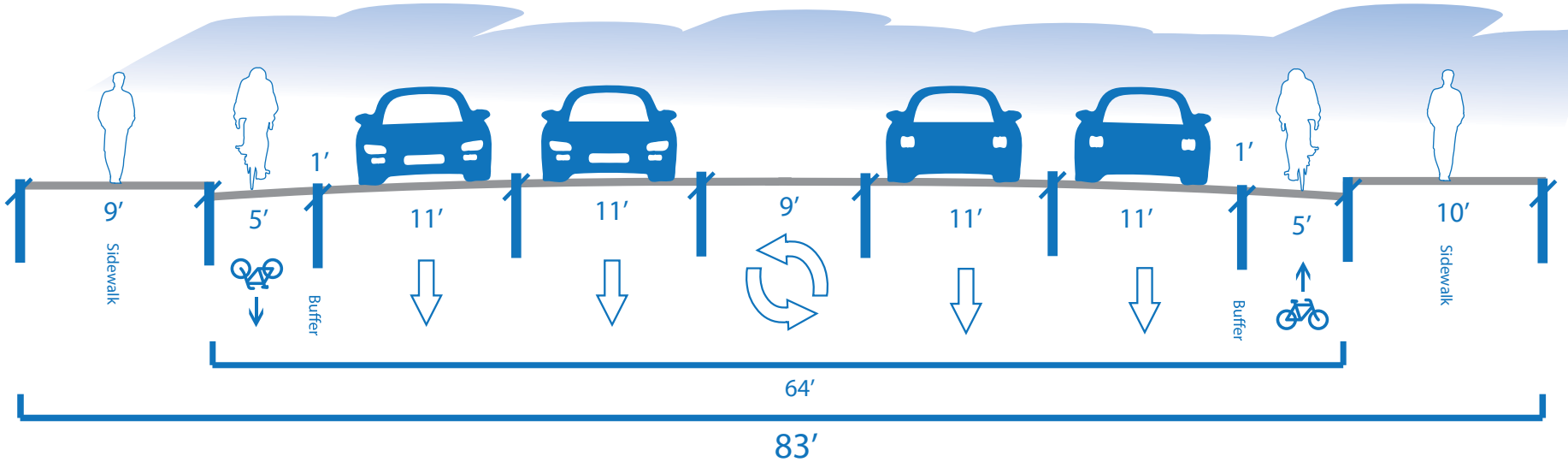
5th Street (Between D Street and Arrowhead)



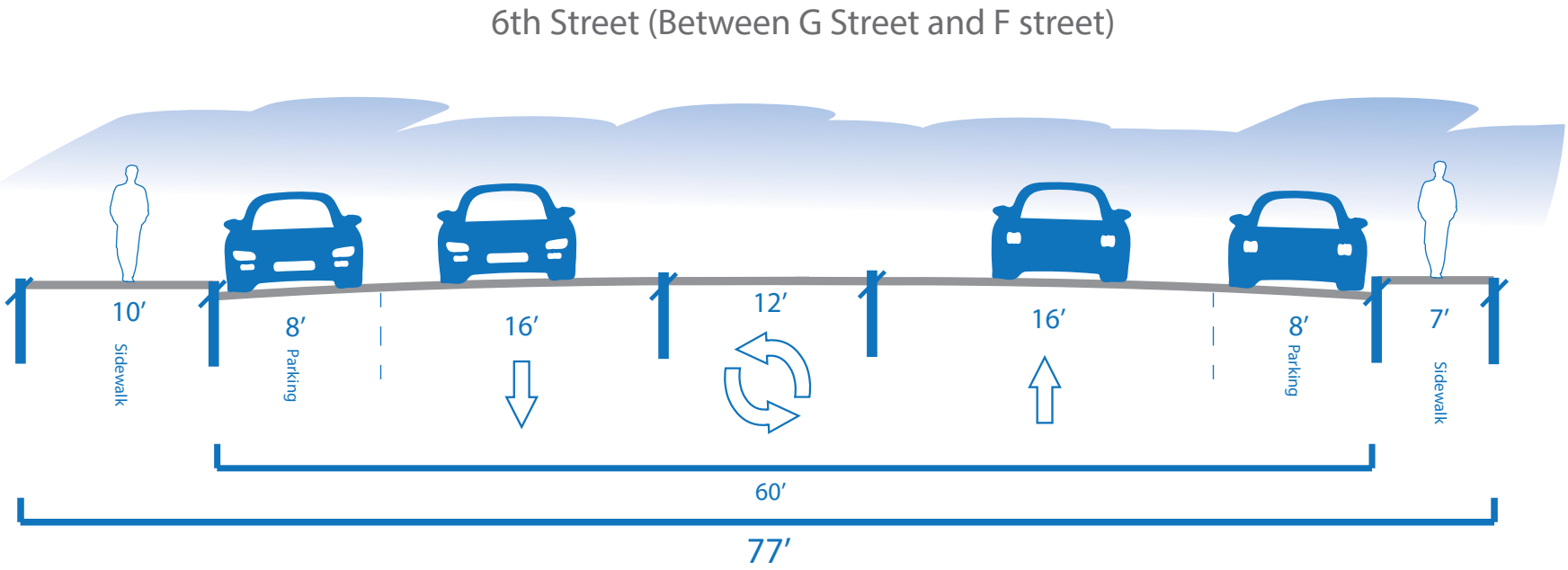
Existing



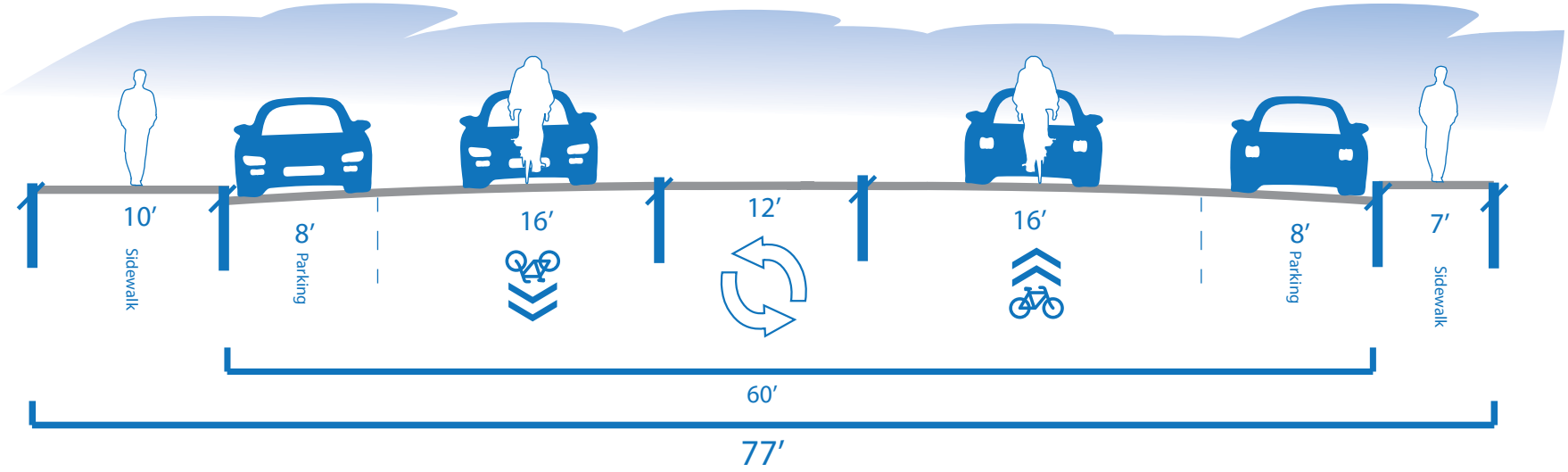
Proposed



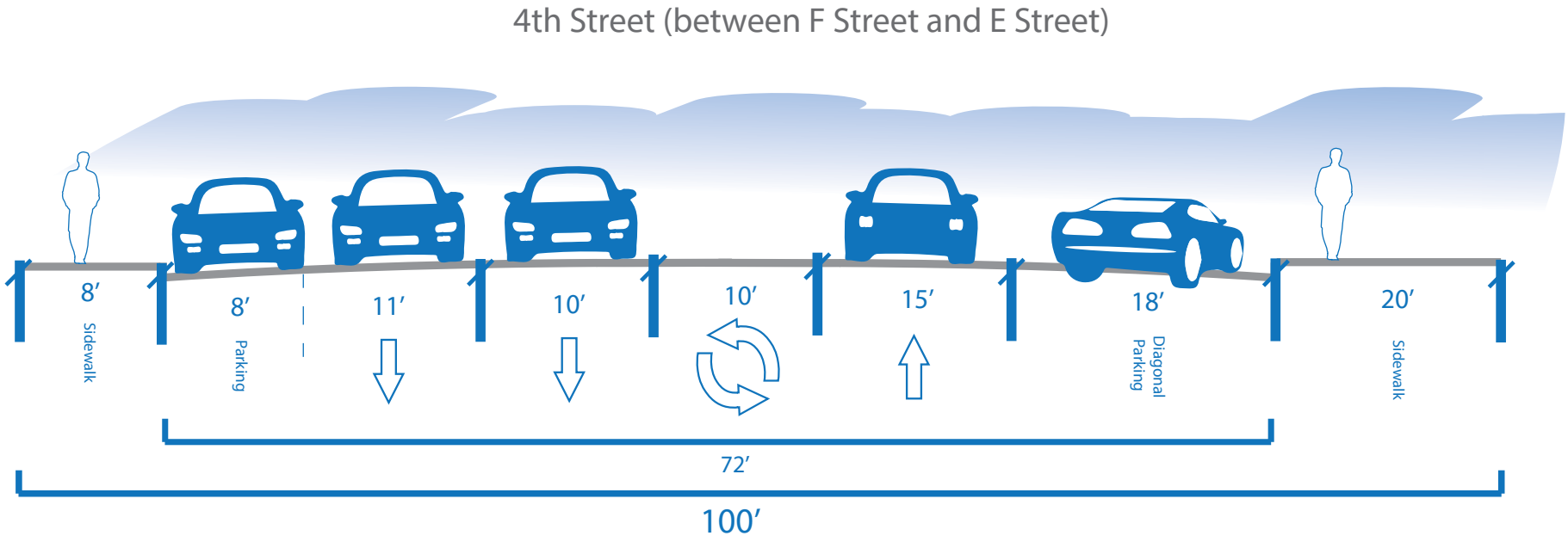
Existing



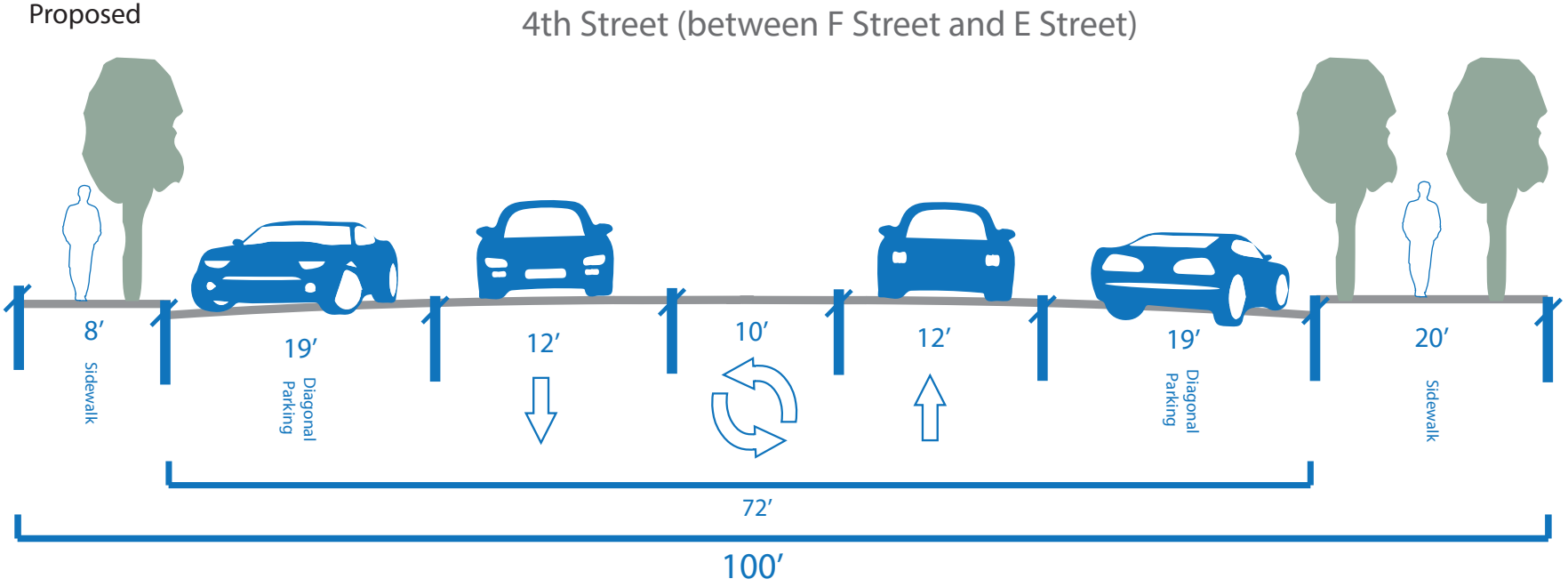
Proposed



Existing

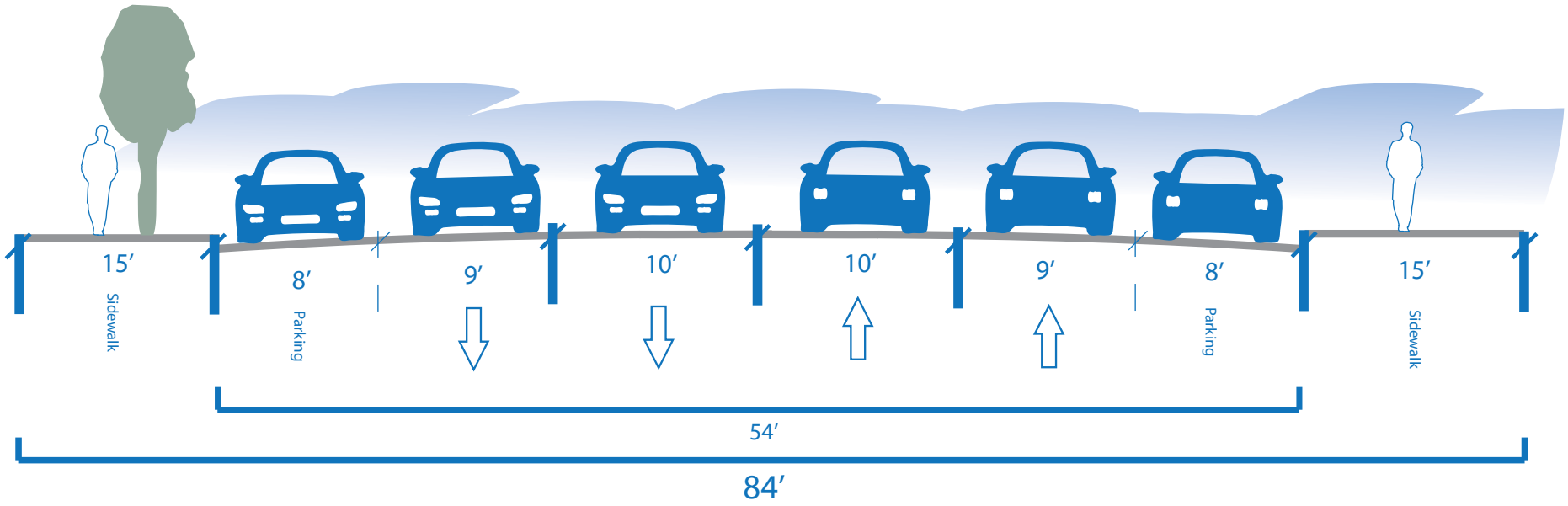


Proposed



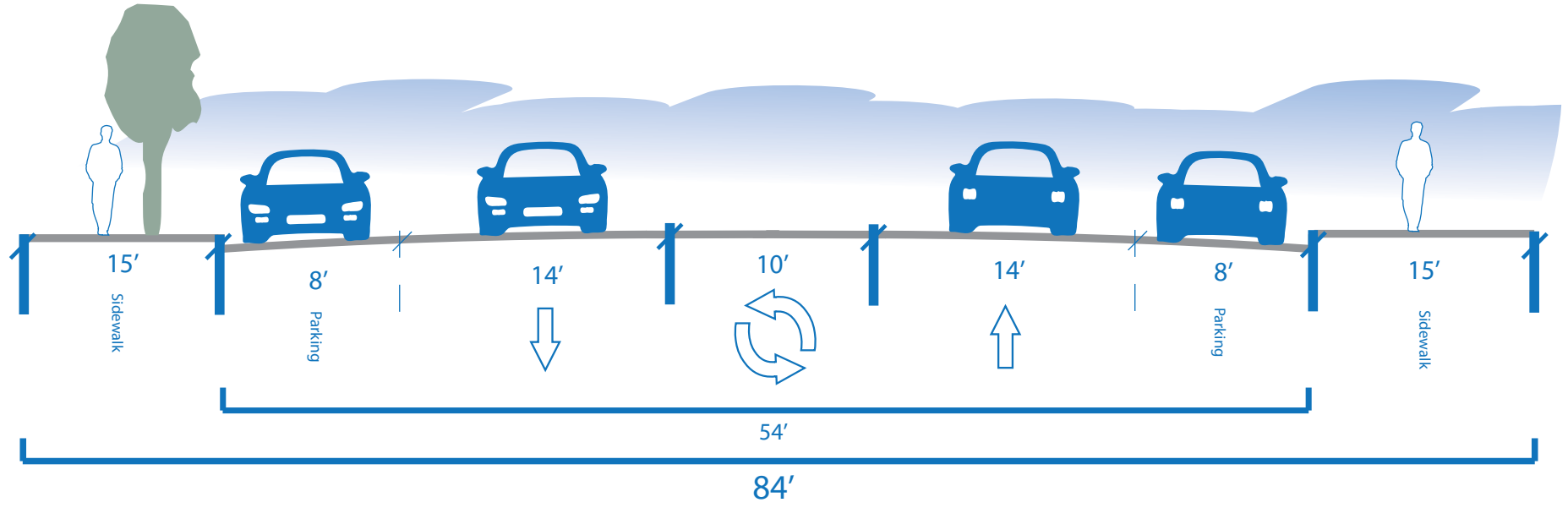
Existing

4th Street (Between D Street and Arrowhead Avenue)



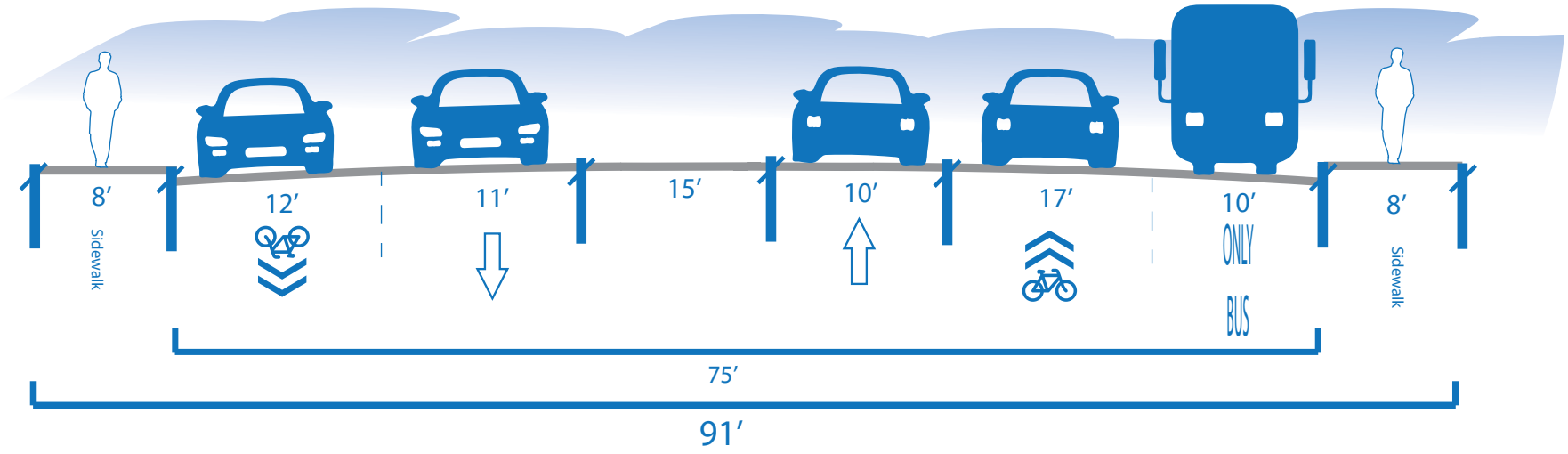
Proposed

4th Street (Between D Street and Arrowhead Avenue)



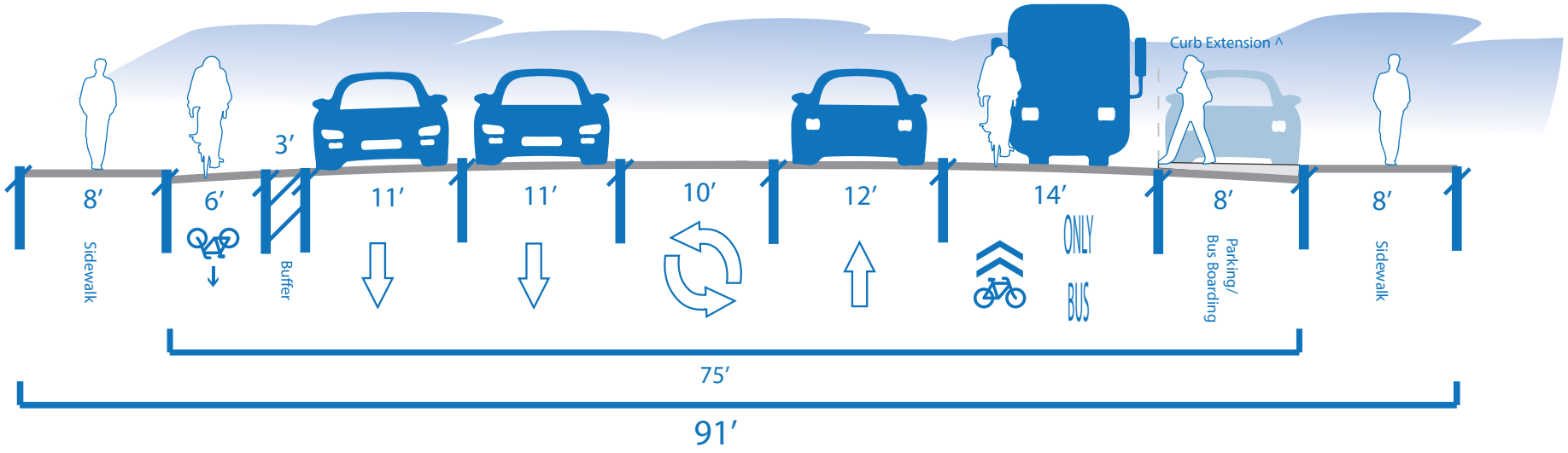
Proposed

Rialto Avenue (Between F Street and E Street)



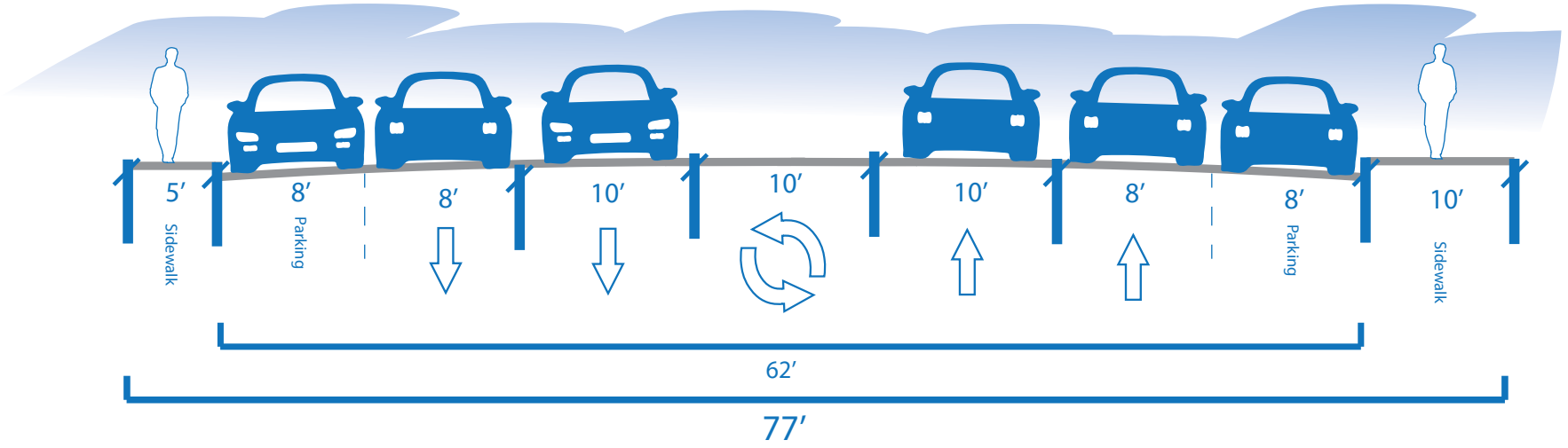
Proposed

Rialto Avenue (Between F Street and E Street)



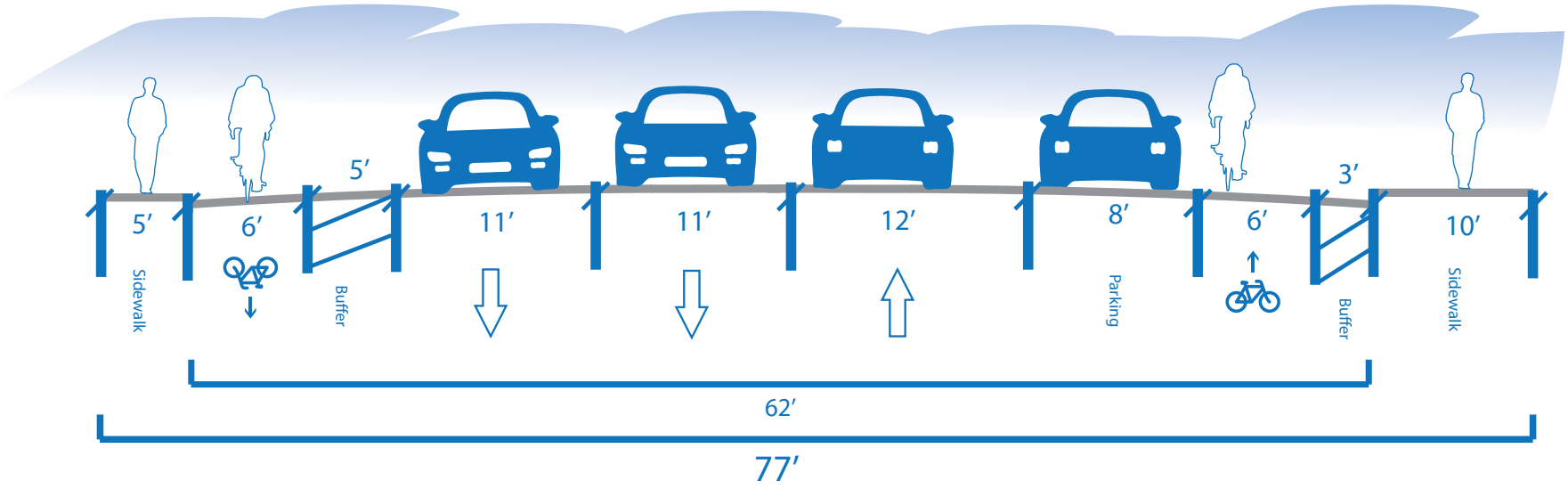
Existing

Rialto Avenue (Between E Street and Stoddard Avenue)



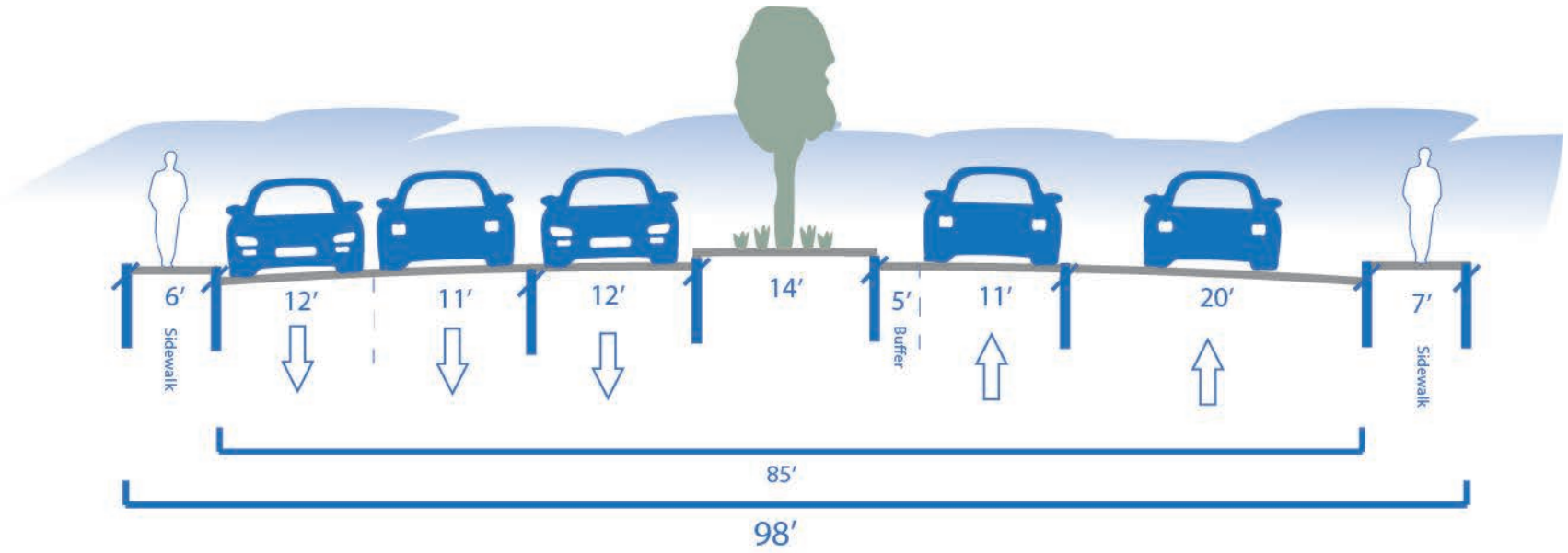
Proposed

Rialto Avenue (Between E Street and Stoddard Avenue



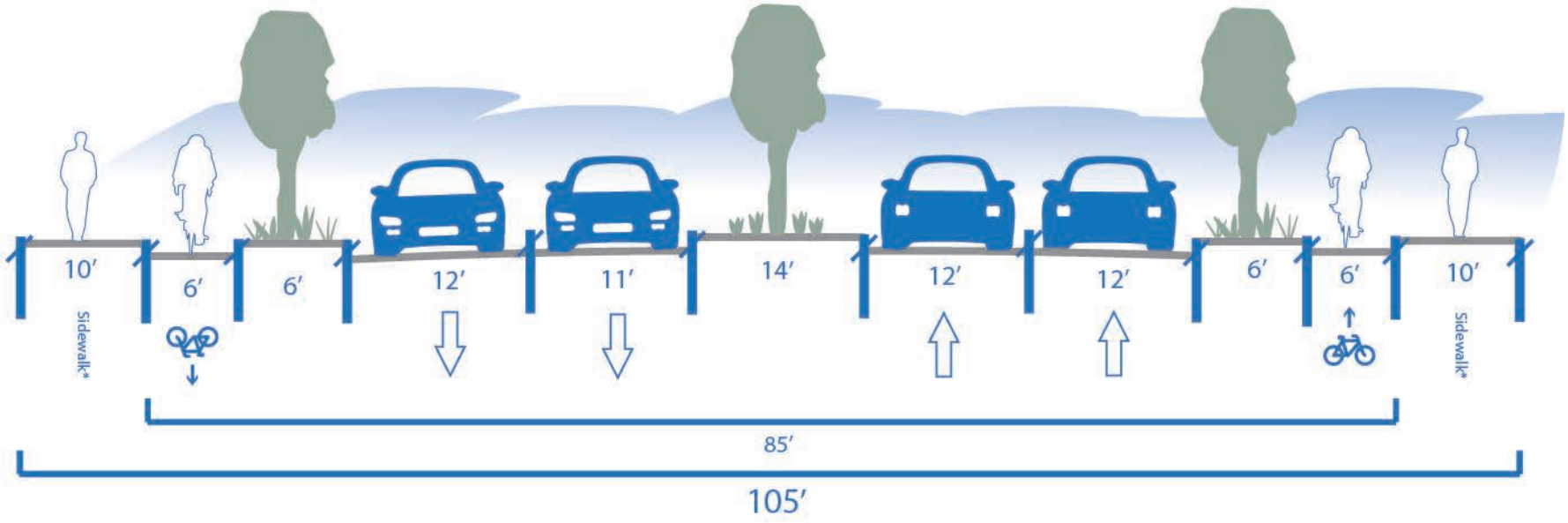
Existing

2nd Street (West of E Street)



Proposed

2nd Street (West of E Street)



*Future development dedications should provide for wider sidewalks

APPENDIX E – EXISTING WITH-PROJECT INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

Vistro File:
J:\...\VISTRO_SAN_BERNARDINO_V5_New_Trip_gen_negs_Optimized_Network.vistro
Report File: J:\...\EXAM_W_PROJ.pdf

Scenario 1 EXAM

8/17/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
29	I-215 SB Ramps & 5th St	Signalized	HCM 6th Edition	EB Right	1.014	74.0	E
30	I-215 NB Ramps & 5th St	Signalized	HCM 6th Edition	NB Thru	1.133	81.4	F
31	G St & 5th St	Signalized	HCM 6th Edition	EB Right	0.984	115.5	F
40	I-215 SB Ramps & 2nd St	Signalized	HCM 6th Edition	EB Right	0.553	27.9	C
41	I-215 NB Ramps & 2nd St	Signalized	HCM 6th Edition	WB Right	1.298	139.9	F
42	G St & 2nd St	Signalized	HCM 6th Edition	EB Thru	1.034	224.8	F
43	E St & 2nd St	Signalized	HCM 6th Edition	NB Thru	1.461	325.8	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 29: I-215 SB Ramps & 5th St

Control Type:	Signalized	Delay (sec / veh):	74.0
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.014

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	350.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	648	12	169	0	484	363	339	452	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	18.70	18.70	18.70	2.00	18.70	18.70	18.70	18.70	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	495	0	0	0	438	0	220	188	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	1143	12	169	0	922	363	559	640	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	286	3	42	0	231	91	140	160	0
Total Analysis Volume [veh/h]	0	0	0	1143	12	169	0	922	363	559	640	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	59	0	0	35	0	26	61	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	27	0	0	7	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	R	C	C	L	C
C, Cycle Length [s]		120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		55	55	55	31	31	22	57
g / C, Green / Cycle		0.46	0.46	0.46	0.26	0.26	0.18	0.48
(v / s)_i Volume / Saturation Flow Rate		0.32	0.51	0.14	0.23	0.29	0.21	0.23
s, saturation flow rate [veh/h]		1388	1389	1239	3970	1239	2695	2775
c, Capacity [veh/h]		636	637	568	1026	320	494	1318
d1, Uniform Delay [s]		25.81	32.50	20.39	42.99	44.50	49.00	21.50
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		6.14	73.76	1.34	12.30	91.74	81.73	1.28
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.69	1.12	0.30	0.90	1.13	1.13	0.49
d, Delay for Lane Group [s/veh]		31.95	106.26	21.72	55.29	136.24	130.73	22.78
Lane Group LOS		C	F	C	E	F	F	C
Critical Lane Group		No	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		10.90	30.88	3.18	9.91	17.58	12.97	6.31
50th-Percentile Queue Length [ft/ln]		272.54	771.91	79.50	247.74	439.44	324.32	157.85
95th-Percentile Queue Length [veh/ln]		16.32	43.45	5.72	15.07	26.24	20.04	10.43
95th-Percentile Queue Length [ft/ln]		407.91	1086.35	143.10	376.81	656.09	500.88	260.87

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	77.49	106.26	21.72	0.00	55.29	136.24	130.73	22.78	0.00
Movement LOS				E	F	C		E	F	F	C	
d_A, Approach Delay [s/veh]	0.00			70.70			78.15			73.10		
Approach LOS	A			E			E			E		
d_I, Intersection Delay [s/veh]	73.97											
Intersection LOS	E											
Intersection V/C	1.014											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.185	2.469	2.901	3.138
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	917	517	950
d_b, Bicycle Delay [s]	60.00	17.60	33.00	16.54
l_b,int, Bicycle LOS Score for Intersection	4.132	3.744	2.090	2.549
Bicycle LOS	D	D	B	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 30: I-215 NB Ramps & 5th St

Control Type:	Signalized	Delay (sec / veh):	81.4
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.133

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0	0	0	2	0	0
Entry Pocket Length [ft]	100.00	100.00	485.00	100.00	100.00	100.00	100.00	100.00	100.00	120.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	232	2	549	0	0	0	151	972	0	0	561	188
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	2.00	2.00	2.00	18.70	18.70	2.00	2.00	18.70	18.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	396	0	0	0	0	933	0	0	408	242
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	232	2	945	0	0	0	151	1905	0	0	969	430
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	58	1	236	0	0	0	38	476	0	0	242	108
Total Analysis Volume [veh/h]	232	2	945	0	0	0	151	1905	0	0	969	430
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	43	0	0	0	0	15	77	0	0	62	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	0	0	0	17	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	R
C, Cycle Length [s]	120	120	120		120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	39	39	39		11	73	58	58
g / C, Green / Cycle	0.33	0.33	0.33		0.09	0.61	0.48	0.48
(v / s)_i Volume / Saturation Flow Rate	0.17	0.45	0.32		0.06	0.69	0.18	0.35
s, saturation flow rate [veh/h]	1388	1239	1239		2695	2775	5293	1239
c, Capacity [veh/h]	451	403	403		247	1688	2558	599
d1, Uniform Delay [s]	32.82	40.50	40.04		52.44	23.50	19.61	24.53
k, delay calibration	0.50	0.50	0.50		0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.15	183.92	39.27		10.78	66.04	0.43	7.25
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.51	1.38	0.98		0.61	1.13	0.38	0.72
d, Delay for Lane Group [s/veh]	36.97	224.42	79.31		63.23	89.54	20.03	31.78
Lane Group LOS	D	F	E		E	F	C	C
Critical Lane Group	No	Yes	No		No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.98	32.29	15.68		2.56	37.40	4.33	10.65
50th-Percentile Queue Length [ft/ln]	149.59	807.15	392.08		64.03	935.03	108.20	266.21
95th-Percentile Queue Length [veh/ln]	10.00	49.55	22.18		4.61	52.29	7.74	16.00
95th-Percentile Queue Length [ft/ln]	249.89	1238.80	554.45		115.25	1307.32	193.49	400.01

Movement, Approach, & Intersection Results

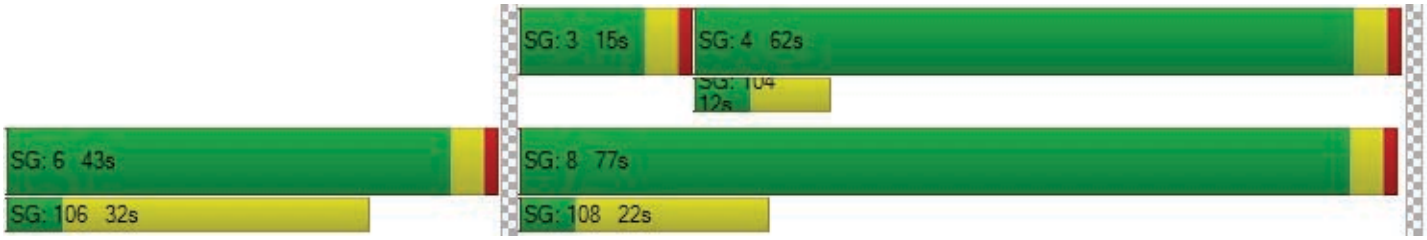
d_M, Delay for Movement [s/veh]	36.97	224.42	164.05	0.00	0.00	0.00	63.23	89.54	0.00	0.00	20.03	31.78
Movement LOS	D	F	F				E	F			C	C
d_A, Approach Delay [s/veh]	139.17			0.00			87.61			23.64		
Approach LOS	F			A			F			C		
d_I, Intersection Delay [s/veh]	81.41											
Intersection LOS	F											
Intersection V/C	1.133											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.545	2.014	3.138	3.201
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	0	1217	967
d_b, Bicycle Delay [s]	27.34	60.00	9.20	16.02
l_b,int, Bicycle LOS Score for Intersection	3.505	4.132	3.256	2.137
Bicycle LOS	D	D	C	B

Sequence

Ring 1	-	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 31: G St & 5th St

Control Type:	Signalized	Delay (sec / veh):	115.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.984

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	140.00	100.00	100.00	140.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	5	23	3	33	66	48	74	1278	18	9	498	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	96	6	9	9	19	8	6	859	215	21	420	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	101	29	12	42	85	56	80	2137	233	30	918	36
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	7	3	11	21	14	20	534	58	8	230	9
Total Analysis Volume [veh/h]	101	29	12	42	85	56	80	2137	233	30	918	36
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	30	0	0	30	0	0	60	0	0	60	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	26	26	26	26	56	56	56	56	56	56
g / C, Green / Cycle	0.29	0.29	0.29	0.29	0.62	0.62	0.62	0.62	0.62	0.62
(v / s)_i Volume / Saturation Flow Rate	0.14	0.03	0.08	0.07	0.17	0.81	0.84	0.26	0.33	0.33
s, saturation flow rate [veh/h]	707	1261	1196	1192	458	1457	1409	116	1457	1438
c, Capacity [veh/h]	284	364	403	344	270	907	876	80	907	895
d1, Uniform Delay [s]	31.32	23.52	24.95	24.56	18.70	17.00	17.00	45.00	9.58	9.58
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.44	0.63	1.38	1.77	2.78	146.04	165.98	12.91	2.21	2.24
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.11	0.24	0.25	0.30	1.31	1.35	0.38	0.53	0.53
d, Delay for Lane Group [s/veh]	34.77	24.15	26.33	26.34	21.48	163.04	182.98	57.91	11.79	11.82
Lane Group LOS	C	C	C	C	C	F	F	E	B	B
Critical Lane Group	Yes	No	No	No	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	2.17	0.69	1.73	1.58	1.35	52.53	55.63	0.95	5.25	5.19
50th-Percentile Queue Length [ft/ln]	54.31	17.36	43.16	39.45	33.70	1313.34	1390.66	23.76	131.37	129.82
95th-Percentile Queue Length [veh/ln]	3.91	1.25	3.11	2.84	2.43	78.34	84.10	1.71	9.01	8.93
95th-Percentile Queue Length [ft/ln]	97.76	31.25	77.69	71.01	60.67	1958.44	2102.58	42.76	225.36	223.24

Movement, Approach, & Intersection Results

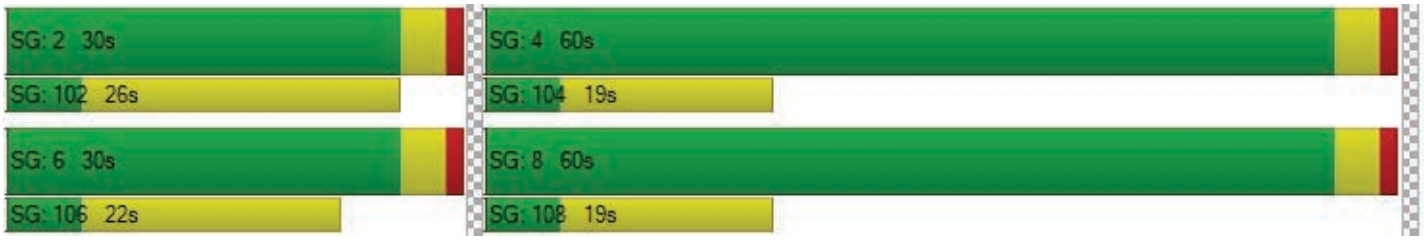
d_M, Delay for Movement [s/veh]	34.77	24.15	24.15	26.33	26.33	26.34	21.48	171.92	182.98	57.91	11.80	11.82
Movement LOS	C	C	C	C	C	C	C	F	F	E	B	B
d_A, Approach Delay [s/veh]	31.70			26.33			168.06			13.21		
Approach LOS	C			C			F			B		
d_I, Intersection Delay [s/veh]	115.47											
Intersection LOS	F											
Intersection V/C	0.984											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.295	2.326	3.171	2.980
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	578	578	1244	1244
d_b, Bicycle Delay [s]	22.76	22.76	6.42	6.42
l_b,int, Bicycle LOS Score for Intersection	1.677	1.711	3.581	2.371
Bicycle LOS	A	A	D	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 40: I-215 SB Ramps & 2nd St

Control Type:	Signalized	Delay (sec / veh):	27.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.553

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	466	48	214	0	258	96	210	173	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	18.70	18.70	18.70	2.00	18.70	18.70	18.70	18.70	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	329	0	0	0	0	0	300	50	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	795	48	214	0	258	96	510	223	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	199	12	54	0	65	24	128	56	0
Total Analysis Volume [veh/h]	0	0	0	795	48	214	0	258	96	510	223	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	44	0	0	16	0	30	46	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	27	0	0	7	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	C	C	R	L	C
C, Cycle Length [s]		90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		40	40	40	12	12	26	42
g / C, Green / Cycle		0.44	0.44	0.44	0.13	0.13	0.29	0.47
(v / s)_i Volume / Saturation Flow Rate		0.29	0.29	0.23	0.06	0.08	0.19	0.08
s, saturation flow rate [veh/h]		1388	1388	1159	3970	1239	2695	2775
c, Capacity [veh/h]		617	617	515	529	165	779	1295
d1, Uniform Delay [s]		19.46	19.46	17.94	36.15	36.64	28.07	13.92
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		5.12	5.12	3.56	3.19	14.07	4.27	0.29
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.64	0.64	0.51	0.49	0.58	0.65	0.17
d, Delay for Lane Group [s/veh]		24.59	24.59	21.50	39.34	50.71	32.34	14.21
Lane Group LOS		C	C	C	D	D	C	B
Critical Lane Group		Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		7.01	7.01	4.23	1.88	2.60	5.15	1.32
50th-Percentile Queue Length [ft/ln]		175.19	175.19	105.86	47.10	65.01	128.65	32.97
95th-Percentile Queue Length [veh/ln]		11.35	11.35	7.61	3.39	4.68	8.87	2.37
95th-Percentile Queue Length [ft/ln]		283.73	283.73	190.23	84.77	117.01	221.66	59.35

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	24.59	21.50	21.50	0.00	39.34	50.71	32.34	14.21	0.00
Movement LOS				C	C	C		D	D	C	B	
d_A, Approach Delay [s/veh]	0.00			23.82			42.42			26.82		
Approach LOS	A			C			D			C		
d_I, Intersection Delay [s/veh]	27.92											
Intersection LOS	C											
Intersection V/C	0.553											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.035	2.390	2.706	2.945
Crosswalk LOS	B	B	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	889	267	933
d_b, Bicycle Delay [s]	45.00	13.89	33.80	12.80
l_b,int, Bicycle LOS Score for Intersection	4.132	2.432	1.754	2.164
Bicycle LOS	D	B	A	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 41: I-215 NB Ramps & 2nd St

Control Type:	Signalized	Delay (sec / veh):	139.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.298

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	2	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	245.00	100.00	205.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	111	134	873	0	0	0	167	540	0	0	274	176
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	2.00	2.00	2.00	18.70	18.70	2.00	2.00	18.70	18.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	860	40	0	0	0	329	0	0	350	167
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	111	134	1733	40	0	0	167	869	0	0	624	343
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	34	433	10	0	0	42	217	0	0	156	86
Total Analysis Volume [veh/h]	111	134	1733	40	0	0	167	869	0	0	624	343
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	60	0	0	0	0	9	30	0	0	21	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	0	0	0	14	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	R
C, Cycle Length [s]	90	90	90		90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	56	56	56		5	26	17	17
g / C, Green / Cycle	0.62	0.62	0.62		0.06	0.29	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.08	0.96	0.53		0.06	0.31	0.12	0.28
s, saturation flow rate [veh/h]	1388	1260	1239		2695	2775	5293	1239
c, Capacity [veh/h]	864	784	771		150	802	1000	234
d1, Uniform Delay [s]	6.98	17.00	13.73		42.50	32.00	33.56	36.50
k, delay calibration	0.50	0.50	0.50		0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.31	249.69	11.71		107.80	57.03	2.94	231.56
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.13	1.54	0.86		1.12	1.08	0.62	1.47
d, Delay for Lane Group [s/veh]	7.29	266.69	25.44		150.30	89.03	36.50	268.06
Lane Group LOS	A	F	C		F	F	D	F
Critical Lane Group	No	Yes	No		Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.87	67.98	11.75		3.89	14.74	3.28	20.07
50th-Percentile Queue Length [ft/ln]	21.63	1699.46	293.85		97.13	368.60	82.00	501.71
95th-Percentile Queue Length [veh/ln]	1.56	107.45	17.38		6.99	22.06	5.90	32.16
95th-Percentile Queue Length [ft/ln]	38.93	2686.37	434.41		174.84	551.61	147.60	803.92

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	7.29	266.69	172.77	0.00	0.00	0.00	150.30	89.03	0.00	0.00	36.50	268.06
Movement LOS	A	F	F				F	F			D	F
d_A, Approach Delay [s/veh]	171.72			0.00			98.91			118.63		
Approach LOS	F			A			F			F		
d_I, Intersection Delay [s/veh]	139.88											
Intersection LOS	F											
Intersection V/C	1.298											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.615	2.030	2.943	3.162
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1244	0	578	378
d_b, Bicycle Delay [s]	6.42	45.00	22.76	29.61
l_b,int, Bicycle LOS Score for Intersection	4.823	4.132	2.414	1.958
Bicycle LOS	E	D	B	A

Sequence

Ring 1	-	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 42: G St & 2nd St

Control Type:	Signalized	Delay (sec / veh):	224.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.034

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	130.00	100.00	100.00	100.00	100.00	100.00	220.00	100.00	100.00	260.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	120	113	52	158	154	15	30	1094	239	48	300	38
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	26	53	65	61	98	85	201	967	61	21	407	20
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	146	166	117	219	252	100	231	2061	300	69	707	58
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	37	42	29	55	63	25	58	515	75	17	177	15
Total Analysis Volume [veh/h]	146	166	117	219	252	100	231	2061	300	69	707	58
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	30	0	12	33	0	21	39	0	9	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	24	0	0	14	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	38	26	26	38	29	29	17	35	35	5	23	23
g / C, Green / Cycle	0.42	0.29	0.29	0.42	0.32	0.32	0.19	0.39	0.39	0.06	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.16	0.10	0.11	0.22	0.17	0.08	0.17	0.74	0.24	0.05	0.18	0.18
s, saturation flow rate [veh/h]	910	1457	1263	995	1457	1239	1388	2775	1239	1388	2775	1402
c, Capacity [veh/h]	381	421	365	458	470	399	262	1079	482	77	709	358
d1, Uniform Delay [s]	17.89	25.34	25.46	18.27	24.99	22.49	35.52	27.50	22.18	42.24	30.51	30.56
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.90	2.31	2.85	3.54	4.35	1.50	31.88	412.93	5.96	76.13	6.08	11.82
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.38	0.35	0.37	0.48	0.54	0.25	0.88	1.91	0.62	0.89	0.72	0.72
d, Delay for Lane Group [s/veh]	20.79	27.65	28.31	21.81	29.34	23.99	67.40	440.43	28.13	118.37	36.60	42.38
Lane Group LOS	C	C	C	C	C	C	E	F	C	F	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.19	2.73	2.53	3.46	4.85	1.70	7.14	72.83	5.70	3.14	5.48	6.15
50th-Percentile Queue Length [ft/ln]	54.83	68.37	63.22	86.41	121.28	42.40	178.55	1820.77	142.59	78.39	136.94	153.69
95th-Percentile Queue Length [veh/ln]	3.95	4.92	4.55	6.22	8.46	3.05	11.52	117.02	9.62	5.64	9.32	10.21
95th-Percentile Queue Length [ft/ln]	98.69	123.07	113.79	155.54	211.58	76.31	288.11	2925.46	240.51	141.11	232.89	255.35

Movement, Approach, & Intersection Results

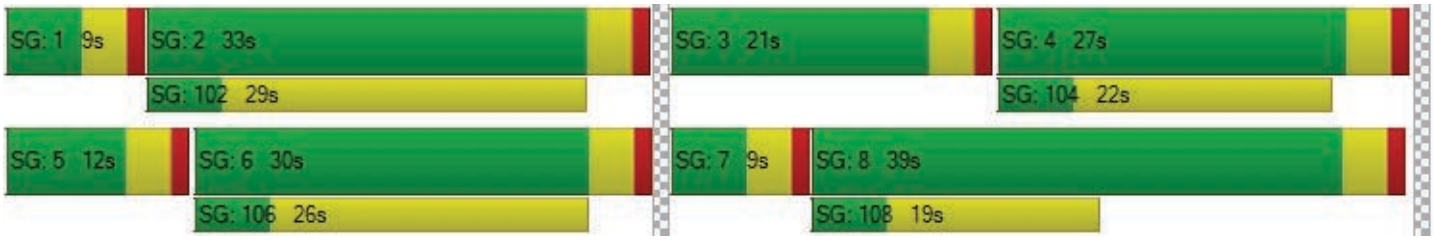
d_M, Delay for Movement [s/veh]	20.79	27.72	28.31	21.81	29.34	23.99	67.40	440.43	28.13	118.37	38.23	42.38
Movement LOS	C	C	C	C	C	C	E	F	C	F	D	D
d_A, Approach Delay [s/veh]	25.52			25.51			359.47			45.15		
Approach LOS	C			C			F			D		
d_I, Intersection Delay [s/veh]	224.79											
Intersection LOS	F											
Intersection V/C	1.034											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.389	2.501	3.161	3.076
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	578	644	778	511
d_b, Bicycle Delay [s]	22.76	20.67	16.81	24.94
l_b,int, Bicycle LOS Score for Intersection	1.914	2.502	3.698	2.018
Bicycle LOS	A	B	D	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 43: E St & 2nd St

Control Type:	Signalized	Delay (sec / veh):	325.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.461

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	120.00	100.00	100.00	140.00	100.00	140.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	25	101	25	22	126	28	65	1122	36	23	339	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	53	1104	67	0	474	81	237	482	35	26	191	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	78	1205	92	22	600	109	302	1604	71	49	530	8
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	301	23	6	150	27	76	401	18	12	133	2
Total Analysis Volume [veh/h]	78	1205	92	22	600	109	302	1604	71	49	530	8
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	41	0	9	41	0	17	31	0	9	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	37	37	5	37	37	13	27	27	5	19	19
g / C, Green / Cycle	0.06	0.41	0.41	0.06	0.41	0.41	0.14	0.30	0.30	0.06	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.06	0.83	0.07	0.02	0.41	0.09	0.22	0.57	0.58	0.04	0.13	0.13
s, saturation flow rate [veh/h]	1388	1457	1239	1388	1457	1239	1388	1457	1436	1388	2775	1446
c, Capacity [veh/h]	77	599	509	77	599	509	200	437	431	77	586	305
d1, Uniform Delay [s]	42.50	26.50	16.86	40.79	26.50	17.11	38.50	31.50	31.50	41.61	32.09	32.10
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	105.71	460.94	0.78	9.06	37.12	0.96	252.00	420.43	433.32	33.75	4.55	8.61
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.01	2.01	0.18	0.29	1.00	0.21	1.51	1.92	1.94	0.64	0.60	0.60
d, Delay for Lane Group [s/veh]	148.21	487.44	17.64	49.85	63.62	18.07	290.50	451.93	464.82	75.36	36.65	40.71
Lane Group LOS	F	F	B	D	F	B	F	F	F	E	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.96	88.76	1.29	0.66	18.22	1.55	18.37	60.19	60.85	1.78	3.78	4.29
50th-Percentile Queue Length [ft/ln]	98.91	2218.94	32.16	16.44	455.54	38.77	459.26	1504.74	1521.13	44.39	94.48	107.36
95th-Percentile Queue Length [veh/ln]	7.12	143.01	2.32	1.18	25.25	2.79	29.57	95.87	97.09	3.20	6.80	7.69
95th-Percentile Queue Length [ft/ln]	178.04	3575.31	57.89	29.59	631.21	69.78	739.33	2396.66	2427.18	79.90	170.07	192.32

Movement, Approach, & Intersection Results

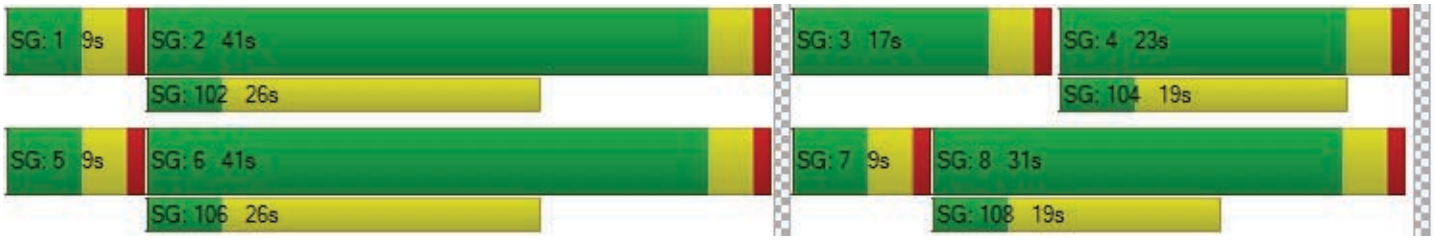
d_M, Delay for Movement [s/veh]	148.21	487.44	17.64	49.85	63.62	18.07	290.50	458.09	464.82	75.36	38.00	40.71
Movement LOS	F	F	B	D	F	B	F	F	F	E	D	D
d_A, Approach Delay [s/veh]	436.76			56.41			432.73			41.16		
Approach LOS	F			E			F			D		
d_I, Intersection Delay [s/veh]	325.79											
Intersection LOS	F											
Intersection V/C	1.461											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.710	2.680	2.892	2.829
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	822	822	600	422
d_b, Bicycle Delay [s]	15.61	15.61	22.05	28.01
l_b,int, Bicycle LOS Score for Intersection	3.828	2.766	3.191	1.882
Bicycle LOS	D	C	C	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Vistro File:
J:\...\VISTRO_SAN_BERNARDINO_V6_New_Trip_gen_negs_Optimized_Individual.vistro
Report File: J:\...\EXPM_W_PROJ.pdf

Scenario 2 EXPM

8/17/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
29	I-215 SB Ramps & 5th St	Signalized	HCM 6th Edition	EB Right	1.072	93.3	F
30	I-215 NB Ramps & 5th St	Signalized	HCM 6th Edition	EB Left	1.595	154.6	F
31	G St & 5th St	Signalized	HCM 6th Edition	NB Left	1.970	146.8	F
40	I-215 SB Ramps & 2nd St	Signalized	HCM 6th Edition	WB Left	1.089	228.2	F
41	I-215 NB Ramps & 2nd St	Signalized	HCM 6th Edition	NB Thru	1.737	216.9	F
42	G St & 2nd St	Signalized	HCM 6th Edition	EB Left	1.409	319.7	F
43	E St & 2nd St	Signalized	HCM 6th Edition	SB Thru	2.027	551.4	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 29: I-215 SB Ramps & 5th St

Control Type:	Signalized	Delay (sec / veh):	93.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.072

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	350.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	239	5	173	0	577	323	481	818	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	18.70	18.70	18.70	2.00	18.70	18.70	18.70	18.70	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	670	0	0	0	576	0	549	675	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	909	5	173	0	1153	323	1030	1493	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	227	1	43	0	288	81	258	373	0
Total Analysis Volume [veh/h]	0	0	0	909	5	173	0	1153	323	1030	1493	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	44	0	0	34	0	42	76	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	27	0	0	7	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	R	C	C	L	C
C, Cycle Length [s]		120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		40	40	40	30	30	38	72
g / C, Green / Cycle		0.33	0.33	0.33	0.25	0.25	0.32	0.60
(v / s)_i Volume / Saturation Flow Rate		0.26	0.40	0.14	0.28	0.29	0.38	0.54
s, saturation flow rate [veh/h]		1388	1389	1239	3970	1262	2695	2775
c, Capacity [veh/h]		463	463	413	992	316	854	1665
d1, Uniform Delay [s]		36.09	40.00	31.00	45.00	45.00	41.00	20.78
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		12.46	106.01	3.11	65.77	104.79	104.03	8.01
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.78	1.19	0.42	1.12	1.17	1.21	0.90
d, Delay for Lane Group [s/veh]		48.55	146.01	34.10	110.77	149.79	145.03	28.79
Lane Group LOS		D	F	C	F	F	F	C
Critical Lane Group		No	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		11.08	27.06	4.24	15.80	18.49	24.76	18.74
50th-Percentile Queue Length [ft/ln]		277.09	676.41	106.12	394.98	462.31	618.93	468.43
95th-Percentile Queue Length [veh/ln]		16.54	39.64	7.62	23.71	27.82	36.79	25.84
95th-Percentile Queue Length [ft/ln]		413.58	991.03	190.59	592.75	695.38	919.81	645.91

Movement, Approach, & Intersection Results

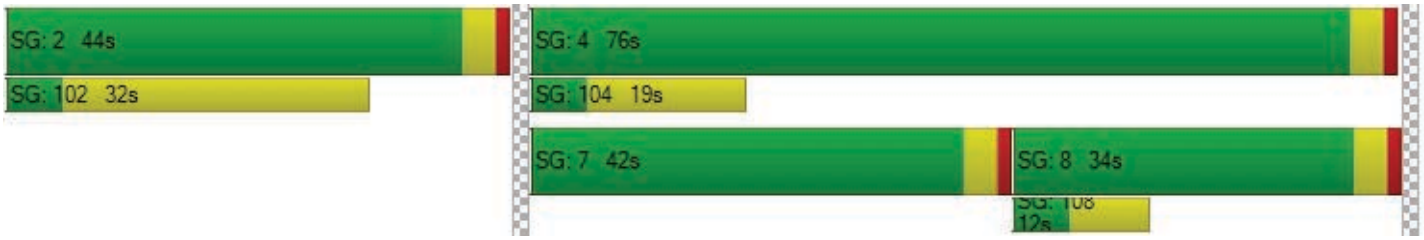
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	107.12	146.01	34.10	0.00	112.32	149.79	145.03	28.79	0.00
Movement LOS				F	F	C		F	F	F	C	
d_A, Approach Delay [s/veh]	0.00			95.71			120.52			76.24		
Approach LOS	A			F			F			E		
d_I, Intersection Delay [s/veh]	93.25											
Intersection LOS	F											
Intersection V/C	1.072											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.392	2.411	3.047	3.299
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	667	500	1200
d_b, Bicycle Delay [s]	60.00	26.67	33.75	9.60
l_b,int, Bicycle LOS Score for Intersection	4.132	3.353	2.168	3.641
Bicycle LOS	D	C	B	D

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 30: I-215 NB Ramps & 5th St

Control Type:	Signalized	Delay (sec / veh):	154.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.595

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0	0	0	2	0	0
Entry Pocket Length [ft]	100.00	100.00	485.00	100.00	100.00	100.00	100.00	100.00	100.00	120.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	364	2	424	0	0	0	204	603	0	0	942	659
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	2.00	2.00	2.00	18.70	18.70	2.00	2.00	18.70	18.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	474	0	0	0	0	1246	0	0	1224	745
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	364	2	898	0	0	0	204	1849	0	0	2166	1404
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	91	1	225	0	0	0	51	462	0	0	542	351
Total Analysis Volume [veh/h]	364	2	898	0	0	0	204	1849	0	0	2166	1404
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	36	0	0	0	0	9	84	0	0	75	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	0	0	0	17	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	R
C, Cycle Length [s]	120	120	120		120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	32	32	32		5	80	71	71
g / C, Green / Cycle	0.27	0.27	0.27		0.04	0.67	0.59	0.59
(v / s)_i Volume / Saturation Flow Rate	0.26	0.39	0.34		0.08	0.67	0.41	1.13
s, saturation flow rate [veh/h]	1388	1240	1239		2695	2775	5293	1239
c, Capacity [veh/h]	370	331	330		112	1850	3132	733
d1, Uniform Delay [s]	43.74	44.00	44.00		57.50	19.98	16.93	24.50
k, delay calibration	0.50	0.50	0.50		0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	42.82	217.93	145.46		400.11	20.81	1.28	417.08
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.98	1.45	1.28		1.82	1.00	0.69	1.92
d, Delay for Lane Group [s/veh]	86.55	261.93	189.46		457.61	40.79	18.21	441.58
Lane Group LOS	F	F	F		F	D	B	F
Critical Lane Group	No	Yes	No		Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	15.04	29.73	23.06		7.94	28.14	10.11	104.17
50th-Percentile Queue Length [ft/ln]	375.99	743.21	576.48		198.60	703.55	252.74	2604.25
95th-Percentile Queue Length [veh/ln]	21.40	46.36	35.20		14.08	36.84	15.32	170.61
95th-Percentile Queue Length [ft/ln]	534.99	1158.90	880.02		351.99	921.05	383.10	4265.34

Movement, Approach, & Intersection Results

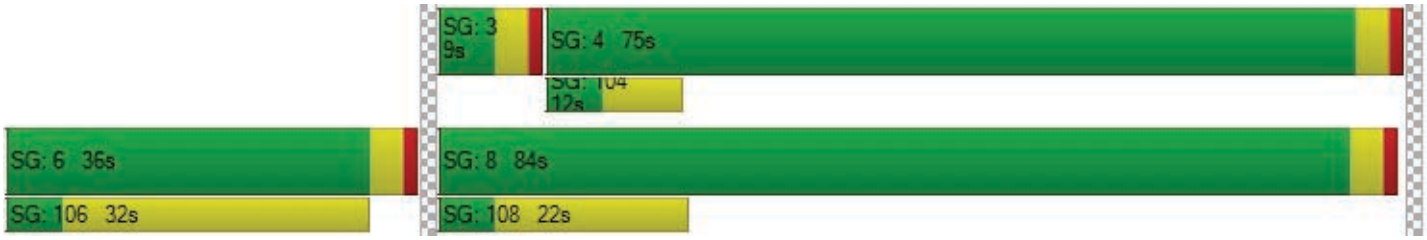
d_M, Delay for Movement [s/veh]	86.55	261.93	227.92	0.00	0.00	0.00	457.61	40.79	0.00	0.00	18.21	441.58
Movement LOS	F	F	F				F	D			B	F
d_A, Approach Delay [s/veh]	187.27			0.00			82.21			184.71		
Approach LOS	F			A			F			F		
d_I, Intersection Delay [s/veh]	154.63											
Intersection LOS	F											
Intersection V/C	1.595											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.562	2.515	3.299	3.489
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	0	1333	1183
d_b, Bicycle Delay [s]	32.27	60.00	6.67	10.00
l_b,int, Bicycle LOS Score for Intersection	3.645	4.132	3.253	3.032
Bicycle LOS	D	D	C	C

Sequence

Ring 1	-	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 31: G St & 5th St

Control Type:	Signalized	Delay (sec / veh):	146.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.970

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	140.00	100.00	100.00	140.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	12	102	14	70	99	91	85	685	20	9	1042	106
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	463	32	44	23	28	14	16	867	291	41	968	32
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	475	134	58	93	127	105	101	1552	311	50	2010	138
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	119	34	15	23	32	26	25	388	78	13	503	35
Total Analysis Volume [veh/h]	475	134	58	93	127	105	101	1552	311	50	2010	138
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	30	0	0	30	0	0	60	0	0	60	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	26	26	26	26	56	56	56	56	56	56
g / C, Green / Cycle	0.29	0.29	0.29	0.29	0.62	0.62	0.62	0.62	0.62	0.62
(v / s)_i Volume / Saturation Flow Rate	1.22	0.15	0.24	0.17	0.70	0.64	0.68	0.26	0.74	0.75
s, saturation flow rate [veh/h]	391	1259	529	1214	145	1457	1376	192	1457	1425
c, Capacity [veh/h]	193	364	223	351	80	907	856	80	907	887
d1, Uniform Delay [s]	41.68	26.85	35.95	27.25	45.00	17.00	17.00	45.00	17.00	17.00
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	673.90	5.40	9.79	6.62	186.62	37.03	57.41	31.59	94.20	105.53
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	2.46	0.53	0.56	0.57	1.26	1.03	1.09	0.62	1.18	1.21
d, Delay for Lane Group [s/veh]	715.58	32.25	45.74	33.87	231.62	54.03	74.41	76.59	111.20	122.53
Lane Group LOS	F	C	D	C	F	F	F	E	F	F
Critical Lane Group	Yes	No	No	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	40.36	3.92	3.21	4.22	5.92	25.07	28.53	1.81	39.47	41.39
50th-Percentile Queue Length [ft/ln]	1008.98	97.98	80.34	105.48	147.91	626.86	713.17	45.19	986.86	1034.79
95th-Percentile Queue Length [veh/ln]	67.91	7.05	5.78	7.59	10.65	34.05	39.94	3.25	56.81	60.18
95th-Percentile Queue Length [ft/ln]	1697.73	176.37	144.61	189.69	266.24	851.36	998.47	81.35	1420.27	1504.55

Movement, Approach, & Intersection Results

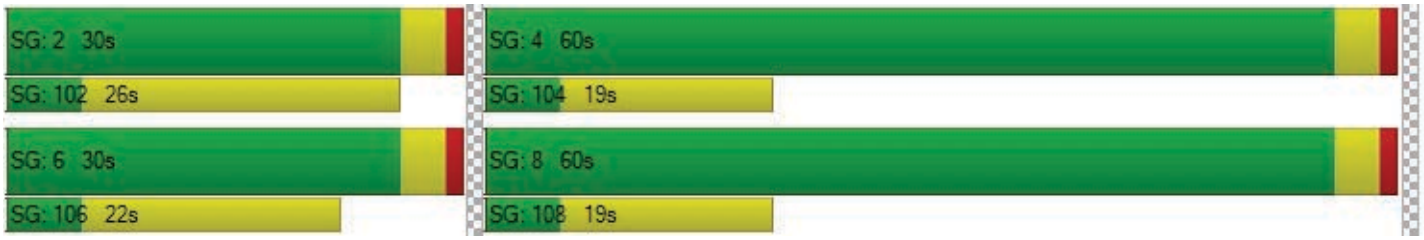
d_M, Delay for Movement [s/veh]	715.58	32.25	32.25	45.74	36.82	33.87	231.62	62.18	74.41	76.59	116.48	122.53
Movement LOS	F	C	C	D	D	C	F	E	E	E	F	F
d_A, Approach Delay [s/veh]	518.88			38.42			72.83			115.95		
Approach LOS	F			D			E			F		
d_I, Intersection Delay [s/veh]	146.77											
Intersection LOS	F											
Intersection V/C	1.970											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.485	2.446	3.870	3.194
Crosswalk LOS	B	B	D	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	578	578	1244	1244
d_b, Bicycle Delay [s]	22.76	22.76	6.42	6.42
l_b,int, Bicycle LOS Score for Intersection	2.110	1.828	3.180	3.373
Bicycle LOS	B	A	C	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 40: I-215 SB Ramps & 2nd St

Control Type:	Signalized	Delay (sec / veh):	228.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.089

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	150	180	185	0	362	190	646	263	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	18.70	18.70	18.70	2.00	18.70	18.70	18.70	18.70	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	422	0	0	0	10	0	1242	144	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	572	180	185	0	372	190	1888	407	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	143	45	46	0	93	48	472	102	0
Total Analysis Volume [veh/h]	0	0	0	572	180	185	0	372	190	1888	407	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	36	0	0	16	0	38	54	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	27	0	0	7	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	C	C	R	L	C
C, Cycle Length [s]		90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		32	32	32	12	12	34	50
g / C, Green / Cycle		0.36	0.36	0.36	0.13	0.13	0.38	0.56
(v / s)_i Volume / Saturation Flow Rate		0.24	0.24	0.24	0.09	0.15	0.70	0.15
s, saturation flow rate [veh/h]		1388	1405	1188	3970	1239	2695	2775
c, Capacity [veh/h]		494	500	422	529	165	1018	1542
d1, Uniform Delay [s]		24.44	24.44	24.44	37.29	39.00	28.00	10.42
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		6.84	6.76	7.94	7.61	116.20	388.14	0.42
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.66	0.66	0.66	0.70	1.15	1.85	0.26
d, Delay for Lane Group [s/veh]		31.28	31.20	32.38	44.90	155.20	416.14	10.84
Lane Group LOS		C	C	C	D	F	F	B
Critical Lane Group		No	No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		6.59	6.66	5.77	2.94	8.91	65.26	2.05
50th-Percentile Queue Length [ft/ln]		164.71	166.48	144.17	73.57	222.77	1631.58	51.29
95th-Percentile Queue Length [veh/ln]		10.80	10.89	9.70	5.30	14.61	104.70	3.69
95th-Percentile Queue Length [ft/ln]		269.95	272.29	242.62	132.42	365.26	2617.42	92.32

Movement, Approach, & Intersection Results

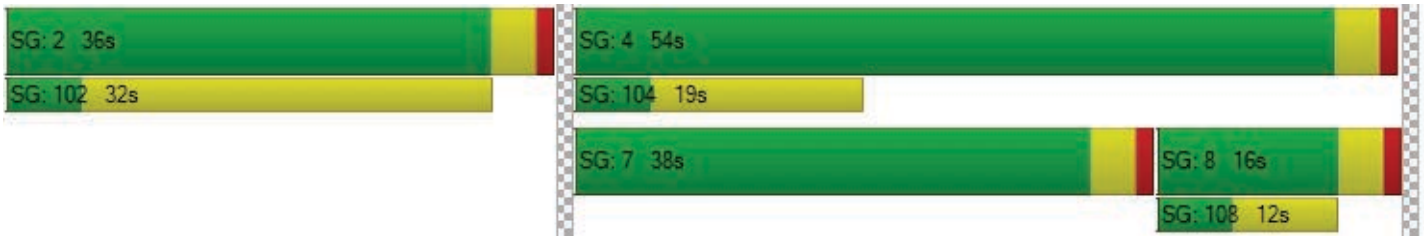
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	31.24	31.82	32.38	0.00	44.90	155.20	416.14	10.84	0.00
Movement LOS				C	C	C		D	F	F	B	
d_A, Approach Delay [s/veh]	0.00			31.58			82.19			344.27		
Approach LOS	A			C			F			F		
d_I, Intersection Delay [s/veh]	228.22											
Intersection LOS	F											
Intersection V/C	1.089											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.817	2.361	2.756	3.122
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	711	267	1111
d_b, Bicycle Delay [s]	45.00	18.69	33.80	8.89
l_b,int, Bicycle LOS Score for Intersection	4.132	2.333	1.869	3.453
Bicycle LOS	D	B	A	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 41: I-215 NB Ramps & 2nd St

Control Type:	Signalized	Delay (sec / veh):	216.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.737

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	2	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	245.00	100.00	205.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	116	37	383	0	0	0	197	318	0	0	807	466
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	2.00	2.00	2.00	18.70	18.70	2.00	2.00	18.70	18.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	1188	22	0	0	0	431	0	0	1386	567
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	116	37	1571	22	0	0	197	749	0	0	2193	1033
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	9	393	6	0	0	49	187	0	0	548	258
Total Analysis Volume [veh/h]	116	37	1571	22	0	0	197	749	0	0	2193	1033
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	40	0	0	0	0	9	50	0	0	41	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	0	0	0	14	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	R
C, Cycle Length [s]	90	90	90		90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	36	36	36		5	46	37	37
g / C, Green / Cycle	0.40	0.40	0.40		0.06	0.51	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.08	0.83	0.46		0.07	0.27	0.41	0.83
s, saturation flow rate [veh/h]	1388	1245	1239		2695	2775	5293	1239
c, Capacity [veh/h]	555	498	496		150	1418	2176	509
d1, Uniform Delay [s]	17.68	27.00	27.00		42.50	14.73	26.50	26.50
k, delay calibration	0.50	0.50	0.50		0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.85	490.27	92.40		181.25	1.41	21.19	469.64
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.21	2.07	1.16		1.32	0.53	1.01	2.03
d, Delay for Lane Group [s/veh]	18.53	517.27	119.40		223.75	16.14	47.69	496.14
Lane Group LOS	B	F	F		F	B	F	F
Critical Lane Group	No	Yes	No		Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.67	77.91	22.72		5.41	5.07	14.14	76.68
50th-Percentile Queue Length [ft/ln]	41.63	1947.63	568.11		135.32	126.70	353.47	1916.88
95th-Percentile Queue Length [veh/ln]	3.00	126.74	33.65		9.74	8.76	20.42	124.73
95th-Percentile Queue Length [ft/ln]	74.94	3168.57	841.14		243.58	219.00	510.39	3118.25

Movement, Approach, & Intersection Results

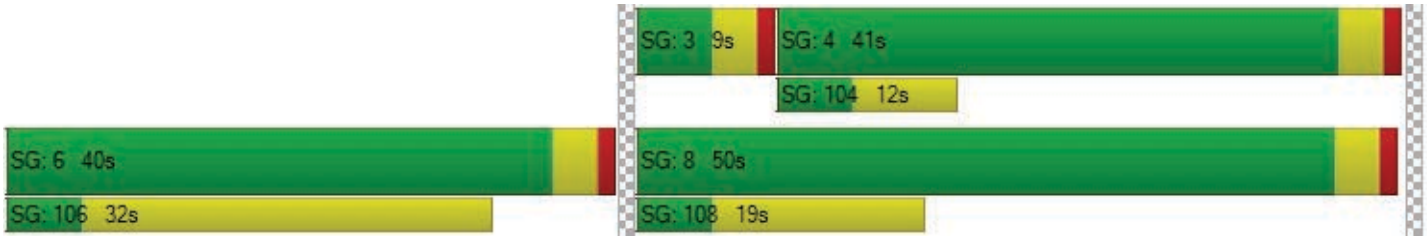
d_M, Delay for Movement [s/veh]	18.53	517.27	370.74	0.00	0.00	0.00	223.75	16.14	0.00	0.00	47.69	496.14
Movement LOS	B	F	F				F	B			F	F
d_A, Approach Delay [s/veh]	351.09			0.00			59.38			191.29		
Approach LOS	F			A			E			F		
d_I, Intersection Delay [s/veh]	216.85											
Intersection LOS	F											
Intersection V/C	1.737											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.553	2.334	3.124	3.403
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	0	1022	822
d_b, Bicycle Delay [s]	16.20	45.00	10.76	15.61
l_b,int, Bicycle LOS Score for Intersection	4.404	4.132	2.340	2.890
Bicycle LOS	E	D	B	C

Sequence

Ring 1	-	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 42: G St & 2nd St

Control Type:	Signalized	Delay (sec / veh):	319.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.409

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	130.00	100.00	100.00	100.00	100.00	100.00	220.00	100.00	100.00	260.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	185	244	64	50	134	46	72	491	67	69	975	80
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	196	198	150	9	172	432	406	1058	177	127	1326	28
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	381	442	214	59	306	478	478	1549	244	196	2301	108
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	95	111	54	15	77	120	120	387	61	49	575	27
Total Analysis Volume [veh/h]	381	442	214	59	306	478	478	1549	244	196	2301	108
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	31	0	11	33	0	11	36	0	12	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	24	0	0	14	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	38	27	27	38	29	29	7	32	32	8	33	33
g / C, Green / Cycle	0.42	0.30	0.30	0.42	0.32	0.32	0.08	0.36	0.36	0.09	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.55	0.24	0.24	0.07	0.21	0.39	0.34	0.56	0.20	0.14	0.57	0.58
s, saturation flow rate [veh/h]	694	1457	1299	791	1457	1239	1388	2775	1239	1388	2775	1424
c, Capacity [veh/h]	307	437	390	312	470	399	108	987	440	123	1017	522
d1, Uniform Delay [s]	39.79	28.94	28.94	18.07	26.17	30.50	41.50	29.00	23.27	41.00	28.50	28.50
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	132.86	13.76	15.26	1.34	6.87	110.81	1563.76	261.44	4.95	299.69	255.54	269.66
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.24	0.79	0.79	0.19	0.65	1.20	4.43	1.57	0.55	1.59	1.56	1.58
d, Delay for Lane Group [s/veh]	172.64	42.69	44.20	19.41	33.03	141.31	1605.26	290.44	28.23	340.69	284.04	298.16
Lane Group LOS	F	D	D	B	C	F	F	F	C	F	F	F
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	15.89	8.32	7.58	0.83	6.34	20.57	49.25	45.95	4.63	12.96	46.51	49.80
50th-Percentile Queue Length [ft/ln]	397.35	208.06	189.56	20.71	158.55	514.17	1231.35	1148.74	115.63	324.11	1162.80	1245.05
95th-Percentile Queue Length [veh/ln]	25.52	13.05	12.10	1.49	10.47	31.13	75.08	72.08	8.15	21.60	72.86	77.95
95th-Percentile Queue Length [ft/ln]	637.93	326.34	302.46	37.28	261.80	778.13	1876.88	1801.95	203.80	539.90	1821.46	1948.76

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	172.64	43.02	44.20	19.41	33.03	141.31	1605.26	290.44	28.23	340.69	288.44	298.16
Movement LOS	F	D	D	B	C	F	F	F	C	F	F	F
d_A, Approach Delay [s/veh]	90.89			93.48			539.01			292.77		
Approach LOS	F			F			F			F		
d_I, Intersection Delay [s/veh]	319.69											
Intersection LOS	F											
Intersection V/C	1.409											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.567	2.666	3.696	3.201
Crosswalk LOS	B	B	D	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	644	711	733
d_b, Bicycle Delay [s]	22.05	20.67	18.69	18.05
l_b,int, Bicycle LOS Score for Intersection	2.415	2.951	3.433	2.992
Bicycle LOS	B	C	C	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 43: E St & 2nd St

Control Type:	Signalized	Delay (sec / veh):	551.4
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	2.027

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	120.00	100.00	100.00	140.00	100.00	140.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	60	247	62	18	184	60	69	536	42	54	892	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	125	1428	24	0	1751	366	302	185	133	43	346	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	185	1675	86	18	1935	426	371	721	175	97	1238	21
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	46	419	22	5	484	107	93	180	44	24	310	5
Total Analysis Volume [veh/h]	185	1675	86	18	1935	426	371	721	175	97	1238	21
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	45	0	9	45	0	13	27	0	9	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	41	41	5	41	41	9	23	23	5	19	19
g / C, Green / Cycle	0.06	0.46	0.46	0.06	0.46	0.46	0.10	0.26	0.26	0.06	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.13	1.15	0.07	0.01	1.33	0.34	0.27	0.32	0.32	0.07	0.30	0.30
s, saturation flow rate [veh/h]	1388	1457	1239	1388	1457	1239	1388	1457	1361	1388	2775	1445
c, Capacity [veh/h]	77	664	564	77	664	564	139	372	348	77	586	305
d1, Uniform Delay [s]	42.50	24.50	14.33	40.67	24.50	20.33	40.50	33.50	33.50	42.50	35.50	35.50
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	667.39	689.77	0.57	6.97	865.64	9.08	773.00	129.14	133.44	186.81	195.93	204.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	2.40	2.52	0.15	0.23	2.91	0.75	2.67	1.24	1.25	1.26	1.41	1.41
d, Delay for Lane Group [s/veh]	709.89	714.27	14.91	47.63	890.14	29.41	813.50	162.64	166.94	229.31	231.43	239.85
Lane Group LOS	F	F	B	D	F	C	F	F	F	F	F	F
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	15.99	140.29	1.08	0.53	172.72	8.39	32.83	21.23	20.23	5.69	22.19	23.83
50th-Percentile Queue Length [ft/ln]	399.68	3507.23	27.03	13.18	4318.09	209.69	820.71	530.70	505.84	142.34	554.82	595.66
95th-Percentile Queue Length [veh/ln]	26.45	229.36	1.95	0.95	282.35	13.14	52.23	32.28	31.02	10.20	34.97	37.25
95th-Percentile Queue Length [ft/ln]	661.32	5733.99	48.65	23.73	7058.75	328.43	1305.85	806.90	775.49	255.10	874.15	931.28

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	709.89	714.27	14.91	47.63	890.14	29.41	813.50	164.18	166.94	229.31	234.22	239.85
Movement LOS	F	F	B	D	F	C	F	F	F	F	F	F
d_A, Approach Delay [s/veh]	682.94			729.64			354.70			233.95		
Approach LOS	F			F			F			F		
d_I, Intersection Delay [s/veh]	551.45											
Intersection LOS	F											
Intersection V/C	2.027											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.111	3.216	2.961	2.809
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	911	911	511	422
d_b, Bicycle Delay [s]	13.34	13.34	24.94	28.01
l_b,int, Bicycle LOS Score for Intersection	4.771	5.485	2.605	2.305
Bicycle LOS	E	F	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX F – FUTURE NO-PROJECT INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

Vistro File:
J:\...\VISTRO_SAN_BERNARDINO_V6_New_Trip_gen_negs_Optimized_Individual.vistro
Report File: J:\...\2045_No_PROJ_AM.pdf

Scenario 4 2045_W_Proj_AM

8/17/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
29	I-215 SB Ramps & 5th St	Signalized	HCM 6th Edition	WB Left	0.850	45.7	D
30	I-215 NB Ramps & 5th St	Signalized	HCM 6th Edition	EB Left	0.701	30.8	C
31	G St & 5th St	Signalized	HCM 6th Edition	WB Left	0.621	21.3	C
40	I-215 SB Ramps & 2nd St	Signalized	HCM 6th Edition	EB Right	0.423	24.6	C
41	I-215 NB Ramps & 2nd St	Signalized	HCM 6th Edition	EB Left	0.856	43.0	D
42	G St & 2nd St	Signalized	HCM 6th Edition	EB Thru	0.723	80.8	F
43	E St & 2nd St	Signalized	HCM 6th Edition	EB Right	0.638	80.3	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 29: I-215 SB Ramps & 5th St

Control Type:	Signalized	Delay (sec / veh):	45.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.850

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	350.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	648	12	169	0	484	363	339	452	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	18.70	18.70	18.70	2.00	18.70	18.70	18.70	18.70	2.00
Growth Factor	1.0000	1.0000	1.0000	1.2240	1.2240	1.2240	1.0000	1.2240	1.2240	1.2240	1.2240	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	793	15	207	0	592	444	415	553	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	198	4	52	0	148	111	104	138	0
Total Analysis Volume [veh/h]	0	0	0	793	15	207	0	592	444	415	553	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	47	0	0	49	0	24	73	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	27	0	0	7	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	R	C	C	L	C
C, Cycle Length [s]		120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		43	43	43	45	45	20	69
g / C, Green / Cycle		0.36	0.36	0.36	0.38	0.38	0.17	0.58
(v / s)_i Volume / Saturation Flow Rate		0.24	0.34	0.17	0.15	0.36	0.15	0.20
s, saturation flow rate [veh/h]		1388	1390	1239	3970	1239	2695	2775
c, Capacity [veh/h]		497	498	444	1489	465	449	1596
d1, Uniform Delay [s]		32.67	37.31	29.66	27.55	36.53	49.25	13.53
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		7.33	28.36	3.49	0.80	32.07	27.12	0.60
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.68	0.94	0.47	0.40	0.96	0.92	0.35
d, Delay for Lane Group [s/veh]		39.99	65.67	33.15	28.34	68.60	76.37	14.13
Lane Group LOS		D	E	C	C	E	E	B
Critical Lane Group		No	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		9.29	17.05	5.03	4.27	16.56	7.80	4.03
50th-Percentile Queue Length [ft/ln]		232.28	426.25	125.74	106.81	413.99	194.94	100.71
95th-Percentile Queue Length [veh/ln]		14.29	23.82	8.71	7.66	23.23	12.38	7.25
95th-Percentile Queue Length [ft/ln]		357.25	595.54	217.69	191.56	580.84	309.42	181.28

Movement, Approach, & Intersection Results

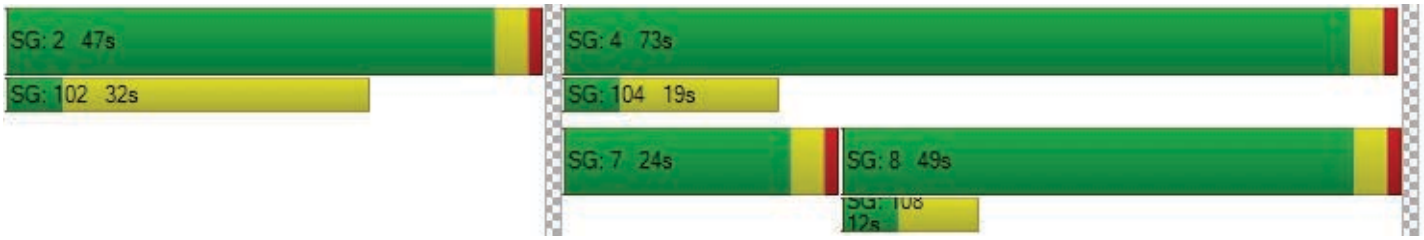
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	54.68	65.67	33.15	0.00	28.34	68.60	76.37	14.13	0.00
Movement LOS				D	E	C		C	E	E	B	
d_A, Approach Delay [s/veh]	0.00			50.48			45.60			40.81		
Approach LOS	A			D			D			D		
d_I, Intersection Delay [s/veh]	45.70											
Intersection LOS	D											
Intersection V/C	0.850											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.156	2.394	2.859	3.027
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	717	750	1150
d_b, Bicycle Delay [s]	60.00	24.70	23.44	10.84
l_b,int, Bicycle LOS Score for Intersection	4.132	3.234	1.987	2.358
Bicycle LOS	D	C	A	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 30: I-215 NB Ramps & 5th St

Control Type:	Signalized	Delay (sec / veh):	30.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.701

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0	0	0	2	0	0
Entry Pocket Length [ft]	100.00	100.00	485.00	100.00	100.00	100.00	100.00	100.00	100.00	120.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	232	2	549	0	0	0	151	972	0	0	561	188
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	2.00	2.00	2.00	18.70	18.70	2.00	2.00	18.70	18.70
Growth Factor	1.2240	1.2240	1.2240	1.0000	1.0000	1.0000	1.2240	1.2240	1.0000	1.0000	1.2240	1.2240
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	284	2	672	0	0	0	185	1190	0	0	687	230
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	71	1	168	0	0	0	46	298	0	0	172	58
Total Analysis Volume [veh/h]	284	2	672	0	0	0	185	1190	0	0	687	230
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	48	0	0	0	0	17	72	0	0	55	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	0	0	0	17	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	R
C, Cycle Length [s]	120	120	120		120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	44	44	44		13	68	51	51
g / C, Green / Cycle	0.37	0.37	0.37		0.11	0.57	0.43	0.43
(v / s)_i Volume / Saturation Flow Rate	0.20	0.27	0.27		0.07	0.43	0.13	0.19
s, saturation flow rate [veh/h]	1388	1240	1239		2695	2775	5293	1239
c, Capacity [veh/h]	509	455	454		292	1572	2250	526
d1, Uniform Delay [s]	30.26	33.05	33.06		51.22	19.73	22.80	24.36
k, delay calibration	0.50	0.50	0.50		0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.37	10.41	10.45		10.05	3.45	0.35	2.63
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.56	0.74	0.74		0.63	0.76	0.31	0.44
d, Delay for Lane Group [s/veh]	34.63	43.46	43.51		61.26	23.18	23.15	26.99
Lane Group LOS	C	D	D		E	C	C	C
Critical Lane Group	No	No	Yes		No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.13	9.75	9.76		3.07	12.80	3.27	4.98
50th-Percentile Queue Length [ft/ln]	178.15	243.77	243.91		76.82	319.93	81.71	124.57
95th-Percentile Queue Length [veh/ln]	11.50	14.87	14.88		5.53	18.66	5.88	8.64
95th-Percentile Queue Length [ft/ln]	287.59	371.79	371.97		138.28	466.60	147.08	216.09

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.63	43.46	43.49	0.00	0.00	0.00	61.26	23.18	0.00	0.00	23.15	26.99
Movement LOS	C	D	D				E	C			C	C
d_A, Approach Delay [s/veh]	40.86			0.00			28.30			24.11		
Approach LOS	D			A			C			C		
d_I, Intersection Delay [s/veh]	30.82											
Intersection LOS	C											
Intersection V/C	0.701											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.502	1.933	3.027	2.996
Crosswalk LOS	B	A	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	0	1133	850
d_b, Bicycle Delay [s]	24.07	60.00	11.27	19.84
l_b,int, Bicycle LOS Score for Intersection	3.140	4.132	2.694	1.938
Bicycle LOS	C	D	B	A

Sequence

Ring 1	-	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 31: G St & 5th St

Control Type:	Signalized	Delay (sec / veh):	21.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.621

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	140.00	100.00	100.00	140.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	5	23	3	33	66	48	74	1278	18	9	498	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Growth Factor	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	28	4	40	81	59	91	1564	22	11	610	38
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	7	1	10	20	15	23	391	6	3	153	10
Total Analysis Volume [veh/h]	6	28	4	40	81	59	91	1564	22	11	610	38
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	30	0	0	30	0	0	60	0	0	60	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	26	26	26	26	56	56	56	56	56	56
g / C, Green / Cycle	0.29	0.29	0.29	0.29	0.62	0.62	0.62	0.62	0.62	0.62
(v / s)_i Volume / Saturation Flow Rate	0.02	0.01	0.08	0.07	0.15	0.54	0.55	0.04	0.22	0.22
s, saturation flow rate [veh/h]	1174	1278	1283	1179	610	1457	1450	251	1457	1428
c, Capacity [veh/h]	392	369	427	341	379	907	902	116	907	888
d1, Uniform Delay [s]	23.10	23.09	24.44	24.49	13.73	14.11	14.15	34.37	8.28	8.29
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.24	0.26	1.22	1.71	1.49	11.57	11.79	1.61	1.12	1.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.05	0.05	0.23	0.25	0.24	0.88	0.88	0.09	0.36	0.36
d, Delay for Lane Group [s/veh]	23.33	23.35	25.67	26.20	15.23	25.68	25.94	35.98	9.40	9.43
Lane Group LOS	C	C	C	C	B	C	C	D	A	A
Critical Lane Group	No	No	Yes	No	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.32	0.31	1.69	1.50	1.21	14.36	14.41	0.26	3.05	3.00
50th-Percentile Queue Length [ft/ln]	7.92	7.74	42.30	37.52	30.28	358.88	360.14	6.61	76.17	74.96
95th-Percentile Queue Length [veh/ln]	0.57	0.56	3.05	2.70	2.18	20.57	20.63	0.48	5.48	5.40
95th-Percentile Queue Length [ft/ln]	14.26	13.93	76.13	67.53	54.50	514.23	515.75	11.90	137.10	134.93

Movement, Approach, & Intersection Results

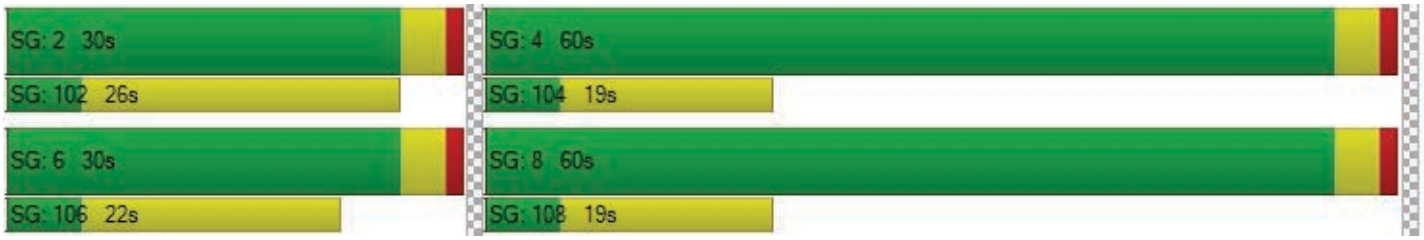
d_M, Delay for Movement [s/veh]	23.33	23.34	23.35	25.67	25.83	26.20	15.23	25.81	25.94	35.98	9.41	9.43
Movement LOS	C	C	C	C	C	C	B	C	C	D	A	A
d_A, Approach Delay [s/veh]	23.34			25.91			25.24			9.85		
Approach LOS	C			C			C			A		
d_I, Intersection Delay [s/veh]	21.29											
Intersection LOS	C											
Intersection V/C	0.621											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.185	2.344	2.845	2.800
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	578	578	1244	1244
d_b, Bicycle Delay [s]	22.76	22.76	6.42	6.42
l_b,int, Bicycle LOS Score for Intersection	1.591	1.708	2.943	2.103
Bicycle LOS	A	A	C	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 40: I-215 SB Ramps & 2nd St

Control Type:	Signalized	Delay (sec / veh):	24.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.423

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	466	48	214	0	258	96	210	173	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	18.70	18.70	18.70	2.00	18.70	18.70	18.70	18.70	2.00
Growth Factor	1.0000	1.0000	1.0000	1.2240	1.2240	1.2240	1.0000	1.2240	1.2240	1.2240	1.2240	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	570	59	262	0	316	118	257	212	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	143	15	66	0	79	30	64	53	0
Total Analysis Volume [veh/h]	0	0	0	570	59	262	0	316	118	257	212	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	49	0	0	20	0	21	41	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	27	0	0	7	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	C	C	R	L	C
C, Cycle Length [s]		90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		45	45	45	16	16	17	37
g / C, Green / Cycle		0.50	0.50	0.50	0.18	0.18	0.19	0.41
(v / s)_i Volume / Saturation Flow Rate		0.23	0.23	0.23	0.08	0.10	0.10	0.08
s, saturation flow rate [veh/h]		1388	1400	1127	3970	1239	2695	2775
c, Capacity [veh/h]		694	700	564	706	220	509	1141
d1, Uniform Delay [s]		14.53	14.53	14.66	33.05	33.63	32.73	16.90
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		2.11	2.10	2.74	2.05	9.04	3.55	0.36
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.45	0.45	0.46	0.45	0.54	0.50	0.19
d, Delay for Lane Group [s/veh]		16.64	16.62	17.40	35.10	42.67	36.27	17.26
Lane Group LOS		B	B	B	D	D	D	B
Critical Lane Group		No	No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		4.30	4.33	3.71	2.16	2.86	2.72	1.42
50th-Percentile Queue Length [ft/ln]		107.38	108.25	92.79	53.91	71.45	68.04	35.39
95th-Percentile Queue Length [veh/ln]		7.69	7.74	6.68	3.88	5.14	4.90	2.55
95th-Percentile Queue Length [ft/ln]		192.36	193.56	167.02	97.04	128.61	122.47	63.70

Movement, Approach, & Intersection Results

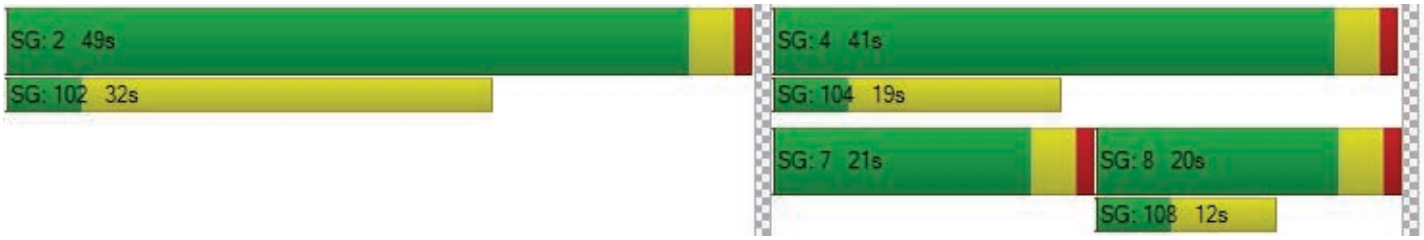
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	16.63	16.62	17.40	0.00	35.10	42.67	36.27	17.26	0.00
Movement LOS				B	B	B		D	D	D	B	
d_A, Approach Delay [s/veh]	0.00			16.86			37.16			27.68		
Approach LOS	A			B			D			C		
d_I, Intersection Delay [s/veh]	24.60											
Intersection LOS	C											
Intersection V/C	0.423											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	1.928	2.350	2.722	2.892
Crosswalk LOS	A	B	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	1000	356	822
d_b, Bicycle Delay [s]	45.00	11.25	30.42	15.61
l_b,int, Bicycle LOS Score for Intersection	4.132	2.295	1.798	1.947
Bicycle LOS	D	B	A	A

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 41: I-215 NB Ramps & 2nd St

Control Type:	Signalized	Delay (sec / veh):	43.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.856

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	2	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	245.00	100.00	205.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	111	134	873	0	0	0	167	540	0	0	274	176
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	2.00	2.00	2.00	18.70	18.70	2.00	2.00	18.70	18.70
Growth Factor	1.2240	1.2240	1.2240	1.0000	1.0000	1.0000	1.2240	1.2240	1.0000	1.0000	1.2240	1.2240
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	136	164	1069	0	0	0	204	661	0	0	335	215
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	41	267	0	0	0	51	165	0	0	84	54
Total Analysis Volume [veh/h]	136	164	1069	0	0	0	204	661	0	0	335	215
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	59	0	0	0	0	11	31	0	0	20	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	0	0	0	14	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	R
C, Cycle Length [s]	90	90	90		90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	55	55	55		7	27	16	16
g / C, Green / Cycle	0.61	0.61	0.61		0.08	0.30	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.10	0.61	0.37		0.08	0.24	0.06	0.17
s, saturation flow rate [veh/h]	1388	1279	1239		2695	2775	5293	1239
c, Capacity [veh/h]	848	782	757		210	832	941	220
d1, Uniform Delay [s]	7.54	17.32	10.77		41.41	28.95	32.48	36.81
k, delay calibration	0.50	0.50	0.50		0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.40	30.64	3.54		55.55	7.70	1.05	54.82
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.16	0.99	0.60		0.97	0.79	0.36	0.98
d, Delay for Lane Group [s/veh]	7.95	47.96	14.31		96.96	36.64	33.53	91.63
Lane Group LOS	A	D	B		F	D	C	F
Critical Lane Group	No	Yes	No		Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.13	20.17	5.68		3.84	7.23	1.65	7.95
50th-Percentile Queue Length [ft/ln]	28.16	504.29	142.11		96.09	180.77	41.22	198.77
95th-Percentile Queue Length [veh/ln]	2.03	27.54	9.59		6.92	11.64	2.97	12.58
95th-Percentile Queue Length [ft/ln]	50.69	688.43	239.86		172.96	291.02	74.20	314.38

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	7.95	47.96	33.00	0.00	0.00	0.00	96.96	36.64	0.00	0.00	33.53	91.63
Movement LOS	A	D	C				F	D			C	F
d_A, Approach Delay [s/veh]	32.77			0.00			50.87			56.24		
Approach LOS	C			A			D			E		
d_I, Intersection Delay [s/veh]	43.03											
Intersection LOS	D											
Intersection V/C	0.856											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.466	2.001	2.890	3.005
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1222	0	600	356
d_b, Bicycle Delay [s]	6.81	45.00	22.05	30.42
l_b,int, Bicycle LOS Score for Intersection	3.818	4.132	2.273	1.786
Bicycle LOS	D	D	B	A

Sequence

Ring 1	-	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 42: G St & 2nd St

Control Type:	Signalized	Delay (sec / veh):	80.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.723

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	130.00	100.00	100.00	100.00	100.00	100.00	220.00	100.00	100.00	260.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	120	113	52	158	154	15	30	1094	239	48	300	38
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Growth Factor	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	147	138	64	193	188	18	37	1339	293	59	367	47
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	37	35	16	48	47	5	9	335	73	15	92	12
Total Analysis Volume [veh/h]	147	138	64	193	188	18	37	1339	293	59	367	47
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	33	0	9	33	0	10	39	0	9	38	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	24	0	0	14	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	38	29	29	38	29	29	6	35	35	5	34	34
g / C, Green / Cycle	0.42	0.32	0.32	0.42	0.32	0.32	0.07	0.39	0.39	0.06	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.15	0.07	0.07	0.19	0.13	0.01	0.03	0.48	0.24	0.04	0.10	0.10
s, saturation flow rate [veh/h]	1003	1457	1306	1006	1457	1239	1388	2775	1239	1388	2775	1376
c, Capacity [veh/h]	442	470	421	485	470	399	93	1079	482	77	1048	520
d1, Uniform Delay [s]	17.34	22.27	22.34	18.26	23.73	20.98	40.27	27.50	22.01	41.92	19.33	19.39
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.01	1.09	1.29	2.43	2.54	0.21	12.39	116.38	5.62	51.22	0.61	1.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.33	0.22	0.23	0.40	0.40	0.05	0.40	1.24	0.61	0.77	0.26	0.27
d, Delay for Lane Group [s/veh]	19.35	23.36	23.63	20.69	26.27	21.19	52.67	143.88	27.63	93.14	19.94	20.66
Lane Group LOS	B	C	C	C	C	C	D	F	C	F	B	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.15	1.72	1.63	2.92	3.37	0.28	1.10	28.38	5.51	2.37	2.02	2.15
50th-Percentile Queue Length [ft/ln]	53.69	43.06	40.87	72.97	84.14	7.01	27.40	709.62	137.71	59.36	50.44	53.79
95th-Percentile Queue Length [veh/ln]	3.87	3.10	2.94	5.25	6.06	0.50	1.97	42.49	9.36	4.27	3.63	3.87
95th-Percentile Queue Length [ft/ln]	96.65	77.50	73.57	131.35	151.45	12.62	49.31	1062.26	233.94	106.85	90.80	96.83

Movement, Approach, & Intersection Results

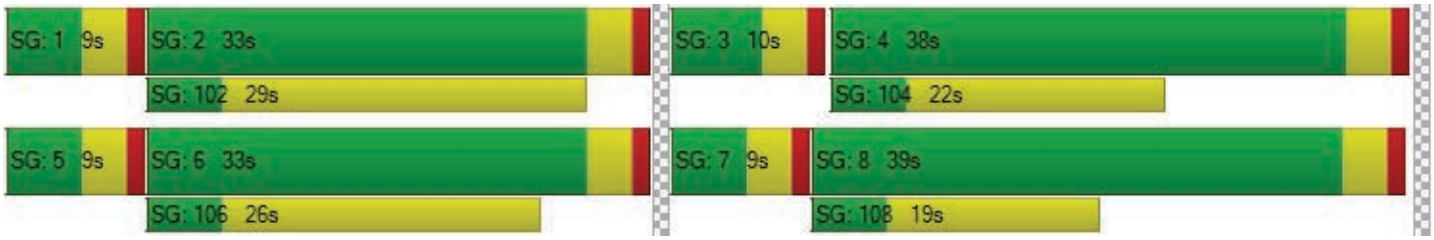
d_M, Delay for Movement [s/veh]	19.35	23.42	23.63	20.69	26.27	21.19	52.67	143.88	27.63	93.14	20.12	20.66
Movement LOS	B	C	C	C	C	C	D	F	C	F	C	C
d_A, Approach Delay [s/veh]	21.75			23.34			121.45			29.28		
Approach LOS	C			C			F			C		
d_I, Intersection Delay [s/veh]	80.78											
Intersection LOS	F											
Intersection V/C	0.723											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.349	2.422	2.974	2.885
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	644	644	778	756
d_b, Bicycle Delay [s]	20.67	20.67	16.81	17.42
l_b,int, Bicycle LOS Score for Intersection	1.848	2.218	2.937	1.820
Bicycle LOS	A	B	C	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 43: E St & 2nd St

Control Type:	Signalized	Delay (sec / veh):	80.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.638

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	120.00	100.00	100.00	140.00	100.00	140.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	25	101	25	22	126	28	65	1122	36	23	339	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Growth Factor	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	31	124	31	27	154	34	80	1373	44	28	415	10
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	31	8	7	39	9	20	343	11	7	104	3
Total Analysis Volume [veh/h]	31	124	31	27	154	34	80	1373	44	28	415	10
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	30	0	9	30	0	14	42	0	9	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	26	26	5	26	26	10	38	38	5	33	33
g / C, Green / Cycle	0.06	0.29	0.29	0.06	0.29	0.29	0.11	0.42	0.42	0.06	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.02	0.09	0.03	0.02	0.11	0.03	0.06	0.49	0.49	0.02	0.10	0.10
s, saturation flow rate [veh/h]	1388	1457	1239	1388	1457	1239	1388	1457	1442	1388	2775	1440
c, Capacity [veh/h]	77	421	358	77	421	358	154	615	609	77	1017	528
d1, Uniform Delay [s]	41.06	24.87	23.34	40.94	25.44	23.40	37.73	26.00	26.00	40.97	20.07	20.08
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.87	1.77	0.48	12.08	2.44	0.53	11.92	87.53	89.11	12.74	0.67	1.29
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.29	0.09	0.35	0.37	0.10	0.52	1.16	1.16	0.36	0.27	0.28
d, Delay for Lane Group [s/veh]	55.93	26.65	23.82	53.01	27.89	23.93	49.65	113.53	115.11	53.71	20.74	21.38
Lane Group LOS	E	C	C	D	C	C	D	F	F	D	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.98	2.23	0.52	0.83	2.85	0.57	2.15	27.27	27.24	0.87	2.10	2.29
50th-Percentile Queue Length [ft/ln]	24.39	55.65	13.02	20.74	71.26	14.33	53.81	681.82	681.08	21.63	52.62	57.24
95th-Percentile Queue Length [veh/ln]	1.76	4.01	0.94	1.49	5.13	1.03	3.87	39.55	39.59	1.56	3.79	4.12
95th-Percentile Queue Length [ft/ln]	43.91	100.18	23.44	37.33	128.27	25.79	96.86	988.76	989.66	38.94	94.71	103.03

Movement, Approach, & Intersection Results

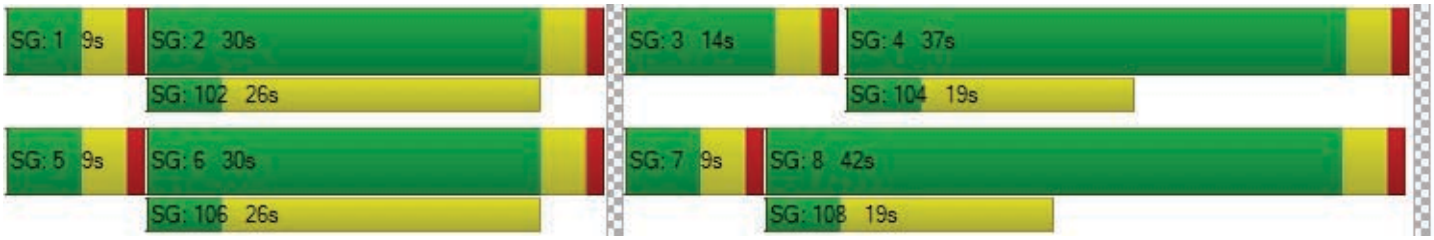
d_M, Delay for Movement [s/veh]	55.93	26.65	23.82	53.01	27.89	23.93	49.65	114.29	115.11	53.71	20.95	21.38
Movement LOS	E	C	C	D	C	C	D	F	F	D	C	C
d_A, Approach Delay [s/veh]	31.06			30.42			110.86			22.98		
Approach LOS	C			C			F			C		
d_I, Intersection Delay [s/veh]	80.26											
Intersection LOS	F											
Intersection V/C	0.638											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.382	2.237	2.776	2.761
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	578	578	844	733
d_b, Bicycle Delay [s]	22.76	22.76	15.02	18.05
l_b,int, Bicycle LOS Score for Intersection	1.867	1.914	2.795	1.809
Bicycle LOS	A	A	C	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Vistro File:
J:\...\VISTRO_SAN_BERNARDINO_V6_New_Trip_gen_negs_Optimized_Individual.vistro
Report File: J:\...\2045_No_PROJ_PM.pdf

Scenario 5 2045_W_Proj_PM

8/17/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
29	I-215 SB Ramps & 5th St	Signalized	HCM 6th Edition	WB Left	0.679	33.8	C
30	I-215 NB Ramps & 5th St	Signalized	HCM 6th Edition	EB Left	1.023	63.7	E
31	G St & 5th St	Signalized	HCM 6th Edition	EB Left	0.666	20.9	C
40	I-215 SB Ramps & 2nd St	Signalized	HCM 6th Edition	EB Right	0.695	40.1	D
41	I-215 NB Ramps & 2nd St	Signalized	HCM 6th Edition	EB Left	0.769	43.5	D
42	G St & 2nd St	Signalized	HCM 6th Edition	EB Left	0.595	34.3	C
43	E St & 2nd St	Signalized	HCM 6th Edition	NB Left	0.559	33.9	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 29: I-215 SB Ramps & 5th St

Control Type:	Signalized	Delay (sec / veh):	33.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.679

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	350.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	239	5	173	0	577	323	481	818	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	18.70	18.70	18.70	2.00	18.70	18.70	18.70	18.70	2.00
Growth Factor	1.0000	1.0000	1.0000	1.2470	1.2470	1.2470	1.0000	1.2470	1.2470	1.2470	1.2470	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	298	6	216	0	720	403	600	1020	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	75	2	54	0	180	101	150	255	0
Total Analysis Volume [veh/h]	0	0	0	298	6	216	0	720	403	600	1020	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	36	0	0	49	0	35	84	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	27	0	0	7	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	R	C	C	L	C
C, Cycle Length [s]		120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		32	32	32	45	45	31	80
g / C, Green / Cycle		0.27	0.27	0.27	0.38	0.38	0.26	0.67
(v / s)_i Volume / Saturation Flow Rate		0.13	0.13	0.13	0.18	0.33	0.22	0.37
s, saturation flow rate [veh/h]		1388	1341	1239	3970	1239	2695	2775
c, Capacity [veh/h]		370	358	330	1489	465	696	1850
d1, Uniform Delay [s]		37.13	37.13	37.13	28.63	34.74	42.45	10.54
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		4.61	4.77	5.15	1.13	19.19	13.27	1.19
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.49	0.49	0.49	0.48	0.87	0.86	0.55
d, Delay for Lane Group [s/veh]		41.74	41.90	42.29	29.76	53.93	55.73	11.73
Lane Group LOS		D	D	D	C	D	E	B
Critical Lane Group		No	No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		4.99	4.83	4.50	5.42	13.20	9.71	6.94
50th-Percentile Queue Length [ft/ln]		124.65	120.84	112.56	135.44	329.96	242.77	173.50
95th-Percentile Queue Length [veh/ln]		8.65	8.44	7.98	9.23	19.16	14.82	11.26
95th-Percentile Queue Length [ft/ln]		216.20	210.98	199.56	230.87	478.91	370.54	281.51

Movement, Approach, & Intersection Results

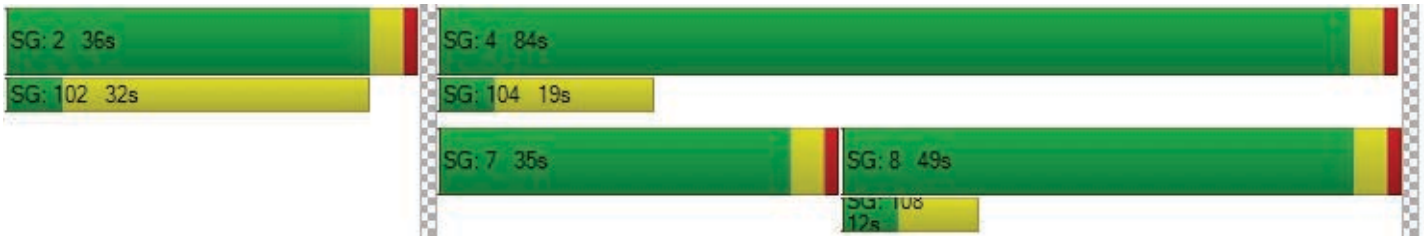
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	41.80	41.90	42.21	0.00	29.76	53.93	55.73	11.73	0.00
Movement LOS				D	D	D		C	D	E	B	
d_A, Approach Delay [s/veh]	0.00			41.96			38.43			28.03		
Approach LOS	A			D			D			C		
d_I, Intersection Delay [s/veh]	33.83											
Intersection LOS	C											
Intersection V/C	0.679											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.222	2.273	2.938	3.062
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	533	750	1333
d_b, Bicycle Delay [s]	60.00	32.27	23.44	6.67
l_b,int, Bicycle LOS Score for Intersection	4.132	2.418	2.023	2.896
Bicycle LOS	D	B	B	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 30: I-215 NB Ramps & 5th St

Control Type:	Signalized	Delay (sec / veh):	63.7
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.023

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0	0	0	2	0	0
Entry Pocket Length [ft]	100.00	100.00	485.00	100.00	100.00	100.00	100.00	100.00	100.00	120.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	364	2	424	0	0	0	204	603	0	0	942	659
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	2.00	2.00	2.00	18.70	18.70	2.00	2.00	18.70	18.70
Growth Factor	1.2470	1.2470	1.2470	1.0000	1.0000	1.0000	1.2470	1.2470	1.0000	1.0000	1.2470	1.2470
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	454	2	529	0	0	0	254	752	0	0	1175	822
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	114	1	132	0	0	0	64	188	0	0	294	206
Total Analysis Volume [veh/h]	454	2	529	0	0	0	254	752	0	0	1175	822
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	36	0	0	0	0	14	84	0	0	70	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	0	0	0	17	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	R
C, Cycle Length [s]	120	120	120		120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	32	32	32		10	80	66	66
g / C, Green / Cycle	0.27	0.27	0.27		0.08	0.67	0.55	0.55
(v / s)_i Volume / Saturation Flow Rate	0.24	0.25	0.27		0.09	0.27	0.22	0.66
s, saturation flow rate [veh/h]	1388	1293	1239		2695	2775	5293	1239
c, Capacity [veh/h]	370	345	330		225	1850	2911	681
d1, Uniform Delay [s]	42.26	43.25	43.90		55.00	9.15	15.62	27.00
k, delay calibration	0.50	0.50	0.50		0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	25.45	37.73	48.02		99.74	0.66	0.42	106.39
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.95	0.99		1.13	0.41	0.40	1.21
d, Delay for Lane Group [s/veh]	67.72	80.98	91.92		154.74	9.81	16.03	133.39
Lane Group LOS	E	F	F		F	A	B	F
Critical Lane Group	No	No	Yes		Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	11.89	13.10	14.04		6.50	4.41	4.66	38.48
50th-Percentile Queue Length [ft/ln]	297.23	327.55	350.95		162.55	110.35	116.47	961.99
95th-Percentile Queue Length [veh/ln]	17.54	19.04	20.18		11.13	7.86	8.20	55.87
95th-Percentile Queue Length [ft/ln]	438.61	475.96	504.57		278.23	196.49	204.97	1396.84

Movement, Approach, & Intersection Results

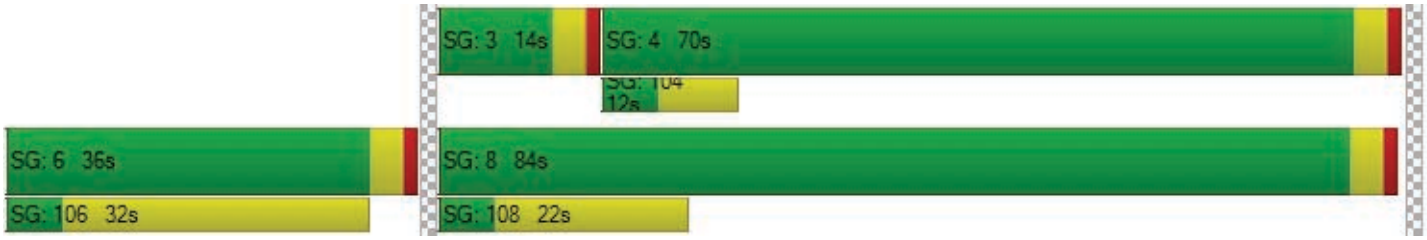
d_M, Delay for Movement [s/veh]	71.39	80.98	87.77	0.00	0.00	0.00	154.74	9.81	0.00	0.00	16.03	133.39
Movement LOS	E	F	F				F	A			B	F
d_A, Approach Delay [s/veh]	80.21			0.00			46.40			64.34		
Approach LOS	F			A			D			E		
d_I, Intersection Delay [s/veh]	63.73											
Intersection LOS	E											
Intersection V/C	1.023											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.507	2.256	3.062	3.066
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	0	1333	1100
d_b, Bicycle Delay [s]	32.27	60.00	6.67	12.15
l_b,int, Bicycle LOS Score for Intersection	3.185	4.132	2.390	2.383
Bicycle LOS	C	D	B	B

Sequence

Ring 1	-	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 31: G St & 5th St

Control Type:	Signalized	Delay (sec / veh):	20.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.666

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	140.00	100.00	100.00	140.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	12	102	14	70	99	91	85	685	20	9	1042	106
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Growth Factor	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	127	17	87	123	113	106	854	25	11	1299	132
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	32	4	22	31	28	27	214	6	3	325	33
Total Analysis Volume [veh/h]	15	127	17	87	123	113	106	854	25	11	1299	132
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	30	0	0	30	0	0	60	0	0	60	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	26	26	26	26	56	56	56	56	56	56
g / C, Green / Cycle	0.29	0.29	0.29	0.29	0.62	0.62	0.62	0.62	0.62	0.62
(v / s)_i Volume / Saturation Flow Rate	0.07	0.07	0.17	0.14	0.36	0.30	0.30	0.02	0.50	0.50
s, saturation flow rate [veh/h]	1098	1280	943	1185	291	1457	1443	492	1457	1411
c, Capacity [veh/h]	365	370	335	342	144	907	898	294	907	878
d1, Uniform Delay [s]	24.14	24.34	29.38	26.50	38.96	9.22	9.22	14.66	12.77	12.86
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.28	1.41	4.58	4.93	27.91	1.87	1.89	0.24	7.30	7.77
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.21	0.23	0.46	0.49	0.73	0.49	0.49	0.04	0.80	0.80
d, Delay for Lane Group [s/veh]	25.42	25.76	33.97	31.42	66.87	11.09	11.10	14.89	20.07	20.63
Lane Group LOS	C	C	C	C	E	B	B	B	C	C
Critical Lane Group	No	No	Yes	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.32	1.47	3.33	3.37	3.46	4.63	4.59	0.15	11.29	11.18
50th-Percentile Queue Length [ft/ln]	32.92	36.87	83.34	84.29	86.59	115.72	114.68	3.64	282.20	279.49
95th-Percentile Queue Length [veh/ln]	2.37	2.65	6.00	6.07	6.23	8.16	8.10	0.26	16.80	16.66
95th-Percentile Queue Length [ft/ln]	59.25	66.36	150.01	151.72	155.87	203.93	202.50	6.56	419.95	416.58

Movement, Approach, & Intersection Results

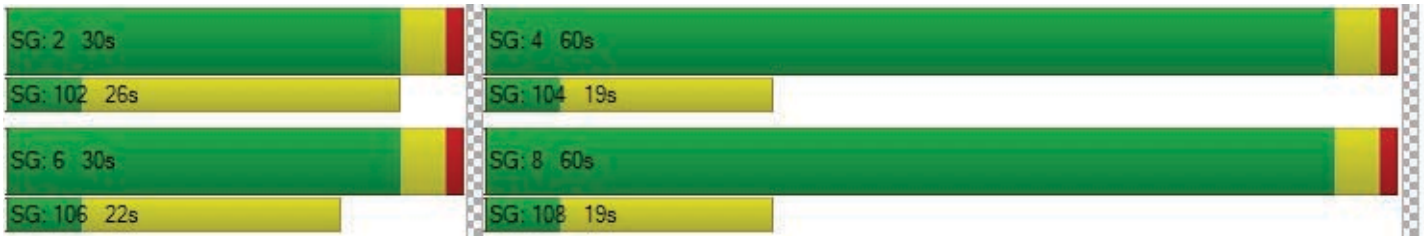
d_M, Delay for Movement [s/veh]	25.42	25.60	25.76	33.97	32.84	31.42	66.87	11.09	11.10	14.89	20.32	20.63
Movement LOS	C	C	C	C	C	C	E	B	B	B	C	C
d_A, Approach Delay [s/veh]	25.60			32.65			17.10			20.31		
Approach LOS	C			C			B			C		
d_I, Intersection Delay [s/veh]	20.88											
Intersection LOS	C											
Intersection V/C	0.666											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.226	2.451	2.868	2.893
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	578	578	1244	1244
d_b, Bicycle Delay [s]	22.76	22.76	6.42	6.42
l_b,int, Bicycle LOS Score for Intersection	1.691	1.826	2.372	2.749
Bicycle LOS	A	A	B	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 40: I-215 SB Ramps & 2nd St

Control Type:	Signalized	Delay (sec / veh):	40.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.695

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	150	180	185	0	362	190	646	263	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	18.70	18.70	18.70	2.00	18.70	18.70	18.70	18.70	2.00
Growth Factor	1.0000	1.0000	1.0000	1.2470	1.2470	1.2470	1.0000	1.2470	1.2470	1.2470	1.2470	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	187	224	231	0	451	237	806	328	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	47	56	58	0	113	59	202	82	0
Total Analysis Volume [veh/h]	0	0	0	187	224	231	0	451	237	806	328	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	36	0	0	22	0	32	54	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	27	0	0	7	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	C	C	R	L	C
C, Cycle Length [s]		90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		32	32	32	18	18	28	50
g / C, Green / Cycle		0.36	0.36	0.36	0.20	0.20	0.31	0.56
(v / s)_i Volume / Saturation Flow Rate		0.13	0.15	0.20	0.11	0.19	0.30	0.12
s, saturation flow rate [veh/h]		1388	1457	1127	3970	1239	2695	2775
c, Capacity [veh/h]		494	518	401	794	248	839	1542
d1, Uniform Delay [s]		21.60	22.08	23.51	32.49	35.61	30.47	10.08
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		2.21	2.62	5.92	2.94	47.00	22.96	0.32
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.38	0.43	0.58	0.57	0.96	0.96	0.21
d, Delay for Lane Group [s/veh]		23.81	24.70	29.43	35.43	82.62	53.42	10.40
Lane Group LOS		C	C	C	D	F	D	B
Critical Lane Group		No	No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		3.16	3.88	4.50	3.12	8.25	10.92	1.60
50th-Percentile Queue Length [ft/ln]		79.03	96.94	112.56	77.97	206.27	272.92	39.94
95th-Percentile Queue Length [veh/ln]		5.69	6.98	7.98	5.61	12.96	16.34	2.88
95th-Percentile Queue Length [ft/ln]		142.26	174.50	199.56	140.34	324.04	408.38	71.89

Movement, Approach, & Intersection Results

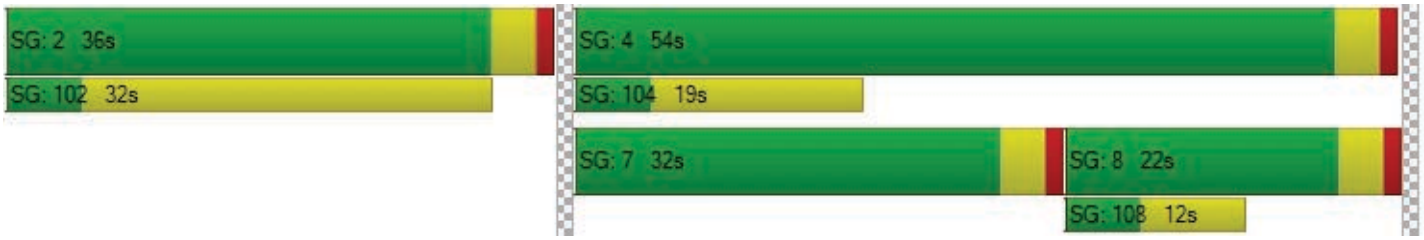
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	23.81	24.70	29.43	0.00	35.43	82.62	53.42	10.40	0.00
Movement LOS				C	C	C		D	F	D	B	
d_A, Approach Delay [s/veh]	0.00			26.14			51.68			40.98		
Approach LOS	A			C			D			D		
d_I, Intersection Delay [s/veh]	40.10											
Intersection LOS	D											
Intersection V/C	0.695											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.334	2.289	2.769	2.943
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	711	400	1111
d_b, Bicycle Delay [s]	45.00	18.69	28.80	8.89
l_b,int, Bicycle LOS Score for Intersection	4.132	2.089	1.938	2.495
Bicycle LOS	D	B	A	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 41: I-215 NB Ramps & 2nd St

Control Type:	Signalized	Delay (sec / veh):	43.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.769

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	2	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	245.00	100.00	205.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	116	37	383	0	0	0	197	318	0	0	807	466
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	2.00	2.00	2.00	18.70	18.70	2.00	2.00	18.70	18.70
Growth Factor	1.2470	1.2470	1.2470	1.0000	1.0000	1.0000	1.2470	1.2470	1.0000	1.0000	1.2470	1.2470
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	145	46	478	0	0	0	246	397	0	0	1006	581
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	12	120	0	0	0	62	99	0	0	252	145
Total Analysis Volume [veh/h]	145	46	478	0	0	0	246	397	0	0	1006	581
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	36	0	0	0	0	12	54	0	0	42	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	0	0	0	14	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	R
C, Cycle Length [s]	90	90	90		90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	32	32	32		8	50	38	38
g / C, Green / Cycle	0.36	0.36	0.36		0.09	0.56	0.42	0.42
(v / s)_i Volume / Saturation Flow Rate	0.10	0.21	0.21		0.09	0.14	0.19	0.47
s, saturation flow rate [veh/h]	1388	1272	1239		2695	2775	5293	1239
c, Capacity [veh/h]	494	452	440		240	1542	2235	523
d1, Uniform Delay [s]	20.87	23.61	23.63		41.00	10.37	18.55	26.00
k, delay calibration	0.50	0.50	0.50		0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.51	5.47	5.66		65.23	0.40	0.66	73.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.29	0.59	0.59		1.03	0.26	0.45	1.11
d, Delay for Lane Group [s/veh]	22.38	29.08	29.29		106.23	10.78	19.20	99.33
Lane Group LOS	C	C	C		F	B	B	F
Critical Lane Group	No	No	Yes		Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.35	5.12	5.02		4.79	1.99	3.69	21.12
50th-Percentile Queue Length [ft/ln]	58.72	127.90	125.58		119.66	49.81	92.29	527.97
95th-Percentile Queue Length [veh/ln]	4.23	8.83	8.70		8.45	3.59	6.65	30.79
95th-Percentile Queue Length [ft/ln]	105.69	220.63	217.47		211.26	89.65	166.13	769.74

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	22.38	29.08	29.19	0.00	0.00	0.00	106.23	10.78	0.00	0.00	19.20	99.33
Movement LOS	C	C	C				F	B			B	F
d_A, Approach Delay [s/veh]	27.71			0.00			47.30			48.54		
Approach LOS	C			A			D			D		
d_I, Intersection Delay [s/veh]	43.46											
Intersection LOS	D											
Intersection V/C	0.769											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.296	2.142	2.946	3.027
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	711	0	1111	844
d_b, Bicycle Delay [s]	18.69	45.00	8.89	15.02
l_b,int, Bicycle LOS Score for Intersection	2.663	4.132	2.090	2.214
Bicycle LOS	B	D	B	B

Sequence

Ring 1	-	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 42: G St & 2nd St

Control Type:	Signalized	Delay (sec / veh):	34.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.595

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	130.00	100.00	100.00	100.00	100.00	100.00	220.00	100.00	100.00	260.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	185	244	64	50	134	46	72	491	67	69	975	80
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Growth Factor	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	231	304	80	62	167	57	90	612	84	86	1216	100
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	58	76	20	16	42	14	23	153	21	22	304	25
Total Analysis Volume [veh/h]	231	304	80	62	167	57	90	612	84	86	1216	100
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	31	0	11	33	0	11	35	0	13	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	24	0	0	14	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	38	27	27	38	29	29	7	31	31	9	33	33
g / C, Green / Cycle	0.42	0.30	0.30	0.42	0.32	0.32	0.08	0.34	0.34	0.10	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.23	0.14	0.14	0.07	0.11	0.05	0.06	0.22	0.07	0.06	0.32	0.32
s, saturation flow rate [veh/h]	991	1457	1355	923	1457	1239	1388	2775	1239	1388	2775	1401
c, Capacity [veh/h]	450	437	406	414	470	399	108	956	427	139	1017	514
d1, Uniform Delay [s]	20.72	25.52	25.56	16.33	23.35	21.67	40.93	24.81	20.75	38.86	26.35	26.36
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.14	3.36	3.68	0.76	2.10	0.75	50.08	3.29	1.03	19.01	9.41	16.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.51	0.45	0.46	0.15	0.36	0.14	0.83	0.64	0.20	0.62	0.86	0.86
d, Delay for Lane Group [s/veh]	24.85	28.88	29.24	17.10	25.45	22.42	91.00	28.10	21.78	57.87	35.77	43.26
Lane Group LOS	C	C	C	B	C	C	F	C	C	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.72	3.76	3.56	0.84	2.93	0.92	3.44	5.74	1.34	2.53	9.60	10.76
50th-Percentile Queue Length [ft/ln]	93.02	93.99	89.11	20.95	73.15	23.08	86.07	143.45	33.48	63.28	239.90	269.06
95th-Percentile Queue Length [veh/ln]	6.70	6.77	6.42	1.51	5.27	1.66	6.20	9.67	2.41	4.56	14.68	16.14
95th-Percentile Queue Length [ft/ln]	167.43	169.18	160.41	37.72	131.67	41.54	154.93	241.66	60.26	113.91	366.91	403.56

Movement, Approach, & Intersection Results

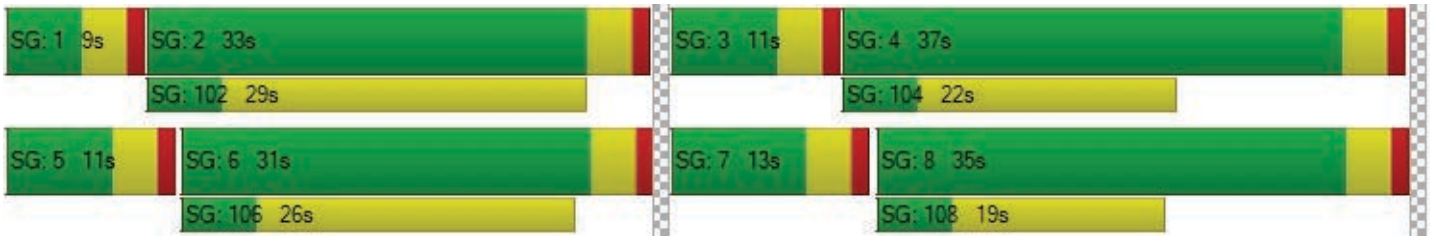
d_M, Delay for Movement [s/veh]	24.85	29.01	29.24	17.10	25.45	22.42	91.00	28.10	21.78	57.87	37.87	43.26
Movement LOS	C	C	C	B	C	C	F	C	C	E	D	D
d_A, Approach Delay [s/veh]	27.48			23.03			34.62			39.48		
Approach LOS	C			C			C			D		
d_I, Intersection Delay [s/veh]	34.33											
Intersection LOS	C											
Intersection V/C	0.595											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.365	2.453	3.046	2.833
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	644	689	733
d_b, Bicycle Delay [s]	22.05	20.67	19.34	18.05
l_b,int, Bicycle LOS Score for Intersection	2.067	2.032	2.208	2.331
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 43: E St & 2nd St

Control Type:	Signalized	Delay (sec / veh):	33.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.559

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	120.00	100.00	100.00	140.00	100.00	140.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	60	247	62	18	184	60	69	536	42	54	892	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Growth Factor	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	75	308	77	22	229	75	86	668	52	67	1112	26
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	77	19	6	57	19	22	167	13	17	278	7
Total Analysis Volume [veh/h]	75	308	77	22	229	75	86	668	52	67	1112	26
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	32	0	9	30	0	12	38	0	11	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	28	28	5	26	26	8	34	34	7	33	33
g / C, Green / Cycle	0.08	0.31	0.31	0.06	0.29	0.29	0.09	0.38	0.38	0.08	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.05	0.21	0.06	0.02	0.16	0.06	0.06	0.25	0.25	0.05	0.27	0.27
s, saturation flow rate [veh/h]	1388	1457	1239	1388	1457	1239	1388	1457	1421	1388	2775	1440
c, Capacity [veh/h]	108	453	385	77	421	358	123	551	537	108	1017	528
d1, Uniform Delay [s]	40.46	27.08	22.77	40.79	27.00	24.22	39.82	23.23	23.24	40.21	24.72	24.73
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	30.97	7.97	1.16	9.06	4.98	1.33	27.87	6.15	6.32	23.92	4.75	8.86
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.69	0.68	0.20	0.29	0.54	0.21	0.70	0.66	0.66	0.62	0.74	0.74
d, Delay for Lane Group [s/veh]	71.43	35.05	23.93	49.85	31.98	25.55	67.69	29.39	29.56	64.14	29.47	33.59
Lane Group LOS	E	D	C	D	C	C	E	C	C	E	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.53	6.60	1.30	0.66	4.63	1.32	2.78	7.10	6.95	2.14	7.31	8.20
50th-Percentile Queue Length [ft/ln]	63.20	165.08	32.54	16.44	115.72	33.03	69.48	177.48	173.78	53.44	182.84	205.00
95th-Percentile Queue Length [veh/ln]	4.55	10.82	2.34	1.18	8.16	2.38	5.00	11.47	11.28	3.85	11.75	12.90
95th-Percentile Queue Length [ft/ln]	113.75	270.44	58.57	29.59	203.92	59.45	125.06	286.72	281.88	96.19	293.72	322.40

Movement, Approach, & Intersection Results

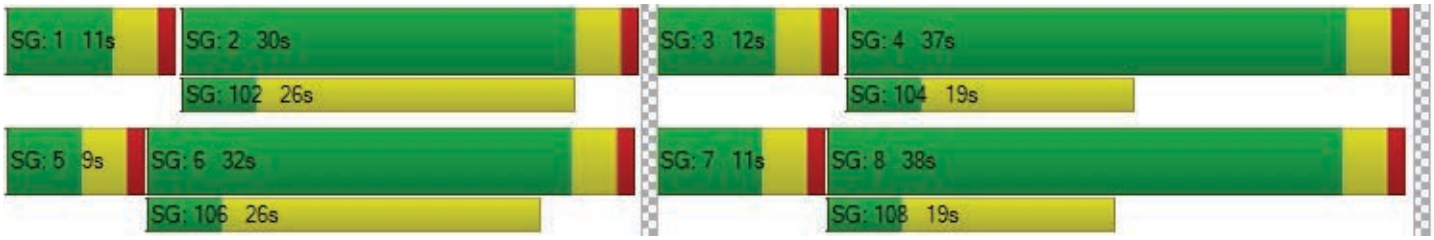
d_M, Delay for Movement [s/veh]	71.43	35.05	23.93	49.85	31.98	25.55	67.69	29.46	29.56	64.14	30.82	33.59
Movement LOS	E	D	C	D	C	C	E	C	C	E	C	C
d_A, Approach Delay [s/veh]	39.12			31.70			33.55			32.73		
Approach LOS	D			C			C			C		
d_I, Intersection Delay [s/veh]	33.90											
Intersection LOS	C											
Intersection V/C	0.559											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.459	2.314	2.790	2.775
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	622	578	756	733
d_b, Bicycle Delay [s]	21.36	22.76	17.42	18.05
l_b,int, Bicycle LOS Score for Intersection	2.319	2.098	2.225	2.222
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX G – FUTURE WITH-PROJECT INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

Vistro File:
J:\...\VISTRO_SAN_BERNARDINO_V6_New_Trip_gen_negs_Optimized_Individual.vistro
Report File: J:\...\2045_W_PROJ_AM.pdf

Scenario 4 2045_W_Proj_AM

8/17/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
29	I-215 SB Ramps & 5th St	Signalized	HCM 6th Edition	EB Right	1.170	105.4	F
30	I-215 NB Ramps & 5th St	Signalized	HCM 6th Edition	NB Thru	1.264	122.1	F
31	G St & 5th St	Signalized	HCM 6th Edition	EB Right	1.098	160.1	F
40	I-215 SB Ramps & 2nd St	Signalized	HCM 6th Edition	EB Right	0.626	30.8	C
41	I-215 NB Ramps & 2nd St	Signalized	HCM 6th Edition	WB Right	1.454	187.9	F
42	G St & 2nd St	Signalized	HCM 6th Edition	EB Thru	1.167	274.1	F
43	E St & 2nd St	Signalized	HCM 6th Edition	EB Right	1.574	378.4	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 29: I-215 SB Ramps & 5th St

Control Type:	Signalized	Delay (sec / veh):	105.4
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.170

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	350.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	648	12	169	0	484	363	339	452	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	18.70	18.70	18.70	2.00	18.70	18.70	18.70	18.70	2.00
Growth Factor	1.0000	1.0000	1.0000	1.2240	1.2240	1.2240	1.0000	1.2240	1.2240	1.2240	1.2240	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	495	0	0	0	438	0	220	188	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	1288	15	207	0	1030	444	635	741	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	322	4	52	0	258	111	159	185	0
Total Analysis Volume [veh/h]	0	0	0	1288	15	207	0	1030	444	635	741	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	57	0	0	37	0	26	63	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	27	0	0	7	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	R	C	C	L	C
C, Cycle Length [s]		120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		53	53	53	33	33	22	59
g / C, Green / Cycle		0.44	0.44	0.44	0.28	0.28	0.18	0.49
(v / s)_i Volume / Saturation Flow Rate		0.36	0.58	0.17	0.26	0.36	0.24	0.27
s, saturation flow rate [veh/h]		1388	1389	1239	3970	1239	2695	2775
c, Capacity [veh/h]		613	614	547	1092	341	494	1364
d1, Uniform Delay [s]		29.35	33.50	22.46	42.59	43.50	49.00	21.15
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		11.76	148.10	1.99	16.64	156.33	142.98	1.56
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.82	1.30	0.38	0.94	1.30	1.28	0.54
d, Delay for Lane Group [s/veh]		41.10	181.60	24.44	59.22	199.83	191.98	22.71
Lane Group LOS		D	F	C	E	F	F	C
Critical Lane Group		No	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		14.42	42.52	4.21	11.55	24.79	17.18	7.40
50th-Percentile Queue Length [ft/ln]		360.54	1063.11	105.27	288.72	619.83	429.41	185.06
95th-Percentile Queue Length [veh/ln]		20.65	63.20	7.58	17.12	37.94	26.85	11.86
95th-Percentile Queue Length [ft/ln]		516.24	1579.93	189.40	428.05	948.38	671.35	296.60

Movement, Approach, & Intersection Results

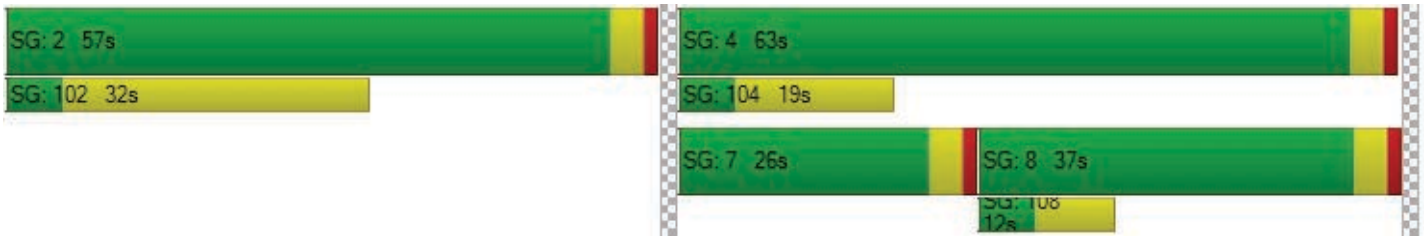
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	126.55	181.60	24.44	0.00	59.22	199.83	191.98	22.71	0.00
Movement LOS				F	F	C		E	F	F	C	
d_A, Approach Delay [s/veh]	0.00			113.22			101.58			100.82		
Approach LOS	A			F			F			F		
d_I, Intersection Delay [s/veh]	105.37											
Intersection LOS	F											
Intersection V/C	1.170											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.263	2.514	2.946	3.191
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	883	550	983
d_b, Bicycle Delay [s]	60.00	18.70	31.54	15.50
l_b,int, Bicycle LOS Score for Intersection	4.132	4.051	2.168	2.695
Bicycle LOS	D	D	B	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 30: I-215 NB Ramps & 5th St

Control Type:	Signalized	Delay (sec / veh):	122.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.264

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0	0	0	2	0	0
Entry Pocket Length [ft]	100.00	100.00	485.00	100.00	100.00	100.00	100.00	100.00	100.00	120.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	232	2	549	0	0	0	151	972	0	0	561	188
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	2.00	2.00	2.00	18.70	18.70	2.00	2.00	18.70	18.70
Growth Factor	1.2240	1.2240	1.2240	1.0000	1.0000	1.0000	1.2240	1.2240	1.0000	1.0000	1.2240	1.2240
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	396	0	0	0	0	933	0	0	408	242
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	284	2	1068	0	0	0	185	2123	0	0	1095	472
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	71	1	267	0	0	0	46	531	0	0	274	118
Total Analysis Volume [veh/h]	284	2	1068	0	0	0	185	2123	0	0	1095	472
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	48	0	0	0	0	14	72	0	0	58	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	0	0	0	17	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	R
C, Cycle Length [s]	120	120	120		120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	44	44	44		10	68	54	54
g / C, Green / Cycle	0.37	0.37	0.37		0.08	0.57	0.45	0.45
(v / s)_i Volume / Saturation Flow Rate	0.20	0.50	0.36		0.07	0.77	0.21	0.38
s, saturation flow rate [veh/h]	1388	1239	1239		2695	2775	5293	1239
c, Capacity [veh/h]	509	454	454		225	1572	2382	557
d1, Uniform Delay [s]	30.26	38.00	37.86		54.13	26.00	22.88	29.32
k, delay calibration	0.50	0.50	0.50		0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.37	176.38	40.69		27.73	161.86	0.64	14.70
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.56	1.36	0.99		0.82	1.35	0.46	0.85
d, Delay for Lane Group [s/veh]	34.63	214.38	78.55		81.86	187.86	23.53	44.03
Lane Group LOS	C	F	E		F	F	C	D
Critical Lane Group	No	Yes	No		No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.13	35.34	18.08		3.61	56.32	5.44	14.06
50th-Percentile Queue Length [ft/ln]	178.15	883.59	451.89		90.33	1408.10	135.96	351.43
95th-Percentile Queue Length [veh/ln]	11.50	53.92	25.05		6.50	84.52	9.26	20.21
95th-Percentile Queue Length [ft/ln]	287.59	1347.96	626.20		162.60	2112.99	231.57	505.16

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.63	214.38	156.96	0.00	0.00	0.00	81.86	187.86	0.00	0.00	23.53	44.03
Movement LOS	C	F	F				F	F			C	D
d_A, Approach Delay [s/veh]	131.40			0.00			179.37			29.70		
Approach LOS	F			A			F			C		
d_I, Intersection Delay [s/veh]	122.10											
Intersection LOS	F											
Intersection V/C	1.264											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.579	2.051	3.190	3.272
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	0	1133	900
d_b, Bicycle Delay [s]	24.07	60.00	11.27	18.15
l_b,int, Bicycle LOS Score for Intersection	3.794	4.132	3.464	2.206
Bicycle LOS	D	D	C	B

Sequence

Ring 1	-	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 31: G St & 5th St

Control Type:	Signalized	Delay (sec / veh):	160.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.098

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	140.00	100.00	100.00	140.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	5	23	3	33	66	48	74	1278	18	9	498	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Growth Factor	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	96	6	9	9	19	8	6	859	215	21	420	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	102	34	13	49	100	67	97	2423	237	32	1030	43
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	9	3	12	25	17	24	606	59	8	258	11
Total Analysis Volume [veh/h]	102	34	13	49	100	67	97	2423	237	32	1030	43
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	30	0	0	30	0	0	60	0	0	60	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	26	26	26	26	56	56	56	56	56	56
g / C, Green / Cycle	0.29	0.29	0.29	0.29	0.62	0.62	0.62	0.62	0.62	0.62
(v / s)_i Volume / Saturation Flow Rate	0.16	0.04	0.09	0.09	0.24	0.91	0.94	0.37	0.37	0.37
s, saturation flow rate [veh/h]	653	1264	1180	1191	410	1457	1413	87	1457	1437
c, Capacity [veh/h]	269	365	398	344	235	907	879	80	907	894
d1, Uniform Delay [s]	32.38	23.63	25.53	24.94	22.85	17.00	17.00	45.00	10.21	10.21
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.05	0.73	1.76	2.25	5.30	216.07	236.65	14.25	2.88	2.92
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.38	0.13	0.28	0.30	0.41	1.47	1.51	0.40	0.60	0.60
d, Delay for Lane Group [s/veh]	36.43	24.36	27.29	27.19	28.16	233.07	253.65	59.25	13.08	13.13
Lane Group LOS	D	C	C	C	C	F	F	E	B	B
Critical Lane Group	Yes	No	No	No	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	2.26	0.80	2.07	1.91	1.96	70.17	73.06	1.02	6.36	6.28
50th-Percentile Queue Length [ft/ln]	56.55	20.02	51.87	47.87	48.93	1754.31	1826.48	25.61	158.92	157.01
95th-Percentile Queue Length [veh/ln]	4.07	1.44	3.73	3.45	3.52	108.51	114.15	1.84	10.49	10.39
95th-Percentile Queue Length [ft/ln]	101.79	36.03	93.37	86.16	88.07	2712.72	2853.74	46.09	262.29	259.76

Movement, Approach, & Intersection Results

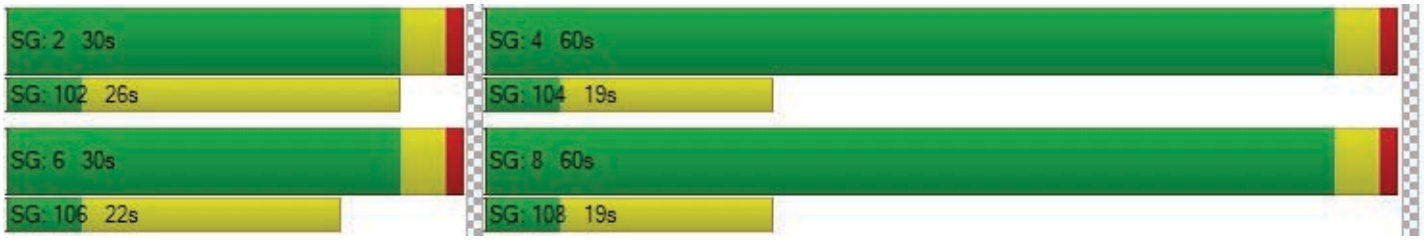
d_M, Delay for Movement [s/veh]	36.43	24.36	24.36	27.29	27.25	27.19	28.16	242.35	253.65	59.25	13.11	13.13
Movement LOS	D	C	C	C	C	C	C	F	F	E	B	B
d_A, Approach Delay [s/veh]	32.62			27.24			235.78			14.44		
Approach LOS	C			C			F			B		
d_I, Intersection Delay [s/veh]	160.10											
Intersection LOS	F											
Intersection V/C	1.098											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.304	2.366	3.242	3.071
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	578	578	1244	1244
d_b, Bicycle Delay [s]	22.76	22.76	6.42	6.42
l_b,int, Bicycle LOS Score for Intersection	1.683	1.738	3.834	2.471
Bicycle LOS	A	A	D	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 40: I-215 SB Ramps & 2nd St

Control Type:	Signalized	Delay (sec / veh):	30.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.626

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	466	48	214	0	258	96	210	173	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	18.70	18.70	18.70	2.00	18.70	18.70	18.70	18.70	2.00
Growth Factor	1.0000	1.0000	1.0000	1.2240	1.2240	1.2240	1.0000	1.2240	1.2240	1.2240	1.2240	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	329	0	0	0	0	0	300	50	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	899	59	262	0	316	118	557	262	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	225	15	66	0	79	30	139	66	0
Total Analysis Volume [veh/h]	0	0	0	899	59	262	0	316	118	557	262	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	44	0	0	16	0	30	46	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	27	0	0	7	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	C	C	R	L	C
C, Cycle Length [s]		90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		40	40	40	12	12	26	42
g / C, Green / Cycle		0.44	0.44	0.44	0.13	0.13	0.29	0.47
(v / s)_i Volume / Saturation Flow Rate		0.32	0.32	0.28	0.08	0.10	0.21	0.09
s, saturation flow rate [veh/h]		1388	1388	1159	3970	1239	2695	2775
c, Capacity [veh/h]		617	617	515	529	165	779	1295
d1, Uniform Delay [s]		20.54	20.54	19.21	36.72	37.36	28.68	14.13
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		7.39	7.39	5.59	4.90	23.11	5.57	0.35
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.73	0.73	0.62	0.60	0.71	0.72	0.20
d, Delay for Lane Group [s/veh]		27.93	27.93	24.80	41.63	60.47	34.25	14.49
Lane Group LOS		C	C	C	D	E	C	B
Critical Lane Group		Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		8.58	8.58	5.69	2.39	3.51	5.83	1.57
50th-Percentile Queue Length [ft/ln]		214.55	214.55	142.13	59.75	87.75	145.76	39.37
95th-Percentile Queue Length [veh/ln]		13.39	13.39	9.60	4.30	6.32	9.79	2.83
95th-Percentile Queue Length [ft/ln]		334.66	334.66	239.89	107.55	157.94	244.75	70.87

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	27.93	24.80	24.80	0.00	41.63	60.47	34.25	14.49	0.00
Movement LOS				C	C	C		D	E	C	B	
d_A, Approach Delay [s/veh]	0.00			27.11			46.75			27.93		
Approach LOS	A			C			D			C		
d_I, Intersection Delay [s/veh]	30.83											
Intersection LOS	C											
Intersection V/C	0.626											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.074	2.430	2.729	2.975
Crosswalk LOS	B	B	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	889	267	933
d_b, Bicycle Delay [s]	45.00	13.89	33.80	12.80
l_b,int, Bicycle LOS Score for Intersection	4.132	2.566	1.798	2.235
Bicycle LOS	D	B	A	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 41: I-215 NB Ramps & 2nd St

Control Type:	Signalized	Delay (sec / veh):	187.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.454

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	2	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	245.00	100.00	205.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	111	134	873	0	0	0	167	540	0	0	274	176
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	2.00	2.00	2.00	18.70	18.70	2.00	2.00	18.70	18.70
Growth Factor	1.2240	1.2240	1.2240	1.0000	1.0000	1.0000	1.2240	1.2240	1.0000	1.0000	1.2240	1.2240
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	860	40	0	0	0	329	0	0	350	167
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	136	164	1929	40	0	0	204	990	0	0	685	382
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	41	482	10	0	0	51	248	0	0	171	96
Total Analysis Volume [veh/h]	136	164	1929	40	0	0	204	990	0	0	685	382
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	59	0	0	0	0	11	31	0	0	20	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	0	0	0	14	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	R
C, Cycle Length [s]	90	90	90		90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	55	55	55		7	27	16	16
g / C, Green / Cycle	0.61	0.61	0.61		0.08	0.30	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.10	1.07	0.60		0.08	0.36	0.13	0.31
s, saturation flow rate [veh/h]	1388	1262	1239		2695	2775	5293	1239
c, Capacity [veh/h]	848	771	757		210	832	941	220
d1, Uniform Delay [s]	7.54	17.50	17.00		41.41	31.50	34.94	37.00
k, delay calibration	0.50	0.50	0.50		0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.40	343.22	28.50		55.55	97.08	4.92	348.85
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.16	1.75	0.98		0.97	1.19	0.73	1.73
d, Delay for Lane Group [s/veh]	7.95	360.72	45.51		96.96	128.58	39.86	385.85
Lane Group LOS	A	F	D		F	F	D	F
Critical Lane Group	No	Yes	No		Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.13	87.07	18.69		3.84	19.92	3.80	26.07
50th-Percentile Queue Length [ft/ln]	28.16	2176.78	467.22		96.09	497.88	94.94	651.84
95th-Percentile Queue Length [veh/ln]	2.03	141.24	25.78		6.92	30.08	6.84	42.12
95th-Percentile Queue Length [ft/ln]	50.69	3530.97	644.46		172.96	752.10	170.89	1052.95

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	7.95	360.72	236.24	0.00	0.00	0.00	96.96	128.58	0.00	0.00	39.86	385.85
Movement LOS	A	F	F				F	F			D	F
d_A, Approach Delay [s/veh]	234.12			0.00			123.18			163.73		
Approach LOS	F			A			F			F		
d_I, Intersection Delay [s/veh]	187.89											
Intersection LOS	F											
Intersection V/C	1.454											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.676	2.082	2.973	3.213
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1222	0	600	356
d_b, Bicycle Delay [s]	6.81	45.00	22.05	30.42
l_b,int, Bicycle LOS Score for Intersection	5.237	4.132	2.545	2.000
Bicycle LOS	F	D	B	A

Sequence

Ring 1	-	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 42: G St & 2nd St

Control Type:	Signalized	Delay (sec / veh):	274.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.167

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	130.00	100.00	100.00	100.00	100.00	100.00	220.00	100.00	100.00	260.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	120	113	52	158	154	15	30	1094	239	48	300	38
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Growth Factor	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	26	53	65	61	98	85	201	967	61	21	407	20
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	173	191	129	254	286	103	238	2306	354	80	774	67
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	43	48	32	64	72	26	60	577	89	20	194	17
Total Analysis Volume [veh/h]	173	191	129	254	286	103	238	2306	354	80	774	67
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	33	0	9	33	0	21	39	0	9	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	24	0	0	14	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	38	29	29	38	29	29	17	35	35	5	23	23
g / C, Green / Cycle	0.42	0.32	0.32	0.42	0.32	0.32	0.19	0.39	0.39	0.06	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.19	0.12	0.12	0.27	0.20	0.08	0.17	0.83	0.29	0.06	0.20	0.20
s, saturation flow rate [veh/h]	888	1457	1267	929	1457	1239	1388	2775	1239	1388	2775	1399
c, Capacity [veh/h]	358	470	408	427	470	399	262	1079	482	77	709	358
d1, Uniform Delay [s]	19.36	23.38	23.48	22.22	25.72	22.55	35.73	27.50	23.53	42.50	31.22	31.26
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.63	2.13	2.58	5.98	5.78	1.56	36.13	514.74	9.58	113.17	8.61	16.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.48	0.36	0.37	0.59	0.61	0.26	0.91	2.14	0.73	1.04	0.79	0.79
d, Delay for Lane Group [s/veh]	23.99	25.51	26.05	28.20	31.50	24.11	71.86	542.24	33.11	155.67	39.82	47.53
Lane Group LOS	C	C	C	C	C	C	E	F	C	F	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.74	2.96	2.71	4.30	5.76	1.75	7.63	88.09	7.43	4.12	6.34	7.19
50th-Percentile Queue Length [ft/ln]	68.61	73.97	67.74	107.59	143.93	43.82	190.69	2202.25	185.63	102.91	158.53	179.83
95th-Percentile Queue Length [veh/ln]	4.94	5.33	4.88	7.71	9.69	3.15	12.16	142.58	11.89	7.41	10.47	11.59
95th-Percentile Queue Length [ft/ln]	123.50	133.15	121.93	192.65	242.30	78.87	303.93	3564.43	297.35	185.23	261.77	289.79

Movement, Approach, & Intersection Results

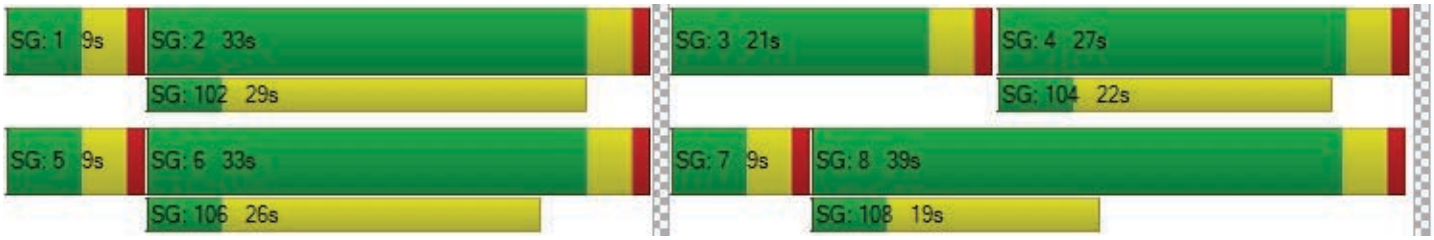
d_M, Delay for Movement [s/veh]	23.99	25.57	26.05	28.20	31.50	24.11	71.86	542.24	33.11	155.67	41.98	47.53
Movement LOS	C	C	C	C	C	C	E	F	C	F	D	D
d_A, Approach Delay [s/veh]	25.14			29.01			441.42			52.26		
Approach LOS	C			C			F			D		
d_I, Intersection Delay [s/veh]	274.15											
Intersection LOS	F											
Intersection V/C	1.167											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.428	2.523	3.230	3.205
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	644	644	778	511
d_b, Bicycle Delay [s]	20.67	20.67	16.81	24.94
l_b,int, Bicycle LOS Score for Intersection	1.966	2.621	3.950	2.066
Bicycle LOS	A	B	D	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 43: E St & 2nd St

Control Type:	Signalized	Delay (sec / veh):	378.4
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.574

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	120.00	100.00	100.00	140.00	100.00	140.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	25	101	25	22	126	28	65	1122	36	23	339	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Growth Factor	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	53	1104	67	0	474	81	237	482	35	26	191	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	84	1228	98	27	628	115	317	1855	79	54	606	10
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	307	25	7	157	29	79	464	20	14	152	3
Total Analysis Volume [veh/h]	84	1228	98	27	628	115	317	1855	79	54	606	10
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	40	0	9	40	0	17	32	0	9	24	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	36	36	5	36	36	13	28	28	5	20	20
g / C, Green / Cycle	0.06	0.40	0.40	0.06	0.40	0.40	0.14	0.31	0.31	0.06	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.06	0.84	0.08	0.02	0.43	0.09	0.23	0.66	0.67	0.04	0.15	0.15
s, saturation flow rate [veh/h]	1388	1457	1239	1388	1457	1239	1388	1457	1437	1388	2775	1445
c, Capacity [veh/h]	77	583	496	77	583	496	200	453	447	77	617	321
d1, Uniform Delay [s]	42.50	27.00	17.59	40.94	27.00	17.86	38.50	31.00	31.00	41.76	31.87	31.88
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	128.95	503.74	0.89	12.08	59.80	1.09	284.01	517.10	530.95	41.67	5.39	10.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.09	2.11	0.20	0.35	1.08	0.23	1.58	2.13	2.16	0.70	0.66	0.66
d, Delay for Lane Group [s/veh]	171.45	530.74	18.49	53.01	86.80	18.95	322.51	548.10	561.95	83.43	37.26	42.00
Lane Group LOS	F	F	B	D	F	B	F	F	F	F	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.45	93.34	1.41	0.83	21.46	1.69	20.15	74.56	75.22	2.06	4.38	5.00
50th-Percentile Queue Length [ft/ln]	111.36	2333.58	35.31	20.74	536.39	42.16	503.83	1864.10	1880.60	51.43	109.61	125.02
95th-Percentile Queue Length [veh/ln]	8.02	150.70	2.54	1.49	30.59	3.04	32.46	119.44	120.65	3.70	7.82	8.67
95th-Percentile Queue Length [ft/ln]	200.44	3767.51	63.55	37.33	764.66	75.89	811.43	2985.95	3016.17	92.57	195.46	216.70

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	171.45	530.74	18.49	53.01	86.80	18.95	322.51	554.73	561.95	83.43	38.83	42.00
Movement LOS	F	F	B	D	F	B	F	F	F	F	D	D
d_A, Approach Delay [s/veh]	473.73			75.48			522.28			42.47		
Approach LOS	F			E			F			D		
d_I, Intersection Delay [s/veh]	378.40											
Intersection LOS	F											
Intersection V/C	1.574											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.725	2.699	2.951	2.885
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	800	622	444
d_b, Bicycle Delay [s]	16.20	16.20	21.36	27.22
l_b,int, Bicycle LOS Score for Intersection	3.886	2.830	3.417	1.928
Bicycle LOS	D	C	C	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Vistro File:
J:\...\VISTRO_SAN_BERNARDINO_V6_New_Trip_gen_negs_Optimized_Individual.vistro

Scenario 5 2045_W_Proj_PM

Report File: J:\...\2045_W_PROJ_PM.pdf

8/17/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
29	I-215 SB Ramps & 5th St	Signalized	HCM 6th Edition	EB Right	1.182	127.5	F
30	I-215 NB Ramps & 5th St	Signalized	HCM 6th Edition	WB Right	1.778	201.5	F
31	G St & 5th St	Signalized	HCM 6th Edition	NB Left	3.097	213.5	F
40	I-215 SB Ramps & 2nd St	Signalized	HCM 6th Edition	WB Left	1.219	263.6	F
41	I-215 NB Ramps & 2nd St	Signalized	HCM 6th Edition	WB Right	1.895	262.5	F
42	G St & 2nd St	Signalized	HCM 6th Edition	EB Left	1.498	372.2	F
43	E St & 2nd St	Signalized	HCM 6th Edition	SB Thru	2.134	592.8	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 29: I-215 SB Ramps & 5th St

Control Type:	Signalized	Delay (sec / veh):	127.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.182

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	350.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	239	5	173	0	577	323	481	818	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	18.70	18.70	18.70	2.00	18.70	18.70	18.70	18.70	2.00
Growth Factor	1.0000	1.0000	1.0000	1.2470	1.2470	1.2470	1.0000	1.2470	1.2470	1.2470	1.2470	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	670	0	0	0	576	0	549	675	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	968	6	216	0	1296	403	1149	1695	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	242	2	54	0	324	101	287	424	0
Total Analysis Volume [veh/h]	0	0	0	968	6	216	0	1296	403	1149	1695	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	42	0	0	35	0	43	78	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	27	0	0	7	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	R	C	C	L	C
C, Cycle Length [s]		120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		38	38	38	31	31	39	74
g / C, Green / Cycle		0.32	0.32	0.32	0.26	0.26	0.33	0.62
(v / s)_i Volume / Saturation Flow Rate		0.29	0.42	0.17	0.32	0.34	0.43	0.61
s, saturation flow rate [veh/h]		1388	1389	1239	3970	1248	2695	2775
c, Capacity [veh/h]		440	440	392	1026	322	876	1711
d1, Uniform Delay [s]		39.23	41.00	33.93	44.50	44.50	40.50	22.66
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		24.37	156.27	5.47	117.48	162.98	148.40	19.63
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.90	1.31	0.55	1.24	1.32	1.31	0.99
d, Delay for Lane Group [s/veh]		63.60	197.27	39.41	161.98	207.48	188.90	42.29
Lane Group LOS		E	F	D	F	F	F	D
Critical Lane Group		No	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		14.02	31.89	5.80	21.22	24.10	30.78	26.21
50th-Percentile Queue Length [ft/ln]		350.60	797.27	145.03	530.53	602.40	769.60	655.30
95th-Percentile Queue Length [veh/ln]		20.17	48.01	9.75	32.30	37.04	46.54	34.61
95th-Percentile Queue Length [ft/ln]		504.14	1200.25	243.78	807.52	925.94	1163.51	865.21

Movement, Approach, & Intersection Results

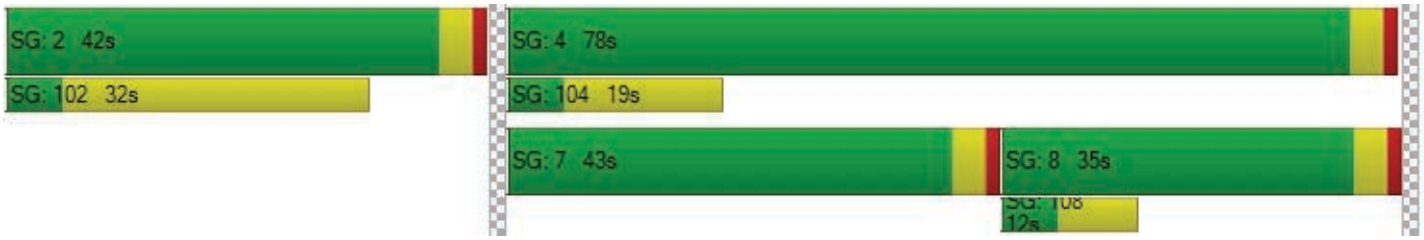
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	142.43	197.27	39.41	0.00	162.74	207.48	188.90	42.29	0.00
Movement LOS				F	F	D		F	F	F	D	
d_A, Approach Delay [s/veh]	0.00			124.06			173.35			101.52		
Approach LOS	A			F			F			F		
d_I, Intersection Delay [s/veh]	127.49											
Intersection LOS	F											
Intersection V/C	1.182											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.490	2.436	3.112	3.363
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	633	517	1233
d_b, Bicycle Delay [s]	60.00	28.02	33.00	8.82
l_b,int, Bicycle LOS Score for Intersection	4.132	3.523	2.260	3.906
Bicycle LOS	D	D	B	D

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 30: I-215 NB Ramps & 5th St

Control Type:	Signalized	Delay (sec / veh):	201.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.778

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0	0	0	2	0	0
Entry Pocket Length [ft]	100.00	100.00	485.00	100.00	100.00	100.00	100.00	100.00	100.00	120.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	364	2	424	0	0	0	204	603	0	0	942	659
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	2.00	2.00	2.00	18.70	18.70	2.00	2.00	18.70	18.70
Growth Factor	1.2470	1.2470	1.2470	1.0000	1.0000	1.0000	1.2470	1.2470	1.0000	1.0000	1.2470	1.2470
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	474	0	0	0	0	1246	0	0	1224	745
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	454	2	1003	0	0	0	254	1998	0	0	2399	1567
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	114	1	251	0	0	0	64	500	0	0	600	392
Total Analysis Volume [veh/h]	454	2	1003	0	0	0	254	1998	0	0	2399	1567
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	36	0	0	0	0	10	84	0	0	74	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	0	0	0	17	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	R
C, Cycle Length [s]	120	120	120		120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	32	32	32		6	80	70	70
g / C, Green / Cycle	0.27	0.27	0.27		0.05	0.67	0.58	0.58
(v / s)_i Volume / Saturation Flow Rate	0.33	0.42	0.39		0.09	0.72	0.45	1.26
s, saturation flow rate [veh/h]	1388	1239	1239		2695	2775	5293	1239
c, Capacity [veh/h]	370	331	330		135	1850	3088	723
d1, Uniform Delay [s]	44.00	44.00	44.00		57.00	20.00	19.05	25.00
k, delay calibration	0.50	0.50	0.50		0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	123.67	270.36	228.31		424.76	46.25	1.99	530.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.23	1.57	1.47		1.88	1.08	0.78	2.17
d, Delay for Lane Group [s/veh]	167.67	314.36	272.31		481.76	66.25	21.04	555.41
Lane Group LOS	F	F	F		F	F	C	F
Critical Lane Group	No	Yes	No		Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	23.60	34.54	30.66		9.99	34.71	12.50	125.55
50th-Percentile Queue Length [ft/ln]	589.93	863.51	766.55		249.81	867.79	312.44	3138.82
95th-Percentile Queue Length [veh/ln]	35.32	54.43	47.93		17.26	47.41	18.30	208.07
95th-Percentile Queue Length [ft/ln]	883.00	1360.84	1198.20		431.52	1185.23	457.39	5201.86

Movement, Approach, & Intersection Results

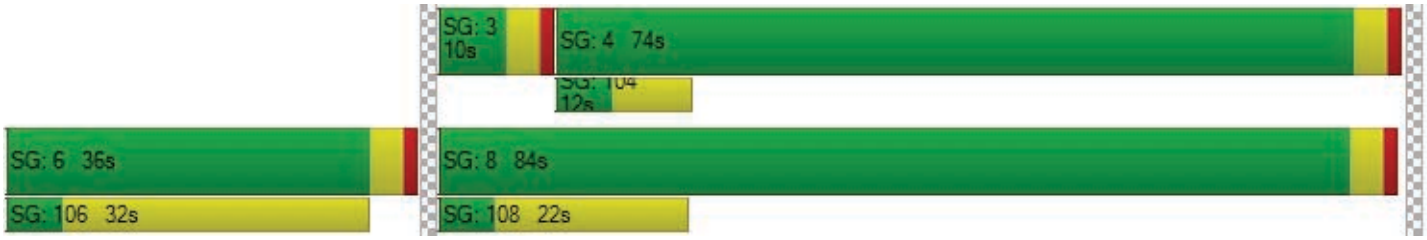
d_M, Delay for Movement [s/veh]	167.67	314.36	293.97	0.00	0.00	0.00	481.76	66.25	0.00	0.00	21.04	555.41
Movement LOS	F	F	F				F	F			C	F
d_A, Approach Delay [s/veh]	254.70			0.00			113.12			232.17		
Approach LOS	F			A			F			F		
d_I, Intersection Delay [s/veh]	201.53											
Intersection LOS	F											
Intersection V/C	1.778											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.600	2.619	3.363	3.580
Crosswalk LOS	B	B	C	D
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	0	1333	1167
d_b, Bicycle Delay [s]	32.27	60.00	6.67	10.42
l_b,int, Bicycle LOS Score for Intersection	3.967	4.132	3.418	3.196
Bicycle LOS	D	D	C	C

Sequence

Ring 1	-	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 31: G St & 5th St

Control Type:	Signalized	Delay (sec / veh):	213.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	3.097

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	140.00	100.00	100.00	140.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	12	102	14	70	99	91	85	685	20	9	1042	106
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Growth Factor	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	463	32	44	23	28	14	16	867	291	41	968	32
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	478	159	61	110	151	127	122	1721	316	52	2267	164
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	120	40	15	28	38	32	31	430	79	13	567	41
Total Analysis Volume [veh/h]	478	159	61	110	151	127	122	1721	316	52	2267	164
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	30	0	0	30	0	0	60	0	0	60	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	26	26	26	26	56	56	56	56	56	56
g / C, Green / Cycle	0.29	0.29	0.29	0.29	0.62	0.62	0.62	0.62	0.62	0.62
(v / s)_i Volume / Saturation Flow Rate	1.98	0.17	0.32	0.21	1.11	0.70	0.74	0.32	0.83	0.85
s, saturation flow rate [veh/h]	241	1264	421	1218	110	1457	1382	162	1457	1423
c, Capacity [veh/h]	150	365	194	352	80	907	860	80	907	886
d1, Uniform Delay [s]	43.30	27.55	39.14	28.69	45.00	17.00	17.00	45.00	17.00	17.00
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1004.86	7.18	19.06	11.82	289.57	69.80	94.86	34.31	160.64	174.73
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	3.19	0.60	0.70	0.72	1.53	1.12	1.18	0.65	1.34	1.37
d, Delay for Lane Group [s/veh]	1048.16	34.73	58.20	40.51	334.57	86.80	111.86	79.31	177.64	191.73
Lane Group LOS	F	C	E	D	F	F	F	E	F	F
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	No	No
50th-Percentile Queue Length [veh/ln]	45.07	4.69	4.03	5.89	8.20	33.33	37.58	1.91	56.21	58.37
50th-Percentile Queue Length [ft/ln]	1126.80	117.37	100.73	147.19	205.11	833.21	939.61	47.81	1405.26	1459.25
95th-Percentile Queue Length [veh/ln]	76.05	8.25	7.25	9.87	14.77	47.00	54.34	3.44	84.54	88.61
95th-Percentile Queue Length [ft/ln]	1901.14	206.21	181.31	246.68	369.19	1175.00	1358.58	86.06	2113.53	2215.16

Movement, Approach, & Intersection Results

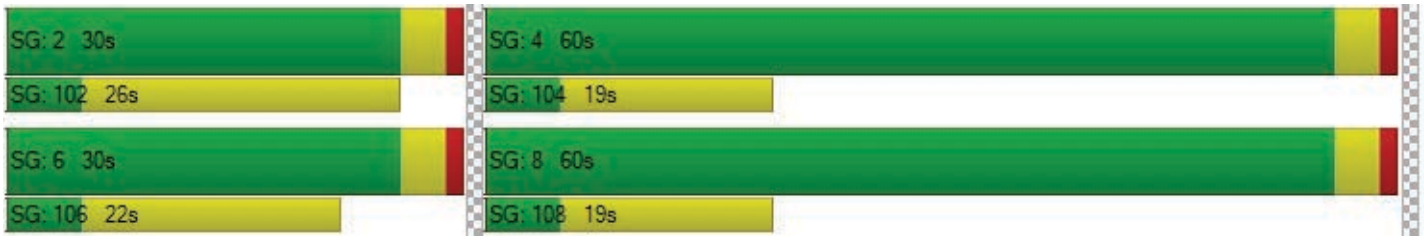
d_M, Delay for Movement [s/veh]	1048.16	34.73	34.73	58.20	43.56	40.51	334.57	97.03	111.86	79.31	184.17	191.73
Movement LOS	F	C	C	E	D	D	F	F	F	E	F	F
d_A, Approach Delay [s/veh]	728.74			46.71			112.62			182.47		
Approach LOS	F			D			F			F		
d_I, Intersection Delay [s/veh]	213.52											
Intersection LOS	F											
Intersection V/C	3.097											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.503	2.509	3.952	3.311
Crosswalk LOS	B	B	D	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	578	578	1244	1244
d_b, Bicycle Delay [s]	22.76	22.76	6.42	6.42
l_b,int, Bicycle LOS Score for Intersection	2.135	1.880	3.341	3.608
Bicycle LOS	B	A	C	D

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 40: I-215 SB Ramps & 2nd St

Control Type:	Signalized	Delay (sec / veh):	263.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.219

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	150	180	185	0	362	190	646	263	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	18.70	18.70	18.70	2.00	18.70	18.70	18.70	18.70	2.00
Growth Factor	1.0000	1.0000	1.0000	1.2470	1.2470	1.2470	1.0000	1.2470	1.2470	1.2470	1.2470	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	422	0	0	0	10	0	1242	144	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	609	224	231	0	461	237	2048	472	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	152	56	58	0	115	59	512	118	0
Total Analysis Volume [veh/h]	0	0	0	609	224	231	0	461	237	2048	472	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	36	0	0	16	0	38	54	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	27	0	0	7	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	C	C	R	L	C
C, Cycle Length [s]		90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		32	32	32	12	12	34	50
g / C, Green / Cycle		0.36	0.36	0.36	0.13	0.13	0.38	0.56
(v / s)_i Volume / Saturation Flow Rate		0.27	0.27	0.27	0.12	0.19	0.76	0.17
s, saturation flow rate [veh/h]		1388	1413	1174	3970	1239	2695	2775
c, Capacity [veh/h]		494	502	417	529	165	1018	1542
d1, Uniform Delay [s]		25.52	25.52	25.52	38.24	39.00	28.00	10.71
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		10.17	10.00	11.89	17.61	226.73	458.54	0.51
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.75	0.75	0.75	0.87	1.43	2.01	0.31
d, Delay for Lane Group [s/veh]		35.69	35.52	37.41	55.85	265.73	486.54	11.23
Lane Group LOS		D	D	D	E	F	F	B
Critical Lane Group		No	No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		8.10	8.22	7.06	4.13	13.98	75.22	2.45
50th-Percentile Queue Length [ft/ln]		202.60	205.62	176.44	103.21	349.56	1880.48	61.24
95th-Percentile Queue Length [veh/ln]		12.77	12.93	11.41	7.43	22.94	121.42	4.41
95th-Percentile Queue Length [ft/ln]		319.31	323.20	285.37	185.78	573.43	3035.58	110.23

Movement, Approach, & Intersection Results

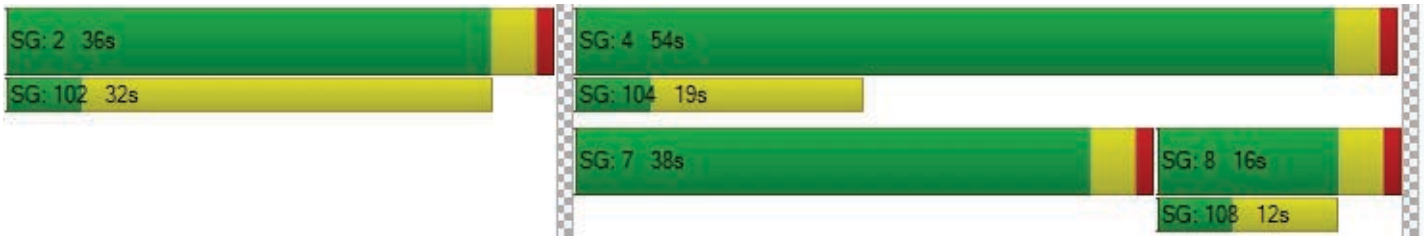
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	35.62	36.22	37.41	0.00	55.85	265.73	486.54	11.23	0.00
Movement LOS				D	D	D		E	F	F	B	
d_A, Approach Delay [s/veh]	0.00			36.14			127.11			397.51		
Approach LOS	A			D			F			F		
d_I, Intersection Delay [s/veh]	263.64											
Intersection LOS	F											
Intersection V/C	1.219											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.940	2.392	2.791	3.164
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	711	267	1111
d_b, Bicycle Delay [s]	45.00	18.69	33.80	8.89
l_b,int, Bicycle LOS Score for Intersection	4.132	2.437	1.944	3.639
Bicycle LOS	D	B	A	D

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 41: I-215 NB Ramps & 2nd St

Control Type:	Signalized	Delay (sec / veh):	262.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.895

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	2	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	245.00	100.00	205.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	116	37	383	0	0	0	197	318	0	0	807	466
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	2.00	2.00	2.00	18.70	18.70	2.00	2.00	18.70	18.70
Growth Factor	1.2470	1.2470	1.2470	1.0000	1.0000	1.0000	1.2470	1.2470	1.0000	1.0000	1.2470	1.2470
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	1188	22	0	0	0	431	0	0	1386	567
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	145	46	1666	22	0	0	246	828	0	0	2392	1148
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	12	417	6	0	0	62	207	0	0	598	287
Total Analysis Volume [veh/h]	145	46	1666	22	0	0	246	828	0	0	2392	1148
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	40	0	0	0	0	9	50	0	0	41	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	0	0	0	14	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	R
C, Cycle Length [s]	90	90	90		90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	36	36	36		5	46	37	37
g / C, Green / Cycle	0.40	0.40	0.40		0.06	0.51	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.10	0.88	0.50		0.09	0.30	0.45	0.93
s, saturation flow rate [veh/h]	1388	1247	1239		2695	2775	5293	1239
c, Capacity [veh/h]	555	499	496		150	1418	2176	509
d1, Uniform Delay [s]	18.09	27.00	27.00		42.50	15.33	26.50	26.50
k, delay calibration	0.50	0.50	0.50		0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.14	542.91	128.09		317.25	1.76	52.45	570.67
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.26	2.19	1.25		1.64	0.58	1.10	2.25
d, Delay for Lane Group [s/veh]	19.23	569.91	155.09		359.75	17.09	78.95	597.17
Lane Group LOS	B	F	F		F	B	F	F
Critical Lane Group	No	Yes	No		Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.14	85.27	27.64		8.24	5.86	18.86	90.97
50th-Percentile Queue Length [ft/ln]	53.45	2131.76	690.91		206.04	146.44	471.55	2274.18
95th-Percentile Queue Length [veh/ln]	3.85	139.07	41.67		14.50	9.83	27.70	148.71
95th-Percentile Queue Length [ft/ln]	96.20	3476.69	1041.87		362.54	245.67	692.38	3717.84

Movement, Approach, & Intersection Results

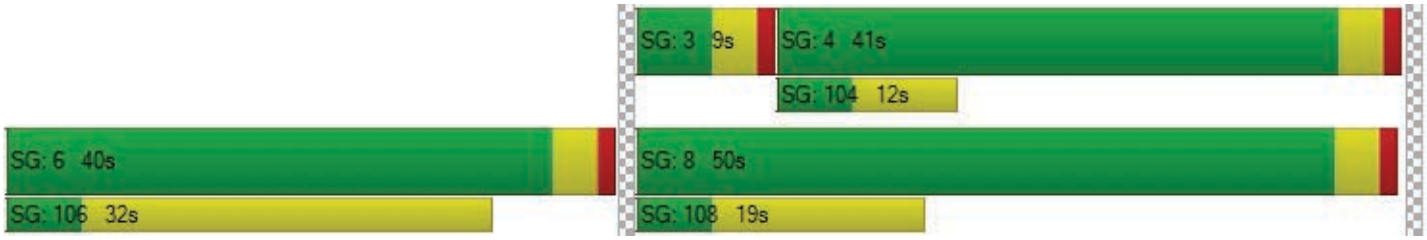
d_M, Delay for Movement [s/veh]	19.23	569.91	414.59	0.00	0.00	0.00	359.75	17.09	0.00	0.00	78.95	597.17
Movement LOS	B	F	F				F	B			F	F
d_A, Approach Delay [s/veh]	388.64			0.00			95.58			247.00		
Approach LOS	F			A			F			F		
d_I, Intersection Delay [s/veh]	262.52											
Intersection LOS	F											
Intersection V/C	1.895											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.585	2.418	3.167	3.462
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	0	1022	822
d_b, Bicycle Delay [s]	16.20	45.00	10.76	15.61
l_b,int, Bicycle LOS Score for Intersection	4.624	4.132	2.446	3.020
Bicycle LOS	E	D	B	C

Sequence

Ring 1	-	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 42: G St & 2nd St

Control Type:	Signalized	Delay (sec / veh):	372.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.498

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	130.00	100.00	100.00	100.00	100.00	100.00	220.00	100.00	100.00	260.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	185	244	64	50	134	46	72	491	67	69	975	80
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Growth Factor	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	196	198	150	9	172	432	406	1058	177	127	1326	28
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	427	502	230	71	339	489	496	1670	261	213	2542	128
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	107	126	58	18	85	122	124	418	65	53	636	32
Total Analysis Volume [veh/h]	427	502	230	71	339	489	496	1670	261	213	2542	128
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	31	0	11	33	0	11	35	0	13	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	24	0	0	14	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	38	27	27	38	29	29	7	31	31	9	33	33
g / C, Green / Cycle	0.42	0.30	0.30	0.42	0.32	0.32	0.08	0.34	0.34	0.10	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.63	0.26	0.27	0.09	0.23	0.39	0.36	0.60	0.21	0.15	0.63	0.65
s, saturation flow rate [veh/h]	677	1457	1305	759	1457	1239	1388	2775	1239	1388	2775	1422
c, Capacity [veh/h]	291	437	391	289	470	399	108	956	427	139	1017	522
d1, Uniform Delay [s]	40.19	29.98	30.02	19.13	26.94	30.50	41.50	29.50	24.50	40.50	28.50	28.50
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	229.30	21.79	24.17	2.02	9.26	121.71	1638.58	340.61	6.41	273.33	328.74	350.47
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.47	0.88	0.89	0.25	0.72	1.23	4.59	1.75	0.61	1.53	1.72	1.76
d, Delay for Lane Group [s/veh]	269.49	51.77	54.19	21.15	36.20	152.21	1680.08	370.11	30.91	313.83	357.24	378.97
Lane Group LOS	F	D	D	C	D	F	F	F	C	F	F	F
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	22.75	10.31	9.52	1.03	7.42	21.78	51.50	55.06	5.23	13.56	56.86	61.44
50th-Percentile Queue Length [ft/ln]	568.77	257.72	238.05	25.68	185.49	544.38	1287.45	1376.51	130.63	339.09	1421.40	1535.96
95th-Percentile Queue Length [veh/ln]	37.62	15.57	14.58	1.85	11.89	33.10	78.23	87.53	8.97	22.42	90.29	97.60
95th-Percentile Queue Length [ft/ln]	940.48	389.36	364.56	46.22	297.17	827.44	1955.87	2188.20	224.36	560.46	2257.24	2440.07

Movement, Approach, & Intersection Results

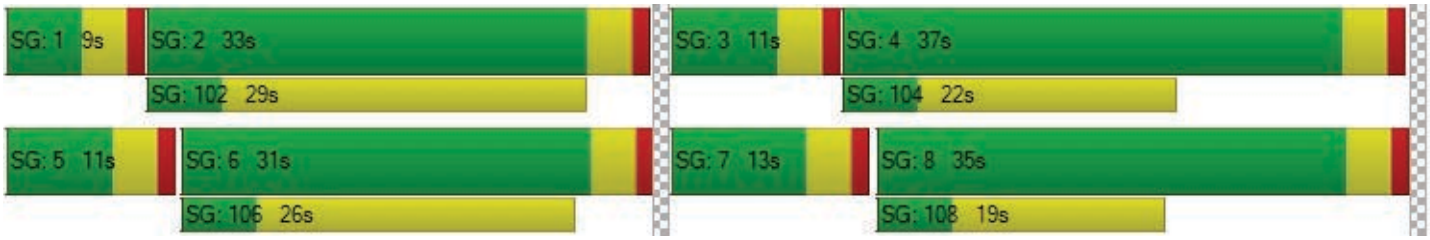
d_M, Delay for Movement [s/veh]	269.49	52.33	54.19	21.15	36.20	152.21	1680.08	370.11	30.91	313.83	364.00	378.97
Movement LOS	F	D	D	C	D	F	F	F	C	F	F	F
d_A, Approach Delay [s/veh]	132.71			98.11			601.35			360.96		
Approach LOS	F			F			F			F		
d_I, Intersection Delay [s/veh]	372.17											
Intersection LOS	F											
Intersection V/C	1.498											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.613	2.696	3.825	3.276
Crosswalk LOS	B	B	D	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	644	689	733
d_b, Bicycle Delay [s]	22.05	20.67	19.34	18.05
l_b,int, Bicycle LOS Score for Intersection	2.516	3.043	3.562	3.145
Bicycle LOS	B	C	D	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 43: E St & 2nd St

Control Type:	Signalized	Delay (sec / veh):	592.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	2.134

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	120.00	100.00	100.00	140.00	100.00	140.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	60	247	62	18	184	60	69	536	42	54	892	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Growth Factor	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	125	1428	24	0	1751	366	302	185	133	43	346	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	200	1736	101	22	1980	441	388	853	185	110	1458	26
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	50	434	25	6	495	110	97	213	46	28	365	7
Total Analysis Volume [veh/h]	200	1736	101	22	1980	441	388	853	185	110	1458	26
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	45	0	9	45	0	13	27	0	9	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	41	41	5	41	41	9	23	23	5	19	19
g / C, Green / Cycle	0.06	0.46	0.46	0.06	0.46	0.46	0.10	0.26	0.26	0.06	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.14	1.19	0.08	0.02	1.36	0.36	0.28	0.36	0.37	0.08	0.35	0.35
s, saturation flow rate [veh/h]	1388	1457	1239	1388	1457	1239	1388	1457	1369	1388	2775	1444
c, Capacity [veh/h]	77	664	564	77	664	564	139	372	350	77	586	305
d1, Uniform Delay [s]	42.50	24.50	14.52	40.79	24.50	20.71	40.50	33.50	33.50	42.50	35.50	35.50
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	753.33	731.01	0.69	9.06	896.09	10.32	827.65	207.49	216.54	251.52	307.21	313.87
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	2.59	2.61	0.18	0.29	2.98	0.78	2.80	1.43	1.45	1.43	1.67	1.67
d, Delay for Lane Group [s/veh]	795.83	755.51	15.22	49.85	920.59	31.03	868.15	240.99	250.04	294.02	342.71	349.37
Lane Group LOS	F	F	B	D	F	C	F	F	F	F	F	F
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	17.83	147.90	1.29	0.66	178.34	8.96	34.94	29.33	28.44	7.08	31.25	33.09
50th-Percentile Queue Length [ft/ln]	445.70	3697.40	32.21	16.44	4458.50	224.09	873.38	733.36	710.92	176.99	781.17	827.32
95th-Percentile Queue Length [veh/ln]	29.20	241.88	2.32	1.18	291.43	13.87	55.36	45.48	44.42	12.50	49.72	52.38
95th-Percentile Queue Length [ft/ln]	730.05	6046.95	57.98	29.59	7285.85	346.84	1384.11	1137.04	1110.48	312.52	1242.88	1309.45

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	795.83	755.51	15.22	49.85	920.59	31.03	868.15	244.40	250.04	294.02	344.91	349.37
Movement LOS	F	F	B	D	F	C	F	F	F	F	F	F
d_A, Approach Delay [s/veh]	722.77			752.17			414.85			341.47		
Approach LOS	F			F			F			F		
d_I, Intersection Delay [s/veh]	592.76											
Intersection LOS	F											
Intersection V/C	2.134											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.142	3.252	3.027	2.872
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	911	911	511	422
d_b, Bicycle Delay [s]	13.34	13.34	24.94	28.01
l_b,int, Bicycle LOS Score for Intersection	4.921	5.591	2.736	2.436
Bicycle LOS	E	F	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX I – FUTURE WITH-PROJECT ALTERNATIVE INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

Vistro File:
J:\...\VISTRO_SAN_BERNARDINO_V3_New_Trip_gen_negs_v2.vistro

Scenario 4 Future AM

Report File: J:\...\Alt_AM_2045_Project.pdf

7/13/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
29	I-215 SB Ramps & 5th St	Signalized	HCM 6th Edition	EB Right	0.990	70.8	E
30	I-215 NB Ramps & 5th St	Signalized	HCM 6th Edition	EB Left	1.001	62.8	E
31	G St & 5th St	Signalized	HCM 6th Edition	EB Right	0.895	74.8	E
40	I-215 SB Ramps & 2nd St	Signalized	HCM 6th Edition	EB Right	0.517	28.3	C
41	I-215 NB Ramps & 2nd St	Signalized	HCM 6th Edition	EB Left	1.205	117.8	F
42	G St & 2nd St	Signalized	HCM 6th Edition	EB Thru	0.923	181.8	F
43	E St & 2nd St	Signalized	HCM 6th Edition	EB Left	1.328	309.7	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 29: I-215 SB Ramps & 5th St

Control Type:	Signalized	Delay (sec / veh):	70.8
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.990

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	350.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	648	12	169	0	484	363	339	452	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	18.70	18.70	18.70	2.00	18.70	18.70	18.70	18.70	2.00
Growth Factor	1.0000	1.0000	1.0000	1.2240	1.2240	1.2240	1.0000	1.2240	1.2240	1.2240	1.2240	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	250	0	0	0	289	0	52	103	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	1043	15	207	0	881	444	467	656	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	261	4	52	0	220	111	117	164	0
Total Analysis Volume [veh/h]	0	0	0	1043	15	207	0	881	444	467	656	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	59	0	0	35	0	26	61	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	27	0	0	7	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	R	C	C	L	C
C, Cycle Length [s]		120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		55	55	55	31	31	22	57
g / C, Green / Cycle		0.46	0.46	0.46	0.26	0.26	0.18	0.48
(v / s)_i Volume / Saturation Flow Rate		0.30	0.46	0.17	0.22	0.36	0.17	0.24
s, saturation flow rate [veh/h]		1388	1390	1239	3970	1239	2695	2775
c, Capacity [veh/h]		636	637	568	1026	320	494	1318
d1, Uniform Delay [s]		25.29	32.48	21.14	42.42	44.50	48.40	21.66
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		5.37	35.46	1.81	9.33	192.58	28.89	1.35
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.66	1.00	0.36	0.86	1.39	0.95	0.50
d, Delay for Lane Group [s/veh]		30.66	67.93	22.94	51.74	237.08	77.29	23.00
Lane Group LOS		C	E	C	D	F	E	C
Critical Lane Group		No	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		10.14	24.08	4.06	9.13	26.54	8.86	6.52
50th-Percentile Queue Length [ft/ln]		253.45	602.07	101.39	228.19	663.54	221.41	163.11
95th-Percentile Queue Length [veh/ln]		15.36	32.13	7.30	14.08	41.18	13.74	10.71
95th-Percentile Queue Length [ft/ln]		384.00	803.27	182.50	352.06	1029.43	343.42	267.84

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	52.82	67.93	22.94	0.00	51.74	237.08	77.29	23.00	0.00
Movement LOS				D	E	C		D	F	E	C	
d_A, Approach Delay [s/veh]	0.00			48.15			113.85			45.58		
Approach LOS	A			D			F			D		
d_I, Intersection Delay [s/veh]	70.82											
Intersection LOS	E											
Intersection V/C	0.990											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.182	2.455	2.914	3.112
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	917	517	950
d_b, Bicycle Delay [s]	60.00	17.60	33.00	16.54
l_b,int, Bicycle LOS Score for Intersection	4.132	3.647	2.106	2.486
Bicycle LOS	D	D	B	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 30: I-215 NB Ramps & 5th St

Control Type:	Signalized	Delay (sec / veh):	62.8
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.001

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0	0	0	2	0	0
Entry Pocket Length [ft]	100.00	100.00	485.00	100.00	100.00	100.00	100.00	100.00	100.00	120.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	232	2	549	0	0	0	151	972	0	0	561	188
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	2.00	2.00	2.00	18.70	18.70	2.00	2.00	18.70	18.70
Growth Factor	1.2240	1.2240	1.2240	1.0000	1.0000	1.0000	1.2240	1.2240	1.0000	1.0000	1.2240	1.2240
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	170	0	0	0	0	539	0	0	155	89
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	284	2	842	0	0	0	185	1729	0	0	842	319
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	71	1	211	0	0	0	46	432	0	0	211	80
Total Analysis Volume [veh/h]	284	2	842	0	0	0	185	1729	0	0	842	319
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	49	0	0	0	0	13	71	0	0	58	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	0	0	0	17	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	R
C, Cycle Length [s]	120	120	120		120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	45	45	45		9	67	54	54
g / C, Green / Cycle	0.38	0.38	0.38		0.08	0.56	0.45	0.45
(v / s)_i Volume / Saturation Flow Rate	0.20	0.38	0.30		0.07	0.62	0.16	0.26
s, saturation flow rate [veh/h]	1388	1240	1239		2695	2775	5293	1239
c, Capacity [veh/h]	520	465	465		202	1549	2382	557
d1, Uniform Delay [s]	29.47	37.50	33.65		55.12	26.50	21.58	24.44
k, delay calibration	0.50	0.50	0.50		0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.07	43.44	14.13		44.39	61.66	0.41	4.23
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.55	1.01	0.81		0.92	1.12	0.35	0.57
d, Delay for Lane Group [s/veh]	33.54	80.94	47.78		99.52	88.16	22.00	28.67
Lane Group LOS	C	F	D		F	F	C	C
Critical Lane Group	No	Yes	No		No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.00	18.96	11.51		4.02	34.03	3.94	7.29
50th-Percentile Queue Length [ft/ln]	174.94	473.98	287.83		100.56	850.77	98.39	182.30
95th-Percentile Queue Length [veh/ln]	11.34	26.23	17.08		7.24	47.53	7.08	11.72
95th-Percentile Queue Length [ft/ln]	283.40	655.63	426.94		181.00	1188.13	177.10	293.02

Movement, Approach, & Intersection Results

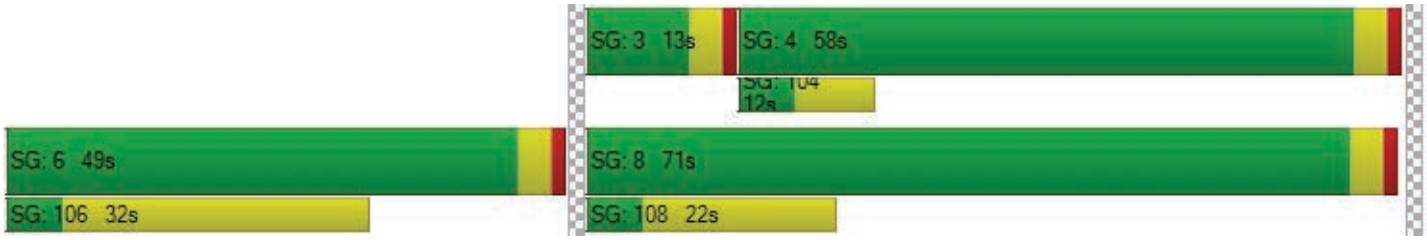
d_M, Delay for Movement [s/veh]	33.54	80.94	66.13	0.00	0.00	0.00	99.52	88.16	0.00	0.00	22.00	28.67
Movement LOS	C	F	E				F	F			C	C
d_A, Approach Delay [s/veh]	57.95			0.00			89.26			23.83		
Approach LOS	E			A			F			C		
d_I, Intersection Delay [s/veh]	62.78											
Intersection LOS	E											
Intersection V/C	1.001											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.535	1.977	3.111	3.129
Crosswalk LOS	B	A	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	750	0	1117	900
d_b, Bicycle Delay [s]	23.44	60.00	11.70	18.15
l_b,int, Bicycle LOS Score for Intersection	3.421	4.132	3.139	2.039
Bicycle LOS	C	D	C	B

Sequence

Ring 1	-	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 31: G St & 5th St

Control Type:	Signalized	Delay (sec / veh):	74.8
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.895

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	140.00	100.00	100.00	140.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	5	23	3	33	66	48	74	1278	18	9	498	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Growth Factor	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	96	7	9	0	18	0	0	287	215	21	66	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	102	35	13	40	99	59	91	1851	237	32	676	38
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	9	3	10	25	15	23	463	59	8	169	10
Total Analysis Volume [veh/h]	102	35	13	40	99	59	91	1851	237	32	676	38
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	30	0	0	30	0	0	60	0	0	60	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	26	26	26	26	56	56	56	56	56	56
g / C, Green / Cycle	0.29	0.29	0.29	0.29	0.62	0.62	0.62	0.62	0.62	0.62
(v / s)_i Volume / Saturation Flow Rate	0.15	0.04	0.08	0.08	0.16	0.72	0.75	0.21	0.25	0.25
s, saturation flow rate [veh/h]	681	1266	1228	1195	574	1457	1401	154	1457	1430
c, Capacity [veh/h]	277	366	410	345	353	907	872	80	907	890
d1, Uniform Delay [s]	31.79	23.65	24.91	24.71	14.69	17.00	17.00	45.00	8.53	8.53
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.75	0.74	1.47	1.96	1.76	80.80	99.96	14.25	1.30	1.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.37	0.13	0.25	0.27	0.26	1.15	1.20	0.40	0.40	0.40
d, Delay for Lane Group [s/veh]	35.54	24.39	26.38	26.67	16.46	97.80	116.96	59.25	9.83	9.86
Lane Group LOS	D	C	C	C	B	F	F	E	A	A
Critical Lane Group	Yes	No	No	No	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	2.23	0.82	1.87	1.72	1.28	36.10	39.35	1.02	3.47	3.41
50th-Percentile Queue Length [ft/ln]	55.66	20.46	46.82	42.93	31.95	902.53	983.75	25.61	86.66	85.31
95th-Percentile Queue Length [veh/ln]	4.01	1.47	3.37	3.09	2.30	51.40	57.05	1.84	6.24	6.14
95th-Percentile Queue Length [ft/ln]	100.18	36.83	84.28	77.27	57.51	1285.00	1426.33	46.09	155.98	153.57

Movement, Approach, & Intersection Results

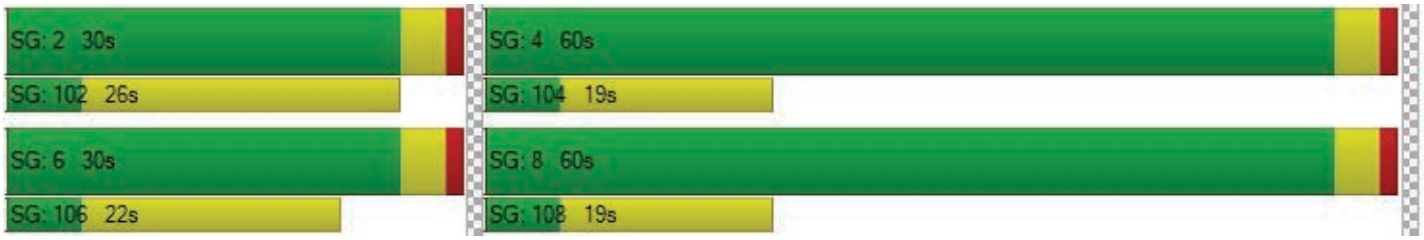
d_M, Delay for Movement [s/veh]	35.54	24.39	24.39	26.38	26.49	26.67	16.46	106.16	116.96	59.25	9.85	9.86
Movement LOS	D	C	C	C	C	C	B	F	F	E	A	A
d_A, Approach Delay [s/veh]	31.97			26.52			103.58			11.97		
Approach LOS	C			C			F			B		
d_I, Intersection Delay [s/veh]	74.76											
Intersection LOS	E											
Intersection V/C	0.895											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.304	2.350	3.090	2.875
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	578	578	1244	1244
d_b, Bicycle Delay [s]	22.76	22.76	6.42	6.42
l_b,int, Bicycle LOS Score for Intersection	1.683	1.723	3.357	2.175
Bicycle LOS	A	A	C	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 40: I-215 SB Ramps & 2nd St

Control Type:	Signalized	Delay (sec / veh):	28.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.517

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	466	48	214	0	258	96	210	173	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	18.70	18.70	18.70	2.00	18.70	18.70	18.70	18.70	2.00
Growth Factor	1.0000	1.0000	1.0000	1.2240	1.2240	1.2240	1.0000	1.2240	1.2240	1.2240	1.2240	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	117	0	0	0	0	0	187	23	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	687	59	262	0	316	118	444	235	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	172	15	66	0	79	30	111	59	0
Total Analysis Volume [veh/h]	0	0	0	687	59	262	0	316	118	444	235	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	44	0	0	16	0	30	46	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	27	0	0	7	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	C	C	R	L	C
C, Cycle Length [s]		90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		40	40	40	12	12	26	42
g / C, Green / Cycle		0.44	0.44	0.44	0.13	0.13	0.29	0.47
(v / s)_i Volume / Saturation Flow Rate		0.26	0.26	0.26	0.08	0.10	0.16	0.08
s, saturation flow rate [veh/h]		1388	1393	1146	3970	1239	2695	2775
c, Capacity [veh/h]		617	619	509	529	165	779	1295
d1, Uniform Delay [s]		18.68	18.68	18.69	36.72	37.36	27.24	13.98
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		3.91	3.89	4.71	4.90	23.11	3.02	0.31
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.58	0.58	0.58	0.60	0.71	0.57	0.18
d, Delay for Lane Group [s/veh]		22.59	22.58	23.40	41.63	60.47	30.26	14.29
Lane Group LOS		C	C	C	D	E	C	B
Critical Lane Group		No	No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		5.94	5.96	5.02	2.39	3.51	4.28	1.40
50th-Percentile Queue Length [ft/ln]		148.60	149.07	125.57	59.75	87.75	107.12	34.92
95th-Percentile Queue Length [veh/ln]		9.94	9.97	8.70	4.30	6.32	7.68	2.51
95th-Percentile Queue Length [ft/ln]		248.56	249.19	217.46	107.55	157.94	191.99	62.85

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	22.59	23.03	23.40	0.00	41.63	60.47	30.26	14.29	0.00
Movement LOS				C	C	C		D	E	C	B	
d_A, Approach Delay [s/veh]	0.00			22.82			46.75			24.74		
Approach LOS	A			C			D			C		
d_I, Intersection Delay [s/veh]	28.33											
Intersection LOS	C											
Intersection V/C	0.517											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.019	2.378	2.725	2.932
Crosswalk LOS	B	B	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	889	267	933
d_b, Bicycle Delay [s]	45.00	13.89	33.80	12.80
l_b,int, Bicycle LOS Score for Intersection	4.132	2.391	1.798	2.120
Bicycle LOS	D	B	A	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 41: I-215 NB Ramps & 2nd St

Control Type:	Signalized	Delay (sec / veh):	117.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.205

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	2	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	245.00	100.00	205.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	111	134	873	0	0	0	167	540	0	0	274	176
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	2.00	2.00	2.00	18.70	18.70	2.00	2.00	18.70	18.70
Growth Factor	1.2240	1.2240	1.2240	1.0000	1.0000	1.0000	1.2240	1.2240	1.0000	1.0000	1.2240	1.2240
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	577	0	0	0	0	117	0	0	210	47
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	136	164	1646	0	0	0	204	778	0	0	545	262
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	41	412	0	0	0	51	195	0	0	136	66
Total Analysis Volume [veh/h]	136	164	1646	0	0	0	204	778	0	0	545	262
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	60	0	0	0	0	9	30	0	0	21	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	0	0	0	14	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	R
C, Cycle Length [s]	90	90	90		90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	56	56	56		5	26	17	17
g / C, Green / Cycle	0.62	0.62	0.62		0.06	0.29	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.10	0.92	0.52		0.08	0.28	0.10	0.21
s, saturation flow rate [veh/h]	1388	1266	1239		2695	2775	5293	1239
c, Capacity [veh/h]	864	787	771		150	802	1000	234
d1, Uniform Delay [s]	7.12	17.00	13.48		42.50	31.62	33.00	36.50
k, delay calibration	0.50	0.50	0.50		0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.39	220.52	10.78		199.89	25.38	2.13	94.77
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.16	1.47	0.84		1.36	0.97	0.55	1.12
d, Delay for Lane Group [s/veh]	7.51	237.52	24.26		242.39	57.00	35.14	131.27
Lane Group LOS	A	F	C		F	E	D	F
Critical Lane Group	No	Yes	No		Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.08	61.91	11.24		5.80	10.88	2.79	11.18
50th-Percentile Queue Length [ft/ln]	27.06	1547.80	281.00		145.02	271.91	69.75	279.43
95th-Percentile Queue Length [veh/ln]	1.95	96.74	16.74		10.44	16.29	5.02	17.59
95th-Percentile Queue Length [ft/ln]	48.71	2418.61	418.46		261.03	407.13	125.56	439.70

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	7.51	237.52	151.04	0.00	0.00	0.00	242.39	57.00	0.00	0.00	35.14	131.27
Movement LOS	A	F	F				F	E			D	F
d_A, Approach Delay [s/veh]	150.36			0.00			95.51			66.35		
Approach LOS	F			A			F			E		
d_I, Intersection Delay [s/veh]	117.79											
Intersection LOS	F											
Intersection V/C	1.205											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.607	2.023	2.930	3.121
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1244	0	578	378
d_b, Bicycle Delay [s]	6.42	45.00	22.76	29.61
l_b,int, Bicycle LOS Score for Intersection	4.771	4.132	2.370	1.892
Bicycle LOS	E	D	B	A

Sequence

Ring 1	-	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 42: G St & 2nd St

Control Type:	Signalized	Delay (sec / veh):	181.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.923

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	130.00	100.00	100.00	100.00	100.00	100.00	220.00	100.00	100.00	260.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	120	113	52	158	154	15	30	1094	239	48	300	38
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Growth Factor	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	18	53	0	7	78	196	499	0	21	179	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	147	156	117	193	195	96	233	1838	293	80	546	47
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	37	39	29	48	49	24	58	460	73	20	137	12
Total Analysis Volume [veh/h]	147	156	117	193	195	96	233	1838	293	80	546	47
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	30	0	12	33	0	22	39	0	9	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	24	0	0	14	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	38	26	26	38	29	29	18	35	35	5	22	22
g / C, Green / Cycle	0.42	0.29	0.29	0.42	0.32	0.32	0.20	0.39	0.39	0.06	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.16	0.10	0.10	0.19	0.13	0.08	0.17	0.66	0.24	0.06	0.14	0.14
s, saturation flow rate [veh/h]	947	1457	1257	1000	1457	1239	1388	2775	1239	1388	2775	1399
c, Capacity [veh/h]	422	421	363	463	470	399	278	1079	482	77	678	342
d1, Uniform Delay [s]	17.40	25.24	25.37	17.84	23.87	22.41	34.61	27.50	22.01	42.50	29.92	29.98
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.26	2.19	2.72	2.75	2.69	1.42	25.14	320.45	5.62	113.17	3.58	7.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.35	0.34	0.36	0.42	0.42	0.24	0.84	1.70	0.61	1.04	0.58	0.59
d, Delay for Lane Group [s/veh]	19.66	27.43	28.09	20.59	26.56	23.83	59.75	347.95	27.63	155.67	33.50	37.14
Lane Group LOS	B	C	C	C	C	C	E	F	C	F	C	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.17	2.63	2.43	2.95	3.52	1.62	6.73	58.97	5.51	4.12	4.00	4.42
50th-Percentile Queue Length [ft/ln]	54.15	65.68	60.63	73.63	87.92	40.52	168.27	1474.27	137.71	102.91	99.94	110.57
95th-Percentile Queue Length [veh/ln]	3.90	4.73	4.37	5.30	6.33	2.92	10.99	93.59	9.36	7.41	7.20	7.87
95th-Percentile Queue Length [ft/ln]	97.46	118.22	109.13	132.54	158.25	72.94	274.64	2339.78	233.94	185.23	179.88	196.79

Movement, Approach, & Intersection Results

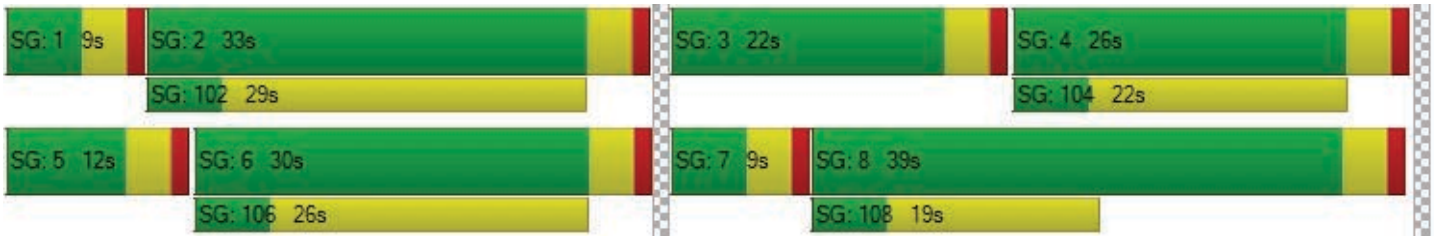
d_M, Delay for Movement [s/veh]	19.66	27.49	28.09	20.59	26.56	23.83	59.75	347.95	27.63	155.67	34.53	37.14
Movement LOS	B	C	C	C	C	C	E	F	C	F	C	D
d_A, Approach Delay [s/veh]	24.92			23.64			279.85			49.11		
Approach LOS	C			C			F			D		
d_I, Intersection Delay [s/veh]	181.81											
Intersection LOS	F											
Intersection V/C	0.923											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.373	2.481	3.107	2.998
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	578	644	778	489
d_b, Bicycle Delay [s]	22.76	20.67	16.81	25.69
l_b,int, Bicycle LOS Score for Intersection	1.906	2.358	3.510	1.930
Bicycle LOS	A	B	D	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 43: E St & 2nd St

Control Type:	Signalized	Delay (sec / veh):	309.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.328

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	120.00	100.00	100.00	140.00	100.00	140.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	25	101	25	22	126	28	65	1122	36	23	339	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Growth Factor	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240	1.2240
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	46	1025	0	0	324	81	237	4	19	0	21	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	77	1149	31	27	478	115	317	1377	63	28	436	10
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	287	8	7	120	29	79	344	16	7	109	3
Total Analysis Volume [veh/h]	77	1149	31	27	478	115	317	1377	63	28	436	10
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	44	0	9	43	0	14	28	0	9	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	40	40	5	39	39	10	24	24	5	19	19
g / C, Green / Cycle	0.07	0.44	0.44	0.06	0.43	0.43	0.11	0.27	0.27	0.06	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.06	0.79	0.03	0.02	0.33	0.09	0.23	0.50	0.50	0.02	0.11	0.11
s, saturation flow rate [veh/h]	1388	1457	1239	1388	1457	1239	1388	1457	1435	1388	2775	1441
c, Capacity [veh/h]	93	648	551	77	632	537	154	389	383	77	586	304
d1, Uniform Delay [s]	41.50	25.00	14.25	40.94	21.50	15.93	40.00	33.00	33.00	40.97	31.31	31.33
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	55.56	354.51	0.19	12.08	8.25	0.91	496.71	395.73	404.13	12.74	3.03	5.83
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	1.77	0.06	0.35	0.76	0.21	2.06	1.86	1.88	0.36	0.50	0.50
d, Delay for Lane Group [s/veh]	97.07	379.51	14.44	53.01	29.75	16.84	536.71	428.73	437.13	53.71	34.35	37.17
Lane Group LOS	F	F	B	D	C	B	F	F	F	D	C	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.10	76.62	0.38	0.83	9.47	1.57	24.63	50.91	51.02	0.87	3.01	3.37
50th-Percentile Queue Length [ft/ln]	77.38	1915.39	9.49	20.74	236.82	39.16	615.84	1272.70	1275.62	21.63	75.14	84.35
95th-Percentile Queue Length [veh/ln]	5.57	122.16	0.68	1.49	14.52	2.82	39.86	80.85	81.16	1.56	5.41	6.07
95th-Percentile Queue Length [ft/ln]	139.29	3053.88	17.09	37.33	363.00	70.48	996.43	2021.13	2029.09	38.94	135.24	151.84

Movement, Approach, & Intersection Results

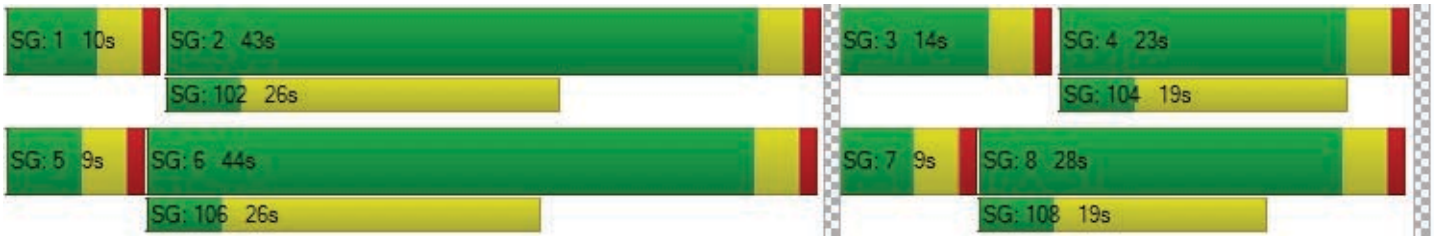
d_M, Delay for Movement [s/veh]	97.07	379.51	14.44	53.01	29.75	16.84	536.71	432.72	437.13	53.71	35.27	37.17
Movement LOS	F	F	B	D	C	B	F	F	F	D	D	D
d_A, Approach Delay [s/veh]	353.21			28.37			451.64			36.40		
Approach LOS	F			C			F			D		
d_I, Intersection Delay [s/veh]	309.73											
Intersection LOS	F											
Intersection V/C	1.328											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.657	2.643	2.842	2.765
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	889	867	533	422
d_b, Bicycle Delay [s]	13.89	14.45	24.20	28.01
l_b,int, Bicycle LOS Score for Intersection	3.634	2.583	3.009	1.820
Bicycle LOS	D	B	C	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Vistro File:
J:\...\VISTRO_SAN_BERNARDINO_V3_New_Trip_gen_negs_v2.vistro

Scenario 5 Future PM

Report File: J:\...\Alt_PM_2045_Project.pdf

7/13/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
29	I-215 SB Ramps & 5th St	Signalized	HCM 6th Edition	EB Right	0.884	77.7	E
30	I-215 NB Ramps & 5th St	Signalized	HCM 6th Edition	EB Left	1.429	135.1	F
31	G St & 5th St	Signalized	HCM 6th Edition	NB Left	1.485	112.2	F
40	I-215 SB Ramps & 2nd St	Signalized	HCM 6th Edition	WB Left	1.060	198.2	F
41	I-215 NB Ramps & 2nd St	Signalized	HCM 6th Edition	NB Thru	1.481	157.6	F
42	G St & 2nd St	Signalized	HCM 6th Edition	EB Left	1.335	283.0	F
43	E St & 2nd St	Signalized	HCM 6th Edition	EB Left	1.873	464.8	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 29: I-215 SB Ramps & 5th St

Control Type:	Signalized	Delay (sec / veh):	77.7
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.884

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	350.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	239	5	173	0	577	323	481	818	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	18.70	18.70	18.70	2.00	18.70	18.70	18.70	18.70	2.00
Growth Factor	1.0000	1.0000	1.0000	1.2470	1.2470	1.2470	1.0000	1.2470	1.2470	1.2470	1.2470	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	376	0	0	0	433	0	245	511	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	674	6	216	0	1153	403	845	1531	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	169	2	54	0	288	101	211	383	0
Total Analysis Volume [veh/h]	0	0	0	674	6	216	0	1153	403	845	1531	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	44	0	0	34	0	42	76	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	27	0	0	7	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	R	C	C	L	C
C, Cycle Length [s]		120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		40	40	40	30	30	38	72
g / C, Green / Cycle		0.33	0.33	0.33	0.25	0.25	0.32	0.60
(v / s)_i Volume / Saturation Flow Rate		0.24	0.24	0.17	0.29	0.33	0.31	0.55
s, saturation flow rate [veh/h]		1388	1389	1239	3970	1239	2695	2775
c, Capacity [veh/h]		463	463	413	992	310	854	1665
d1, Uniform Delay [s]		35.32	35.31	32.30	45.00	45.00	40.81	21.42
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		9.95	9.92	4.68	84.06	157.23	28.48	9.74
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.73	0.73	0.52	1.16	1.30	0.99	0.92
d, Delay for Lane Group [s/veh]		45.27	45.23	36.98	129.06	202.23	69.29	31.16
Lane Group LOS		D	D	D	F	F	E	C
Critical Lane Group		Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		9.99	9.98	5.60	17.48	22.66	15.62	20.10
50th-Percentile Queue Length [ft/ln]		249.63	249.59	139.90	437.01	566.44	390.47	502.41
95th-Percentile Queue Length [veh/ln]		15.17	15.17	9.48	26.40	34.85	22.10	27.45
95th-Percentile Queue Length [ft/ln]		379.19	379.13	236.89	660.07	871.23	552.51	686.21

Movement, Approach, & Intersection Results

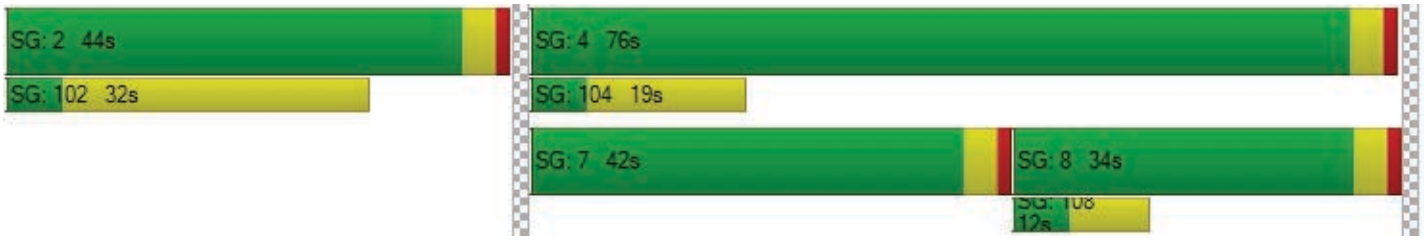
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	45.25	45.23	36.98	0.00	129.06	202.23	69.29	31.16	0.00
Movement LOS				D	D	D		F	F	E	C	
d_A, Approach Delay [s/veh]	0.00			43.26			148.01			44.72		
Approach LOS	A			D			F			D		
d_I, Intersection Delay [s/veh]	77.74											
Intersection LOS	E											
Intersection V/C	0.884											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.341	2.365	3.069	3.253
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	667	500	1200
d_b, Bicycle Delay [s]	60.00	26.67	33.75	9.60
l_b,int, Bicycle LOS Score for Intersection	4.132	3.038	2.201	3.520
Bicycle LOS	D	C	B	D

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 30: I-215 NB Ramps & 5th St

Control Type:	Signalized	Delay (sec / veh):	135.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.429

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0	0	0	2	0	0
Entry Pocket Length [ft]	100.00	100.00	485.00	100.00	100.00	100.00	100.00	100.00	100.00	120.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	364	2	424	0	0	0	204	603	0	0	942	659
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	2.00	2.00	2.00	18.70	18.70	2.00	2.00	18.70	18.70
Growth Factor	1.2470	1.2470	1.2470	1.0000	1.0000	1.0000	1.2470	1.2470	1.0000	1.0000	1.2470	1.2470
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	180	0	0	0	0	808	0	0	756	443
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	454	2	709	0	0	0	254	1560	0	0	1931	1265
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	114	1	177	0	0	0	64	390	0	0	483	316
Total Analysis Volume [veh/h]	454	2	709	0	0	0	254	1560	0	0	1931	1265
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	36	0	0	0	0	9	84	0	0	75	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	0	0	0	17	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	R
C, Cycle Length [s]	120	120	120		120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	32	32	32		5	80	71	71
g / C, Green / Cycle	0.27	0.27	0.27		0.04	0.67	0.59	0.59
(v / s)_i Volume / Saturation Flow Rate	0.28	0.31	0.31		0.09	0.56	0.36	1.02
s, saturation flow rate [veh/h]	1388	1263	1239		2695	2775	5293	1239
c, Capacity [veh/h]	370	337	330		112	1850	3132	733
d1, Uniform Delay [s]	44.00	44.00	44.00		57.50	15.23	15.75	24.50
k, delay calibration	0.50	0.50	0.50		0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	60.25	97.45	106.15		595.12	4.90	0.92	332.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.05	1.15	1.18		2.26	0.84	0.62	1.73
d, Delay for Lane Group [s/veh]	104.25	141.45	150.15		652.62	20.12	16.67	356.90
Lane Group LOS	F	F	F		F	C	B	F
Critical Lane Group	No	No	Yes		Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	17.08	19.01	19.45		10.99	15.92	8.35	86.93
50th-Percentile Queue Length [ft/ln]	426.90	475.35	486.32		274.65	397.88	208.81	2173.25
95th-Percentile Queue Length [veh/ln]	24.55	28.36	29.20		18.81	22.46	13.09	140.05
95th-Percentile Queue Length [ft/ln]	613.79	708.96	730.05		470.34	561.44	327.30	3501.23

Movement, Approach, & Intersection Results

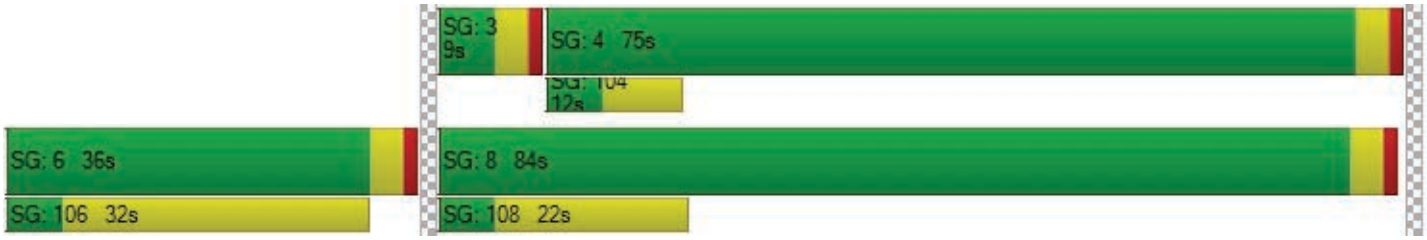
d_M, Delay for Movement [s/veh]	109.63	141.45	146.22	0.00	0.00	0.00	652.62	20.12	0.00	0.00	16.67	356.90
Movement LOS	F	F	F				F	C			B	F
d_A, Approach Delay [s/veh]	131.95			0.00			108.69			151.34		
Approach LOS	F			A			F			F		
d_I, Intersection Delay [s/veh]	135.15											
Intersection LOS	F											
Intersection V/C	1.429											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	2.542	2.472	3.252	3.370
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	0	1333	1183
d_b, Bicycle Delay [s]	32.27	60.00	6.67	10.00
l_b,int, Bicycle LOS Score for Intersection	3.482	4.132	3.056	2.878
Bicycle LOS	C	D	C	C

Sequence

Ring 1	-	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 31: G St & 5th St

Control Type:	Signalized	Delay (sec / veh):	112.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.485

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	140.00	100.00	100.00	140.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	12	102	14	70	99	91	85	685	20	9	1042	106
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Growth Factor	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	463	37	44	0	34	0	0	304	291	41	309	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	478	164	61	87	157	113	106	1158	316	52	1608	132
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	120	41	15	22	39	28	27	290	79	13	402	33
Total Analysis Volume [veh/h]	478	164	61	87	157	113	106	1158	316	52	1608	132
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	40	0	0	40	0	0	50	0	0	50	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	36	36	36	36	46	46	46	46	46	46
g / C, Green / Cycle	0.40	0.40	0.40	0.40	0.51	0.51	0.51	0.51	0.51	0.51
(v / s)_i Volume / Saturation Flow Rate	0.87	0.18	0.21	0.17	0.49	0.52	0.53	0.19	0.60	0.61
s, saturation flow rate [veh/h]	546	1266	721	1210	216	1457	1353	280	1457	1419
c, Capacity [veh/h]	299	506	352	484	80	745	691	80	745	725
d1, Uniform Delay [s]	36.67	19.70	26.04	19.57	45.00	22.00	22.00	45.00	22.00	22.00
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	285.64	2.81	3.69	2.78	210.10	36.06	45.47	34.31	91.56	100.84
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.60	0.44	0.42	0.43	1.33	1.01	1.04	0.65	1.17	1.19
d, Delay for Lane Group [s/veh]	322.31	22.52	29.72	22.36	255.10	58.06	67.47	79.31	113.56	122.84
Lane Group LOS	F	C	C	C	F	F	F	E	F	F
Critical Lane Group	Yes	No	No	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	30.29	3.71	3.01	3.43	6.44	21.69	21.94	1.91	33.17	34.17
50th-Percentile Queue Length [ft/ln]	757.32	92.77	75.27	85.68	160.96	542.20	548.43	47.81	829.32	854.34
95th-Percentile Queue Length [veh/ln]	49.90	6.68	5.42	6.17	11.59	29.61	30.56	3.44	47.86	49.73
95th-Percentile Queue Length [ft/ln]	1247.46	166.99	135.48	154.23	289.72	740.26	764.07	86.06	1196.49	1243.19

Movement, Approach, & Intersection Results

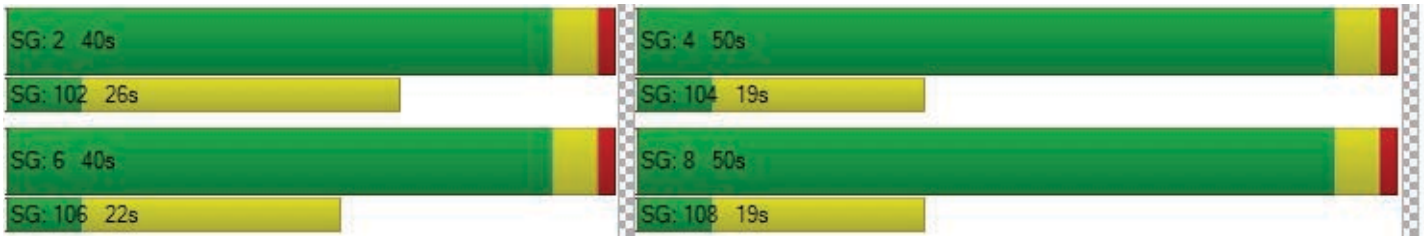
d_M, Delay for Movement [s/veh]	322.31	22.52	22.52	29.72	25.24	22.36	255.10	61.34	67.47	79.31	117.80	122.84
Movement LOS	F	C	C	C	C	C	F	E	E	E	F	F
d_A, Approach Delay [s/veh]	226.36			25.42			75.57			117.05		
Approach LOS	F			C			E			F		
d_I, Intersection Delay [s/veh]	112.22											
Intersection LOS	F											
Intersection V/C	1.485											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.506	2.468	3.748	3.029
Crosswalk LOS	B	B	D	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	800	1022	1022
d_b, Bicycle Delay [s]	16.20	16.20	10.76	10.76
l_b,int, Bicycle LOS Score for Intersection	2.140	1.854	2.863	3.038
Bicycle LOS	B	A	C	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 40: I-215 SB Ramps & 2nd St

Control Type:	Signalized	Delay (sec / veh):	198.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.060

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	150	180	185	0	362	190	646	263	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	18.70	18.70	18.70	2.00	18.70	18.70	18.70	18.70	2.00
Growth Factor	1.0000	1.0000	1.0000	1.2470	1.2470	1.2470	1.0000	1.2470	1.2470	1.2470	1.2470	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	224	0	0	0	0	0	945	107	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	411	224	231	0	451	237	1751	435	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	103	56	58	0	113	59	438	109	0
Total Analysis Volume [veh/h]	0	0	0	411	224	231	0	451	237	1751	435	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	2	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	10	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	36	0	0	16	0	38	54	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	27	0	0	7	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		L	C	C	C	R	L	C
C, Cycle Length [s]		90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		32	32	32	12	12	34	50
g / C, Green / Cycle		0.36	0.36	0.36	0.13	0.13	0.38	0.56
(v / s)_i Volume / Saturation Flow Rate		0.22	0.22	0.22	0.11	0.19	0.65	0.16
s, saturation flow rate [veh/h]		1388	1433	1140	3970	1239	2695	2775
c, Capacity [veh/h]		494	509	405	529	165	1018	1542
d1, Uniform Delay [s]		23.92	23.91	23.92	38.13	39.00	28.00	10.54
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		5.64	5.46	6.84	15.82	226.73	327.97	0.46
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.61	0.61	0.62	0.85	1.43	1.72	0.28
d, Delay for Lane Group [s/veh]		29.56	29.38	30.76	53.95	265.73	355.97	11.00
Lane Group LOS		C	C	C	D	F	F	B
Critical Lane Group		No	No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]		5.91	6.07	4.99	3.96	13.98	56.75	2.22
50th-Percentile Queue Length [ft/ln]		147.73	151.81	124.86	99.02	349.56	1418.83	55.50
95th-Percentile Queue Length [veh/ln]		9.90	10.11	8.66	7.13	22.94	90.32	4.00
95th-Percentile Queue Length [ft/ln]		247.39	252.84	216.49	178.24	573.43	2258.06	99.91

Movement, Approach, & Intersection Results

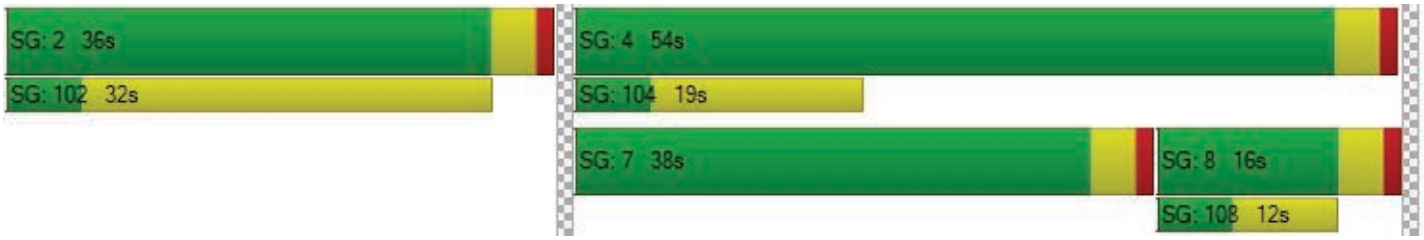
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	29.50	29.49	30.76	0.00	53.95	265.73	355.97	11.00	0.00
Movement LOS				C	C	C		D	F	F	B	
d_A, Approach Delay [s/veh]	0.00			29.84			126.91			287.32		
Approach LOS	A			C			F			F		
d_I, Intersection Delay [s/veh]	198.19											
Intersection LOS	F											
Intersection V/C	1.060											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.795	2.344	2.784	3.098
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	711	267	1111
d_b, Bicycle Delay [s]	45.00	18.69	33.80	8.89
l_b,int, Bicycle LOS Score for Intersection	4.132	2.274	1.938	3.363
Bicycle LOS	D	B	A	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 41: I-215 NB Ramps & 2nd St

Control Type:	Signalized	Delay (sec / veh):	157.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.481

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	2	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	245.00	100.00	205.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	116	37	383	0	0	0	197	318	0	0	807	466
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	2.00	2.00	2.00	18.70	18.70	2.00	2.00	18.70	18.70
Growth Factor	1.2470	1.2470	1.2470	1.0000	1.0000	1.0000	1.2470	1.2470	1.0000	1.0000	1.2470	1.2470
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	906	0	0	0	0	224	0	0	1051	243
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	145	46	1384	0	0	0	246	621	0	0	2057	824
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	12	346	0	0	0	62	155	0	0	514	206
Total Analysis Volume [veh/h]	145	46	1384	0	0	0	246	621	0	0	2057	824
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	10	0	0	0	0	5	10	0	0	10	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	40	0	0	0	0	9	50	0	0	41	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	0	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	27	0	0	0	0	0	14	0	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No						No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No					No	No			No	
Maximum Recall		No					No	No			No	
Pedestrian Recall		No					No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	R
C, Cycle Length [s]	90	90	90		90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	36	36	36		5	46	37	37
g / C, Green / Cycle	0.40	0.40	0.40		0.06	0.51	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.10	0.72	0.42		0.09	0.22	0.39	0.67
s, saturation flow rate [veh/h]	1388	1248	1239		2695	2775	5293	1239
c, Capacity [veh/h]	555	499	496		150	1418	2176	509
d1, Uniform Delay [s]	18.09	27.00	27.00		42.50	13.86	25.52	26.50
k, delay calibration	0.50	0.50	0.50		0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.14	373.49	57.11		317.25	0.98	10.12	287.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.26	1.81	1.06		1.64	0.44	0.95	1.62
d, Delay for Lane Group [s/veh]	19.23	400.49	84.11		359.75	14.84	35.65	313.56
Lane Group LOS	B	F	F		F	B	D	F
Critical Lane Group	No	Yes	No		Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.14	61.89	17.87		8.24	3.93	11.49	50.85
50th-Percentile Queue Length [ft/ln]	53.45	1547.13	446.66		206.04	98.24	287.18	1271.16
95th-Percentile Queue Length [veh/ln]	3.85	99.60	25.80		14.50	7.07	17.05	80.72
95th-Percentile Queue Length [ft/ln]	96.20	2490.07	644.99		362.54	176.82	426.14	2017.93

Movement, Approach, & Intersection Results

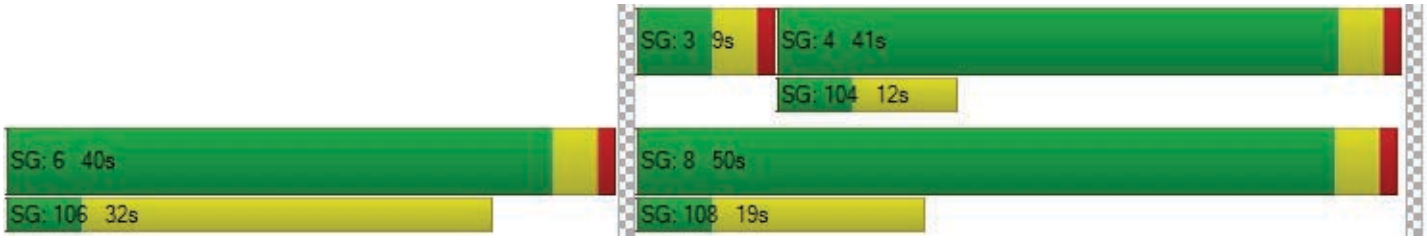
d_M, Delay for Movement [s/veh]	19.23	400.49	279.40	0.00	0.00	0.00	359.75	14.84	0.00	0.00	35.65	313.56
Movement LOS	B	F	F				F	B			D	F
d_A, Approach Delay [s/veh]	259.93			0.00			112.71			115.14		
Approach LOS	F			A			F			F		
d_I, Intersection Delay [s/veh]	157.58											
Intersection LOS	F											
Intersection V/C	1.481											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.516	2.260	3.101	3.322
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	0	1022	822
d_b, Bicycle Delay [s]	16.20	45.00	10.76	15.61
l_b,int, Bicycle LOS Score for Intersection	4.158	4.132	2.275	2.748
Bicycle LOS	D	D	B	B

Sequence

Ring 1	-	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 42: G St & 2nd St

Control Type:	Signalized	Delay (sec / veh):	283.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.335

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	130.00	100.00	100.00	100.00	100.00	100.00	220.00	100.00	100.00	260.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	185	244	64	50	134	46	72	491	67	69	975	80
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Growth Factor	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	34	102	0	37	405	373	757	0	110	889	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	231	338	182	62	204	462	463	1369	84	196	2105	100
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	58	85	46	16	51	116	116	342	21	49	526	25
Total Analysis Volume [veh/h]	231	338	182	62	204	462	463	1369	84	196	2105	100
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	33	0	9	33	0	19	37	0	11	29	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	24	0	0	14	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	38	29	29	38	29	29	15	33	33	7	25	25
g / C, Green / Cycle	0.42	0.32	0.32	0.42	0.32	0.32	0.17	0.37	0.37	0.08	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.31	0.19	0.19	0.08	0.14	0.37	0.33	0.49	0.07	0.14	0.52	0.53
s, saturation flow rate [veh/h]	745	1457	1288	816	1457	1239	1388	2775	1239	1388	2775	1424
c, Capacity [veh/h]	359	470	415	346	470	399	231	1017	454	108	771	396
d1, Uniform Delay [s]	22.63	25.49	25.52	16.97	24.04	30.50	37.50	28.50	19.36	41.50	32.50	32.50
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.56	5.28	6.03	1.13	2.91	95.45	465.71	162.09	0.90	400.99	402.88	415.51
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.64	0.59	0.59	0.18	0.43	1.16	2.00	1.35	0.18	1.82	1.88	1.90
d, Delay for Lane Group [s/veh]	31.19	30.76	31.55	18.11	26.95	125.95	503.21	190.59	20.26	442.49	435.38	448.01
Lane Group LOS	C	C	C	B	C	F	F	F	C	F	F	F
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.06	5.46	4.94	0.86	3.71	18.86	34.91	33.31	1.28	14.39	51.23	53.96
50th-Percentile Queue Length [ft/ln]	101.46	136.48	123.62	21.47	92.87	471.59	872.71	832.68	32.00	359.64	1280.65	1349.08
95th-Percentile Queue Length [veh/ln]	7.30	9.29	8.59	1.55	6.69	28.36	55.89	50.84	2.30	23.97	81.78	85.97
95th-Percentile Queue Length [ft/ln]	182.62	232.27	214.78	38.65	167.17	708.89	1397.33	1270.89	57.60	599.29	2044.38	2149.30

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	31.19	30.91	31.55	18.11	26.95	125.95	503.21	190.59	20.26	442.49	439.29	448.01
Movement LOS	C	C	C	B	C	F	F	F	C	F	F	F
d_A, Approach Delay [s/veh]	31.15			89.02			258.67			439.92		
Approach LOS	C			F			F			F		
d_I, Intersection Delay [s/veh]	282.96											
Intersection LOS	F											
Intersection V/C	1.335											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.434	2.619	3.383	3.137
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	644	644	733	556
d_b, Bicycle Delay [s]	20.67	20.67	18.05	23.47
l_b,int, Bicycle LOS Score for Intersection	2.179	2.761	3.140	2.880
Bicycle LOS	B	C	C	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 43: E St & 2nd St

Control Type:	Signalized	Delay (sec / veh):	464.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.873

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	120.00	100.00	100.00	140.00	100.00	140.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	60	247	62	18	184	60	69	536	42	54	892	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70	18.70
Growth Factor	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470	1.2470
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	88	1155	0	0	1532	350	286	22	96	0	41	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	163	1463	77	22	1761	425	372	690	148	67	1153	26
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	41	366	19	6	440	106	93	173	37	17	288	7
Total Analysis Volume [veh/h]	163	1463	77	22	1761	425	372	690	148	67	1153	26
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	45	0	9	45	0	13	27	0	9	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	41	41	5	41	41	9	23	23	5	19	19
g / C, Green / Cycle	0.06	0.46	0.46	0.06	0.46	0.46	0.10	0.26	0.26	0.06	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.12	1.00	0.06	0.02	1.21	0.34	0.27	0.30	0.30	0.05	0.28	0.28
s, saturation flow rate [veh/h]	1388	1457	1239	1388	1457	1239	1388	1457	1369	1388	2775	1441
c, Capacity [veh/h]	77	664	564	77	664	564	139	372	350	77	586	304
d1, Uniform Delay [s]	42.50	24.50	14.22	40.79	24.50	20.31	40.50	33.50	33.50	42.17	35.50	35.50
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	542.19	546.53	0.50	9.06	747.92	9.00	776.22	97.05	99.89	70.49	157.68	167.30
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	2.11	2.20	0.14	0.29	2.65	0.75	2.68	1.16	1.16	0.87	1.32	1.32
d, Delay for Lane Group [s/veh]	584.69	571.03	14.73	49.85	772.42	29.31	816.72	130.55	133.39	112.66	193.18	202.80
Lane Group LOS	F	F	B	D	F	C	F	F	F	F	F	F
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	13.31	113.87	0.96	0.66	151.01	8.35	32.95	17.91	17.10	2.97	19.08	20.63
50th-Percentile Queue Length [ft/ln]	332.64	2846.83	23.99	16.44	3775.35	208.77	823.81	447.70	427.61	74.22	477.03	515.75
95th-Percentile Queue Length [veh/ln]	22.38	185.38	1.73	1.18	246.99	13.09	52.42	26.94	25.93	5.34	29.93	32.07
95th-Percentile Queue Length [ft/ln]	559.45	4634.56	43.18	29.59	6174.80	327.25	1310.46	673.45	648.19	133.60	748.24	801.64

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	584.69	571.03	14.73	49.85	772.42	29.31	816.72	131.61	133.39	112.66	196.33	202.80
Movement LOS	F	F	B	D	F	C	F	F	F	F	F	F
d_A, Approach Delay [s/veh]	547.19			622.19			342.46			191.96		
Approach LOS	F			F			F			F		
d_I, Intersection Delay [s/veh]	464.77											
Intersection LOS	F											
Intersection V/C	1.873											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.019	3.124	2.934	2.785
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	911	911	511	422
d_b, Bicycle Delay [s]	13.34	13.34	24.94	28.01
l_b,int, Bicycle LOS Score for Intersection	4.370	5.203	2.558	2.245
Bicycle LOS	E	F	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

