

City of Carson Interim Development and Soundwall Impact Fee

Prepared for:
The City of Carson

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Table of Contents

A- Interim Development Impact Fee	1
1. Introduction	1
2. Mitigation Fee Act	1
3. Location of New Developments	1
4. Study Area	4
5. Existing Traffic Volumes	4
6. Trip Generation	8
7. Trip Distribution	10
8. Traffic Forecasts	19
9. Traffic Impacts.....	26
1. Project Methodology	26
2. Level of Service.....	27
3. Significant Traffic Impact Criteria	30
4. Significant Impacted Intersections	30
10. Mitigation Calculation.....	30
Intersection 5 – Figueroa Street & Del Amo Boulevard:	31
Intersection 6 – Main Street & Del Amo Boulevard:	31
Intersection 7 – Stamps Drive & Del Amo Boulevard:	31
Intersection 8 – South Avalon Boulevard & Del Amo Boulevard:	31
Intersection 10 – Main Street & Lenardo Drive:	32
Intersection 13 – Lenardo Drive and I-405 Southbound Ramps:	32
Intersection 20 – South Avalon Boulevard & Carson Street:	32
11. Improvement Cost.....	33
12. Allocation of Costs	35
13. Projected Revenue.....	36
B- SOUNDWALL FEE ANALYSIS	38
14. Summary.....	38
1. Introduction	38
2. Existing Conditions.....	38
15. Location.....	40
16. Projects	41
17. Future Conditions.....	42
18. Methodology.....	43
19. Cost of Sound Wall	44
21. Projected Revenue.....	48

List of Figures

Figure 1: Development Location	2
Figure 2: Study Intersections	5
Figure 3: Existing without Projects AM Peak Hour Intersection Turning Movement Volumes	6
Figure 4: Existing without Projects PM Peak Hour Intersection Turning Movement Volumes	7
Figure 5: Project Trip Distribution	12
Figure 6: Projects Passenger Cars AM Peak Hour Intersection Turning Movement Volumes	13
Figure 7: Projects Passenger Cars PM Peak Hour Intersection Turning Movement Volumes	14
Figure 8: Projects Trucks (in PCE) AM Peak Hour Intersection Turning Movement Volumes	15
Figure 9: Projects Trucks (in PCE) PM Peak Hour Intersection Turning Movement Volumes	16
Figure 10: Projects Total Vehicles (in PCE) AM Peak Hour Intersection Turning Movement Volumes	17
Figure 11: Projects Total Vehicles (in PCE) PM Peak Hour Intersection Turning Movement Volumes	18
Figure 12: Existing Plus Projects AM Peak Hour Intersection Turning Movement Volumes	20
Figure 13: Existing Plus Projects PM Peak Hour Intersection Turning Movement Volumes	21
Figure 14: Future without Projects AM Peak Hour Intersection Turning Movement Volumes	22
Figure 15: Future without Projects PM Peak Hour Intersection Turning Movement Volumes	23
Figure 16: Future Plus Projects AM Peak Hour Intersection Turning Movement Volumes	24
Figure 17: Future Plus Projects PM Peak Hour Intersection Turning Movement Volumes	25
Figure 18: City of Carson Truck Routes	39
Figure 19: Sound Wall Locations	40
Figure 20: Project Locations	42

List of Tables

Table 1: List of Projected Development in the City of Carson	3
Table 2: Project Trip Generation	8
Table 3: City of Carson-Total Development at Buildout (2023)	10
Table 4: Signalized Intersection LOS Criteria	26
Table 5: Unsignalized Intersection LOS Criteria	27
Table 6: Existing Conditions Intersection Level of Service	28
Table 7: Future (Year 2023) Conditions Intersection Level of Service	29
Table 8: Significant Traffic Impact Criteria	30
Table 9: Intersection Impact Analysis	33
Table 10: Intersection Mitigation Cost	33
Table 11: Allocation of Costs per Development type	36
Table 12: Projected Revenue-Intersection Traffic Fees	37
Table 13: Project Trip Generation Estimate	41
Table 14: Selected Truck Routes Noise Levels	43
Table 15: Cost of Sound Wall Barrier per Linear Foot	44
Table 16: <i>Truck Route Mitigation Cost</i>	46
Table 17: Allocation of Costs per Development	47

A- Interim Development Impact Fee

1. Introduction

This study establishes the Interim Development Impact Fee for the City of Carson. The Development Impact Fee is a tool used for shifting part of the cost of providing new public infrastructure to the developers in order to mitigate various intersections in the City impacted by new development. This study calculates the impact fees associated with new developments within the City of Carson which impacts twenty-two (22) intersections. The allocation of fees will be based on the projected amount of traffic generated by the new developments to be added to the intersections and the estimated cost to mitigate the added traffic via proposed improvements. These fees are implemented to help reduce the economic burden on the City due to the growth caused by new development. This report will also analyze the noise level impact certain projects will have on truck routes in the City that border residential neighborhoods. Although this is a technical development fee analysis, every effort has been made to write the report clearly and concisely.

2. Mitigation Fee Act

The California Mitigation Fee Act (Assembly Bill 1600) requires local governments to document the following when adopting an impact fee:

- Identify the purpose of the fee;
- Identify the use of revenues;
- Determine a reasonable relationship between the use of the fee and the type of the development paying the fee;
- Determine a reasonable relationship between the need for the fee and the type of development paying the fee; and
- Determine a reasonable relationship between the amount of the fee and the cost of the facility attributable to development paying the fee.

In summary, a fee cannot be more than the cost of the public facility needed to accommodate the new development paying the fee, and the fee revenues can only be used for their intended purpose.

3. Location of New Developments

As shown in Figure 1, a total of 23 projects are expected to be implemented in the City of Carson. These projects are listed in Table 1.

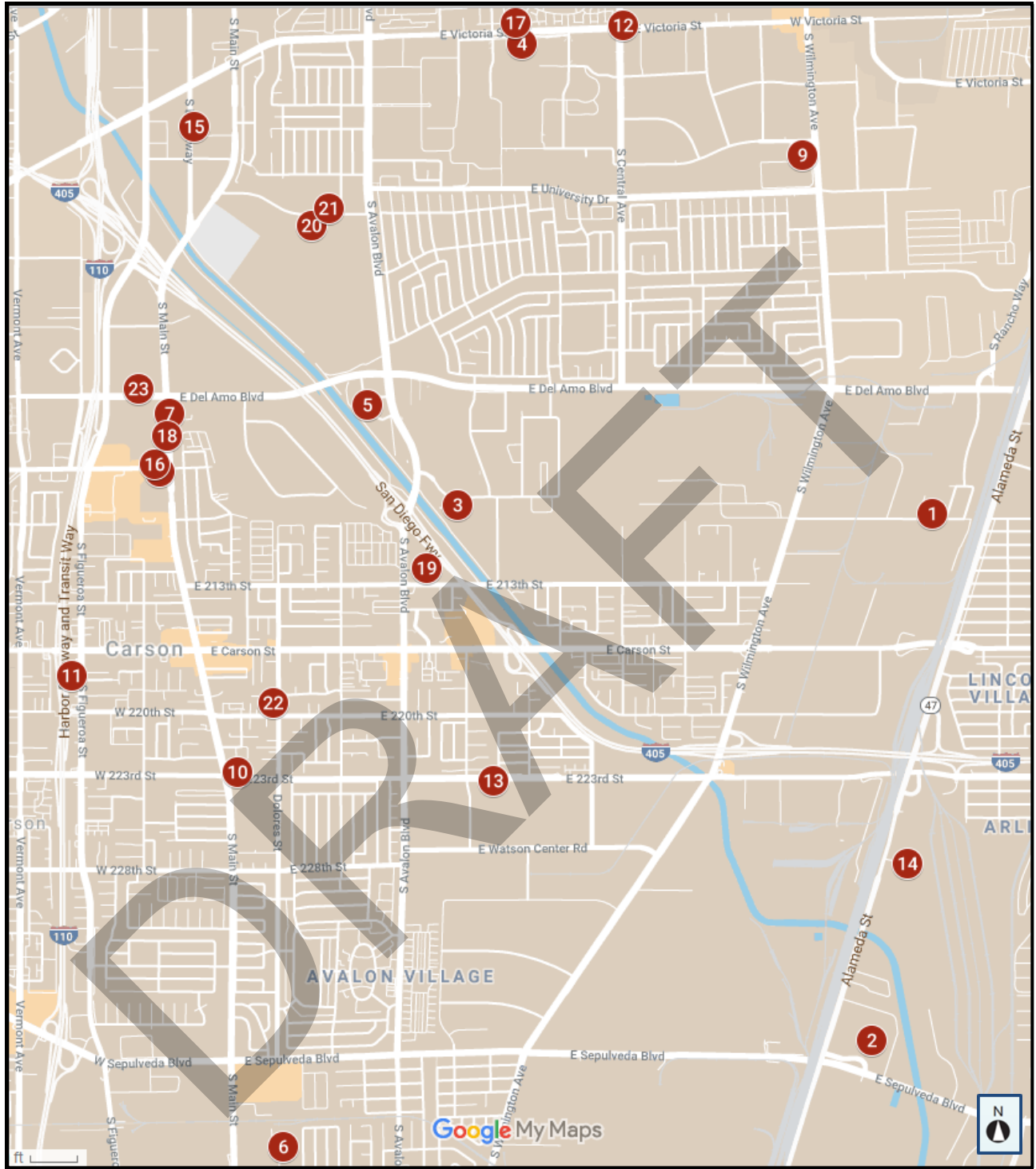


Figure 1: Development Location

Table 1: List of Projected Development in the City of Carson

#	Project Location	Project Name / Developer	Project Type
1	2315 E. Dominguez Street	Terreno	Industrial
2	2149 E Sepulveda Boulevard	Shippers	Industrial
3	888 E. Dominguez Street	Holiday Inn Express c/o Richard Burrow for Carson Hospitality Group Inc.	Hotel
4	1000 E. Victoria	CSUDH Master Plan (5 Year Projection)	Mixed Use
5	Carson Plaza Drive and Carson Plaza Ct.	Carson Plaza Office Park	Mixed Use
6	24700 Main Street	Bridge Industrial	Industrial
7	20400 Main Street	Balance & 157	Commercial
8	20881 S. Main Street	Western Realco	Industrial
9	18701 S Wilmington Ave	Prologis, 2817 E Cedar St, Suite 200, Ontario, CA 91764	Industrial
10	123 E 223rd St	Hooman Moshar, 25726 Dillon Rd, Laguna Hills, CA 90265	Residential
11	21809-21811 S Figueroa	Birch, Laney LA Inc., 13110 Hawthorne Blvd Ste A, Hawthorne, CA 90250	Residential
12	NE Corner of Central Ave. and Victoria St.	Ed Galigher / Victoria Greens (Integral Communities)	Residential
13	LA DWP corridor in south Carson b/w E. 223rd St. and E. 236th St	Linear Properties Truck Yard in DWP Utility Corridor Easement	Industrial
14	22632 S. Alameda St	Mobile-Mini Storage	Industrial
15	18530 Broadway	Behren Engineering / Acoustic Engineering Fabrication and Office	Industrial
16	225 W Torrance Blvd	Rand Mixed Use Condo project (5 Year Projections)	Residential
17	1007 E Victoria	Brandywine residential project	Residential
18	20601 S. Main Street	KL Fenix	Industrial
19	21212 Avalon	Kott & Kott 14 (5 Year Projection)	Mixed Use
20	340 Martin Luther King Jr. Street	Carol Kimmelman Sport	Recreational
21	419 Martin Luther King Jr. Street, Carson, CA 9074	The Creek At Dominguez Hill	Recreational
22	21915 Dolores	5 unit condo	Residential
23	20331 Main Street	GS Nursery	Residential

4. Study Area

As illustrated in Figure 2, a total of 22 intersections were identified for the Interim Development Impact study. These intersections are listed below:

- | | |
|--|--|
| 1. Figueroa Street at I-405 Southbound On-Ramp | 13. Lenardo Drive at I-405 Southbound Ramps |
| 2. Figueroa Street at I-405 Northbound On-Ramp | 14. Avalon Boulevard at I-405 Southbound Ramps |
| 3. Main Street at I-405 Southbound On-Ramp | 15. Avalon Boulevard at I-405 Northbound Ramps |
| 4. Main Street at I-405 Northbound Off-Ramp | 16. Main Street at 213th Street |
| 5. Figueroa Street at Del Amo Boulevard | 17. Avalon Boulevard at 213th Street |
| 6. Main Street at Del Amo Boulevard | 18. Figueroa Street at Carson Street |
| 7. Stamps Drive at Del Amo Boulevard | 19. Main Street at Carson Street |
| 8. Avalon Boulevard at Del Amo Boulevard | 20. Avalon Boulevard at Carson Street |
| 9. Figueroa Street at I-110 Northbound Ramps | 21. I-405 Southbound Ramps at Carson Street |
| 10. Main Street at Street Lenardo Drive | 22. I-405 Northbound Ramps at Carson Street |
| 11. Figueroa Street at Torrance Boulevard | |
| 12. Main Street at Torrance Boulevard | |

5. Existing Traffic Volumes

Existing peak hour traffic volumes provided by the City of Carson are based upon morning and evening peak period intersection turning movement counts obtained in November 2016 during typical weekday conditions. The morning peak period was collected between 7:00 AM and 10:00 AM and the evening peak period was collected between 4:00 PM and 7:00 PM. The actual peak hour within the peak period is the four consecutive 15 minute periods with the highest total volume when all movements are added together. Thus, the weekday evening peak hour at one intersection may be 4:45 PM to 5:45 PM if those four consecutive 15 minute periods have the highest combined volume. Intersection turning movement count worksheets are provided in Appendix A.

Figure 3 and Figure 4 show the existing morning and evening peak hour intersection turning movement volumes, respectively.

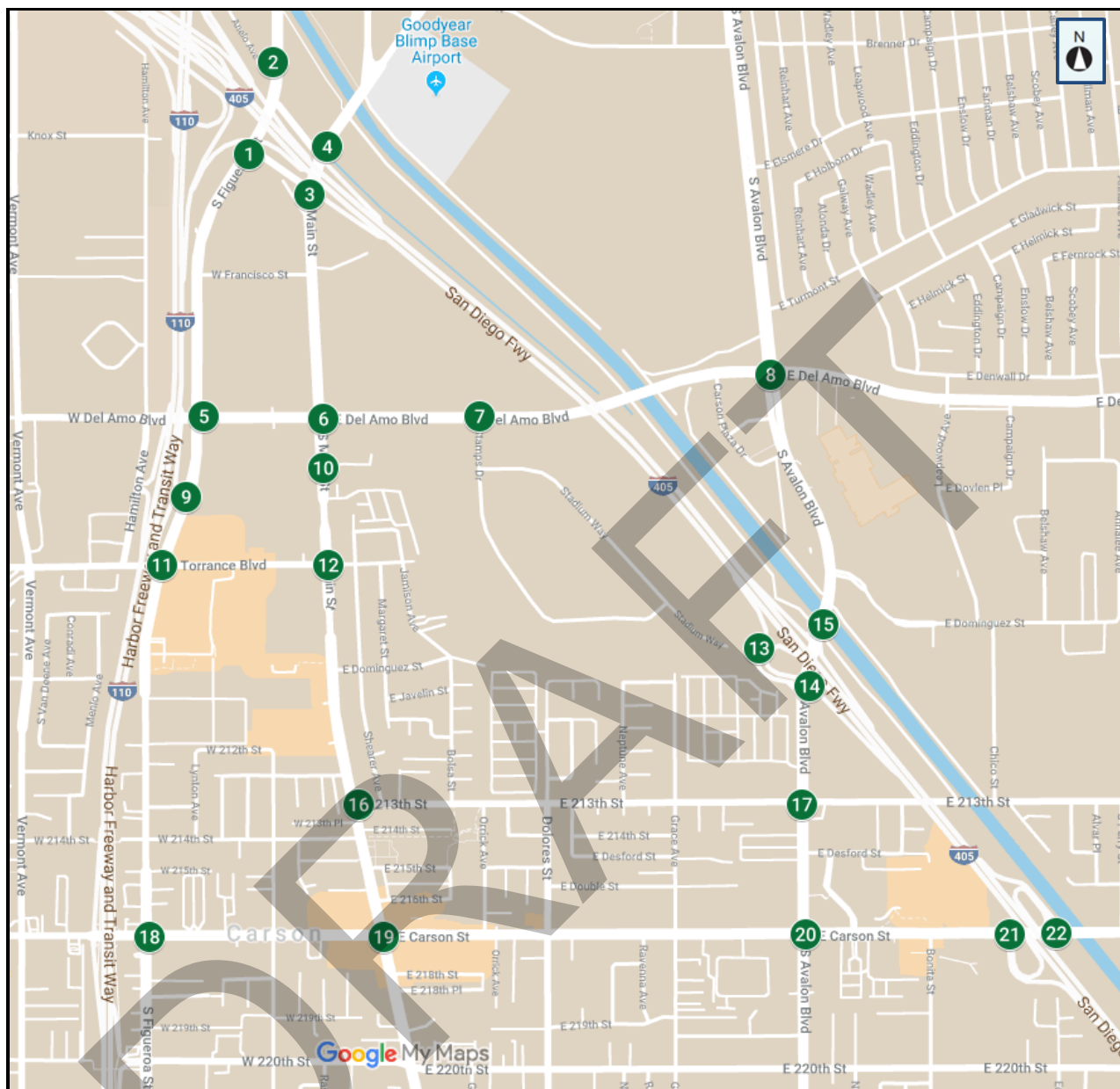


Figure 2: Study Intersections

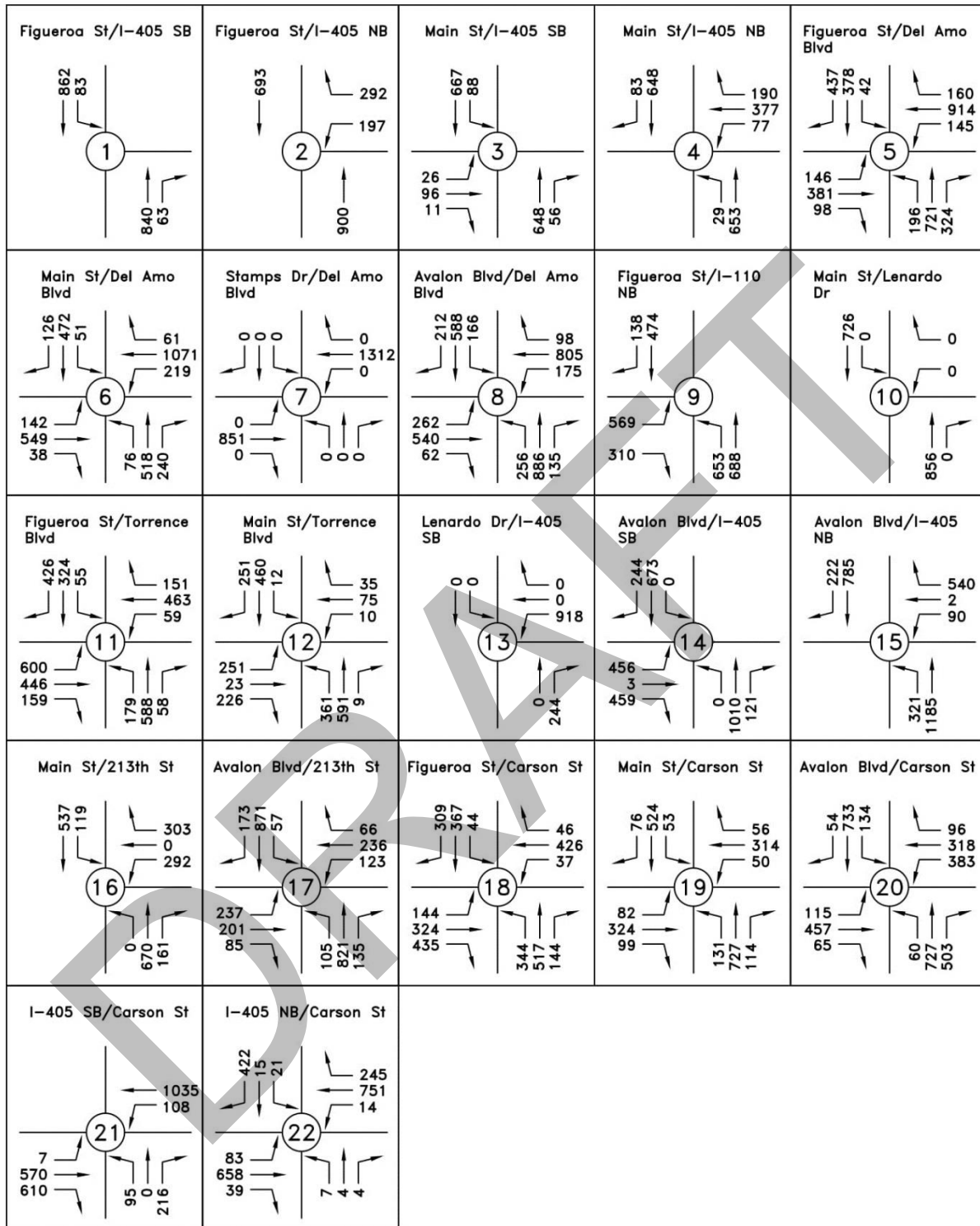


Figure 3: Existing without Projects AM Peak Hour Intersection Turning Movement Volumes

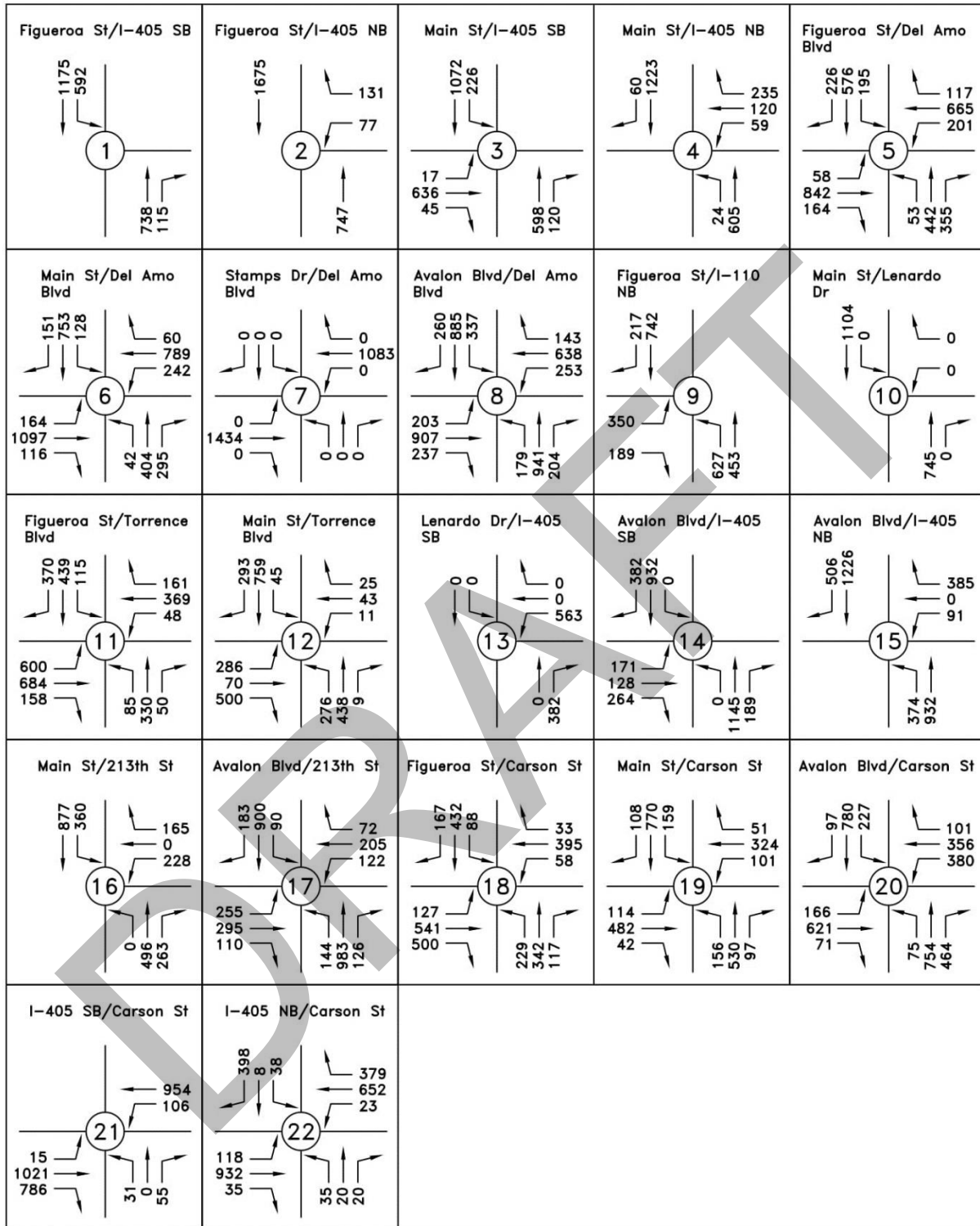


Figure 4: Existing without Projects PM Peak Hour Intersection Turning Movement Volumes

6. Trip Generation

Table 2 shows the trip generation based upon regression/linear equations for each project based on the land use obtained from the Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition, 2017.

In accordance with the Institute of Transportation Engineers recommendations, the numbers of trips forecast to be generated by the proposed land use are determined by solving for trips (T) in the trip generation equation given the land use quantity (X). On average, truck trips account for approximately 13-percent of weekday trips generated by industrial park land uses. To provide a conservative analysis, the project trip generation shown in Table 2 assumes trucks will comprise 15-percent of the site-generated trips. The site-generated truck trips have been converted to passenger car equivalent trips based on a factor of 2.0.

As shown in Table 2, the proposed projects are estimated to generate approximately 71,026 daily trips in passenger car equivalents, of which, 5,574 trips would occur during the morning peak hour and 8,814 trips would occur during the afternoon peak hour. The daily trip estimates are used in calculating fees for the affected intersections in the City of Carson. Table 3 represents the new development new trip share in the city at buildout.

Table 2: Project Trip Generation

#	Project Location	Project Type	Size		PCE Estimated Trip Generation						
					Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips		
			Quantity	Unit		In	Out	Total	In	Out	Total
1	2315 E. Dominguez Street	Industrial	132	Truck Space	378	48	19	66	20	37	57
2	2149 E Sepulveda Boulevard	Industrial	800	Truck Space	1305	165	64	229	69	129	198
3	888 E. Dominguez Street	Hotel	97	Rooms	792	30	21	51	30	29	58
4	1000 E. Victoria	Industrial	150	KSF	1066	124	17	141	18	131	148
		Commercial	50	KSF	991	15	9	25	48	52	100
		Dormitory	300	Beds	596	25	27	51	42	30	72
		Residential	200	DU	1131	17	69	87	69	37	105
5	Carson Plaza Drive and Carson Plaza Ct.	Office	50	KSF	603	75	10	85	14	68	81
		Residential	200	DU	1264	19	78	97	77	41	118

#	Project Location	Project Type	Size		PCE Estimated Trip Generation						
					Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips		
			Quantity	Unit		In	Out	Total	In	Out	Total
6	24700 Main Street	Industrial	253	KSF	2010	234	32	265	34	246	280
7	20400 Main Street	Commercial	730	KSF	18808	290	178	468	911	987	1898
8	20881 S. Main Street	Industrial	200	Truck Space	695	148	67	212	67	101	167
			158.45	KSF	677	45	12	57	15	46	61
9	18701 S Wilmington Ave	Industrial	438.666	KSF	3486	405	55	460	58	427	485
10	123 E 223rd St	Residential	9	DU	50	1	3	4	3	1	4
11	21809-21811 S Figueroa	Residential	32	DU	177	2	11	13	11	5	16
12	NE Corner of Central Ave. and Victoria St.	Residential	176	DU	971	13	61	74	58	29	87
13	LA DWP corridor in south Carson b/w E. 223rd St. and E. 236th St	Industrial	580	Truck Space	2204	273	410	683	270	358	628
14	22632 S. Alameda St	Office	18.36	KSF	221	28	4	31	5	25	30
15	18530 Broadway	Industrial	20.16	KSF	169	20	3	22	3	21	23
16	225 W Torrance Blvd	Residential	250	DU	1663	26	102	128	101	54	155
17	1007 E Victoria	Residential	38	DU	210	3	13	16	13	6	19
18	20601 S. Main Street	Industrial	475	Truck Space	1132	162	67	229	70	122	193
			53	KSF	226	15	4	19	5	15	20
19	21212 Avalon	Commercial	30	KSF	595	9	6	15	29	31	60
		Hotel	150	Rooms	1226	47	33	80	46	44	90
		Residential	500	DU	2826	43	173	217	171	92	264

#	Project Location	Project Type	Size		PCE Estimated Trip Generation						
					Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips		
			Quantity	Unit		In	Out	Total	In	Out	Total
20	340 Martin Luther King Jr. Street	Recreational	66	KSF	2232	89	46	135	89	92	181
21	419 Martin Luther King Jr. Street, Carson, CA 9074	Recreational	532.5	KSF	22898	965	617	1582	1968	1206	3174
22	21915 Dolores	Residential	5	DU	28	0	2	2	2	1	3
23	20331 Main Street	Residential	60	DU	399	6	24	31	24	13	37
Total					71026	3341	2236	5574	4337	4476	8814

Table 3: City of Carson-Total Development at Buildout (2023)

Development Type	Dev Units	Estimated Units	Estimated Average Daily Traffic	Share of New Trips
Residential, Multi-Family	DU	1,470	8,717	12%
Commercial	KSF	810	20,393	29%
Office	KSF	68.36	824	1%
Industrial/Business Park	KSF	1,073.28	7,634	11%
Truck Yard	Space	2,187	5,714	8%
Hotel	Room	247	2,018	3%
Recreational	Ksf	599	25,130	35%
Dormitory	Beds	300	596	1%
Total			71,026	100%

7. Trip Distribution

Figure 5 shows the forecast directional distribution patterns for the project generated trips. The project trip distribution patterns are based on review of existing traffic volume data, surrounding land uses, designated truck routes, and the local and regional roadway facilities in the project vicinity.

Based on the identified project trip generation and distributions, morning and evening peak hour intersection turning movement volumes expected from the project are shown on Figure 6 and Figure 7, respectively (in passenger car equivalent trips). Morning and evening peak hour intersection turning movement volumes of trucks (in passenger car equivalent trips) expected from the project are shown on Figure 8 and Figure 9. The morning and evening peak hour intersection turning movement volumes for the combined passenger car and truck trips expected from the project are shown on Figure 10 and Figure 11, respectively.

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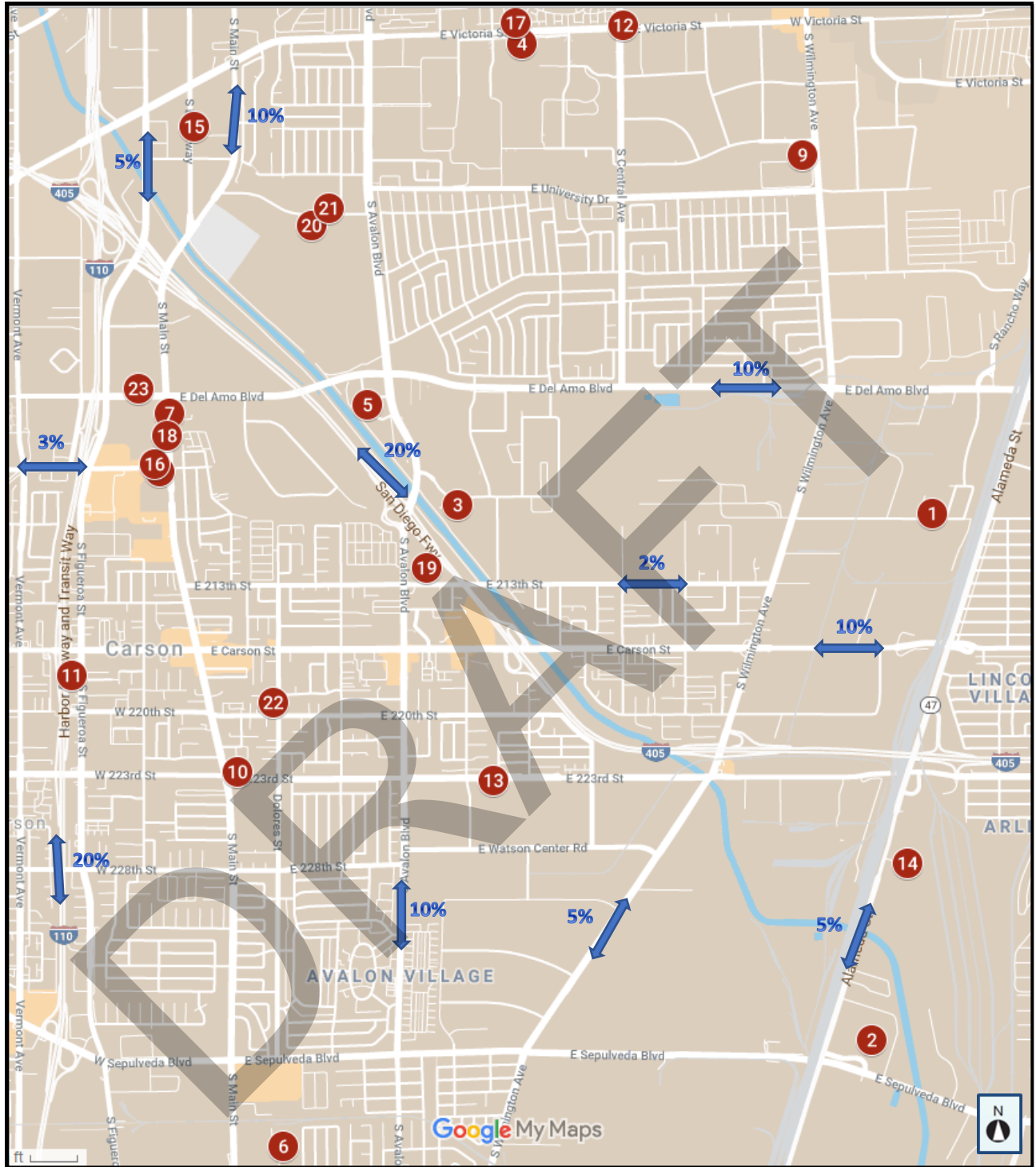


Figure 5: Project Trip Distribution

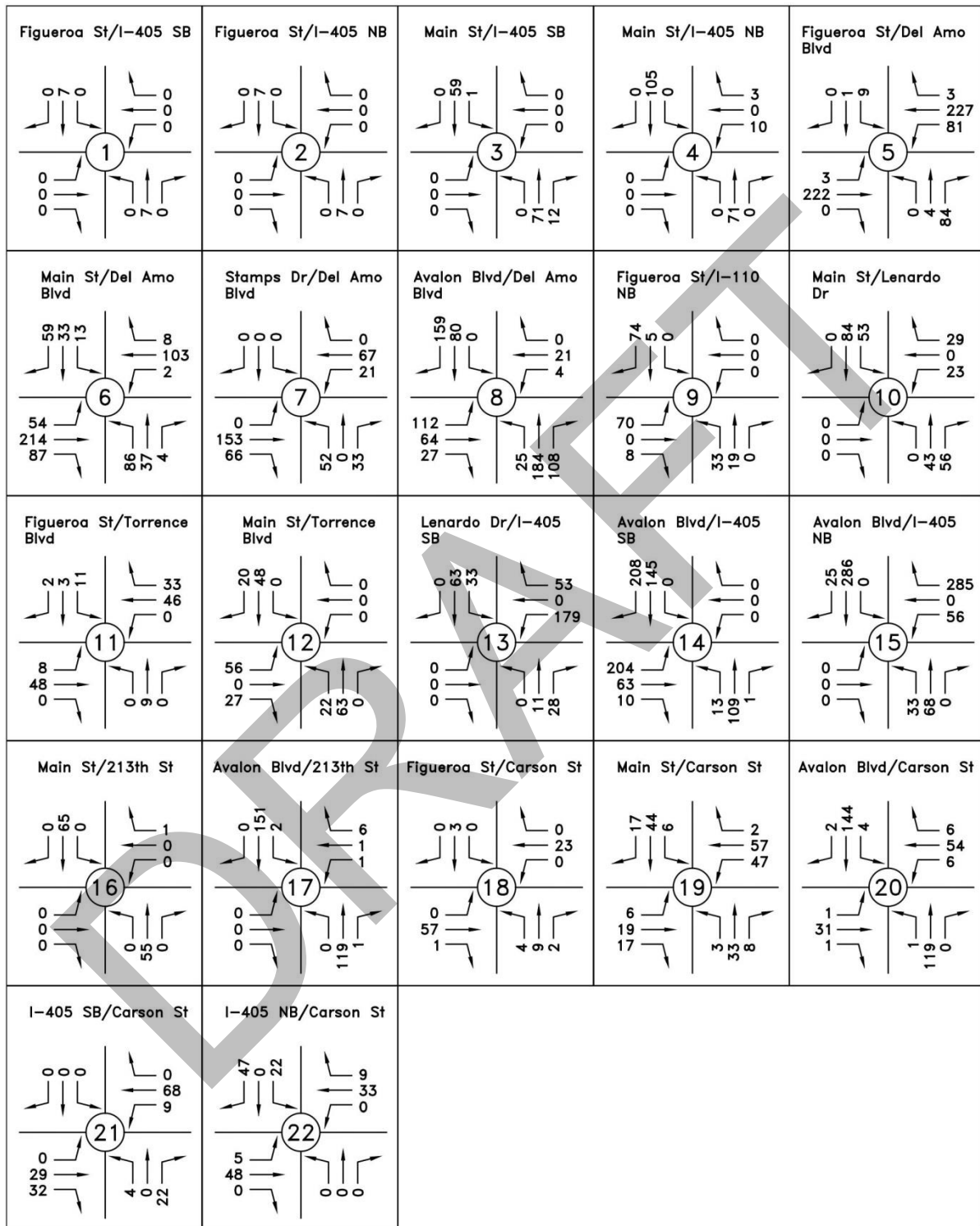


Figure 6: Projects Passenger Cars AM Peak Hour Intersection Turning Movement Volumes

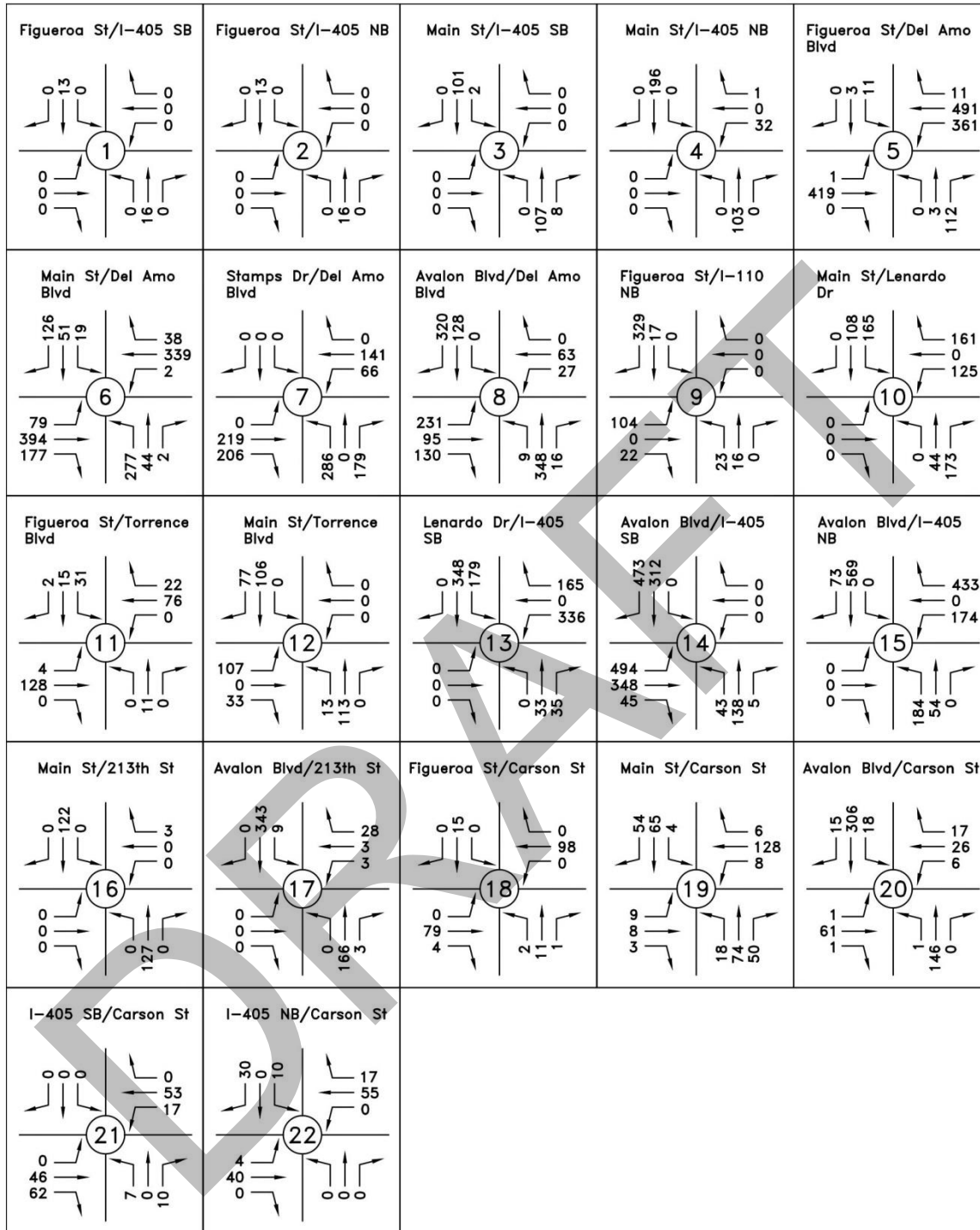


Figure 7: Projects Passenger Cars PM Peak Hour Intersection Turning Movement Volumes

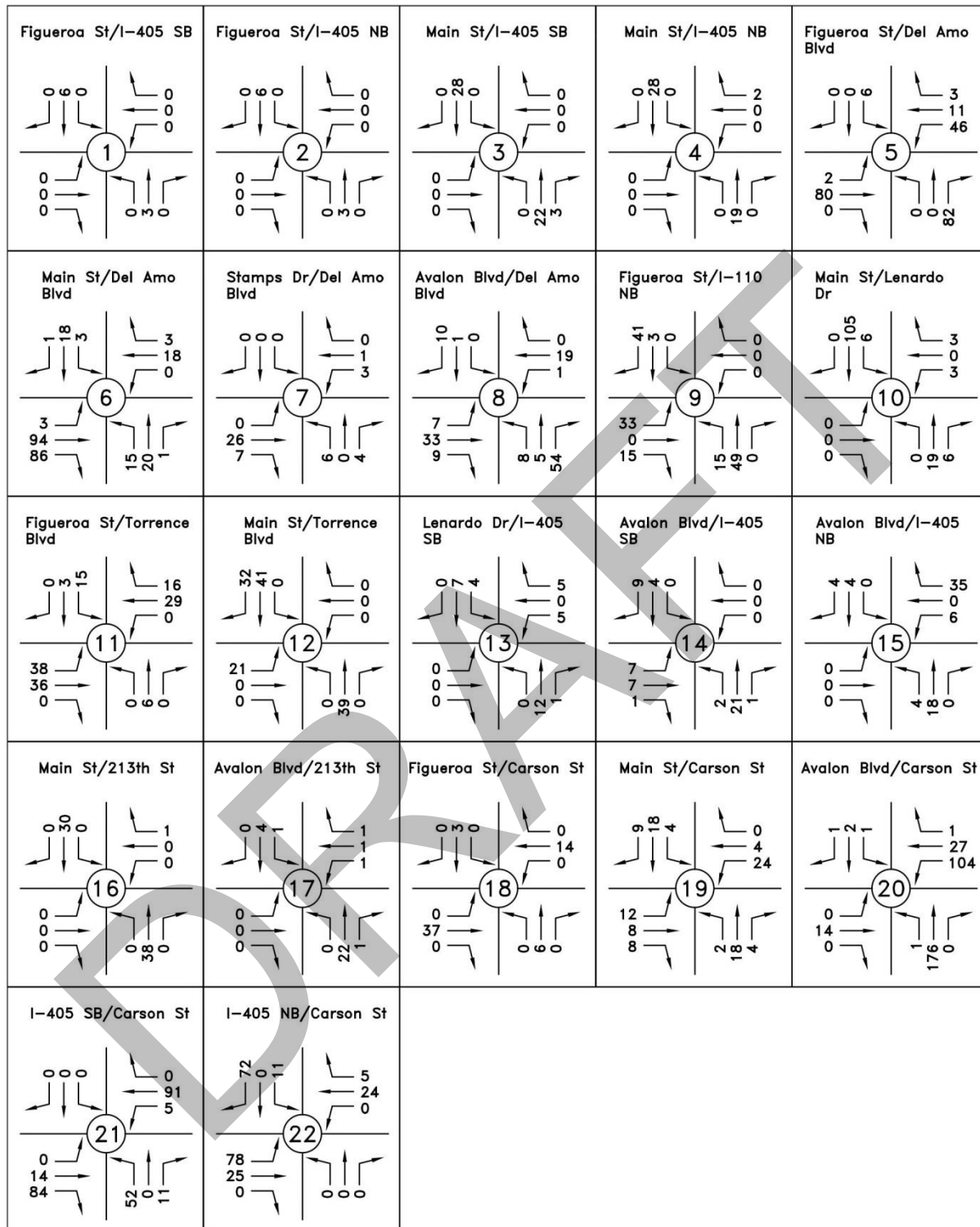


Figure 8: Projects Trucks (in PCE) AM Peak Hour Intersection Turning Movement Volumes

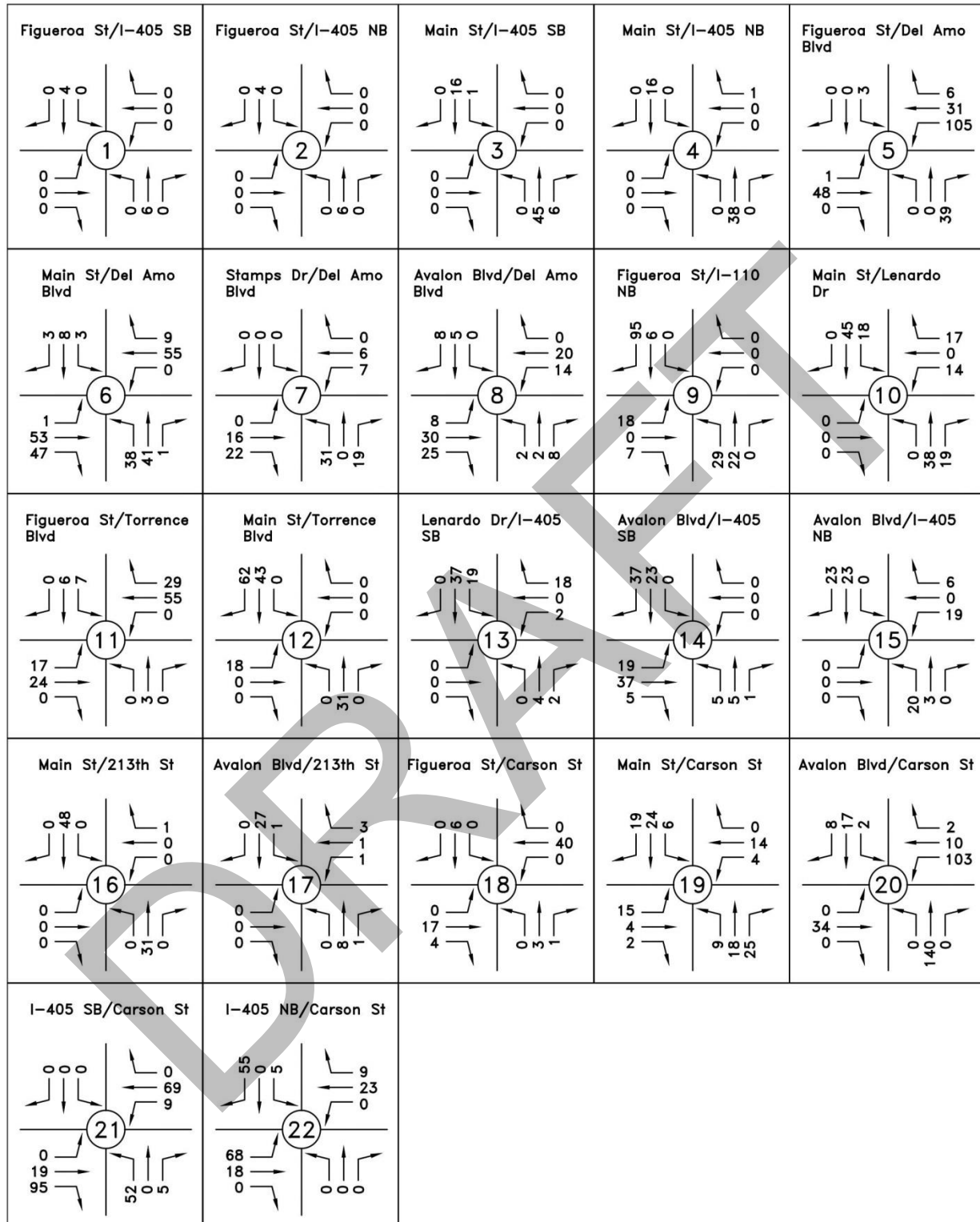


Figure 9: Projects Trucks (in PCE) PM Peak Hour Intersection Turning Movement Volumes

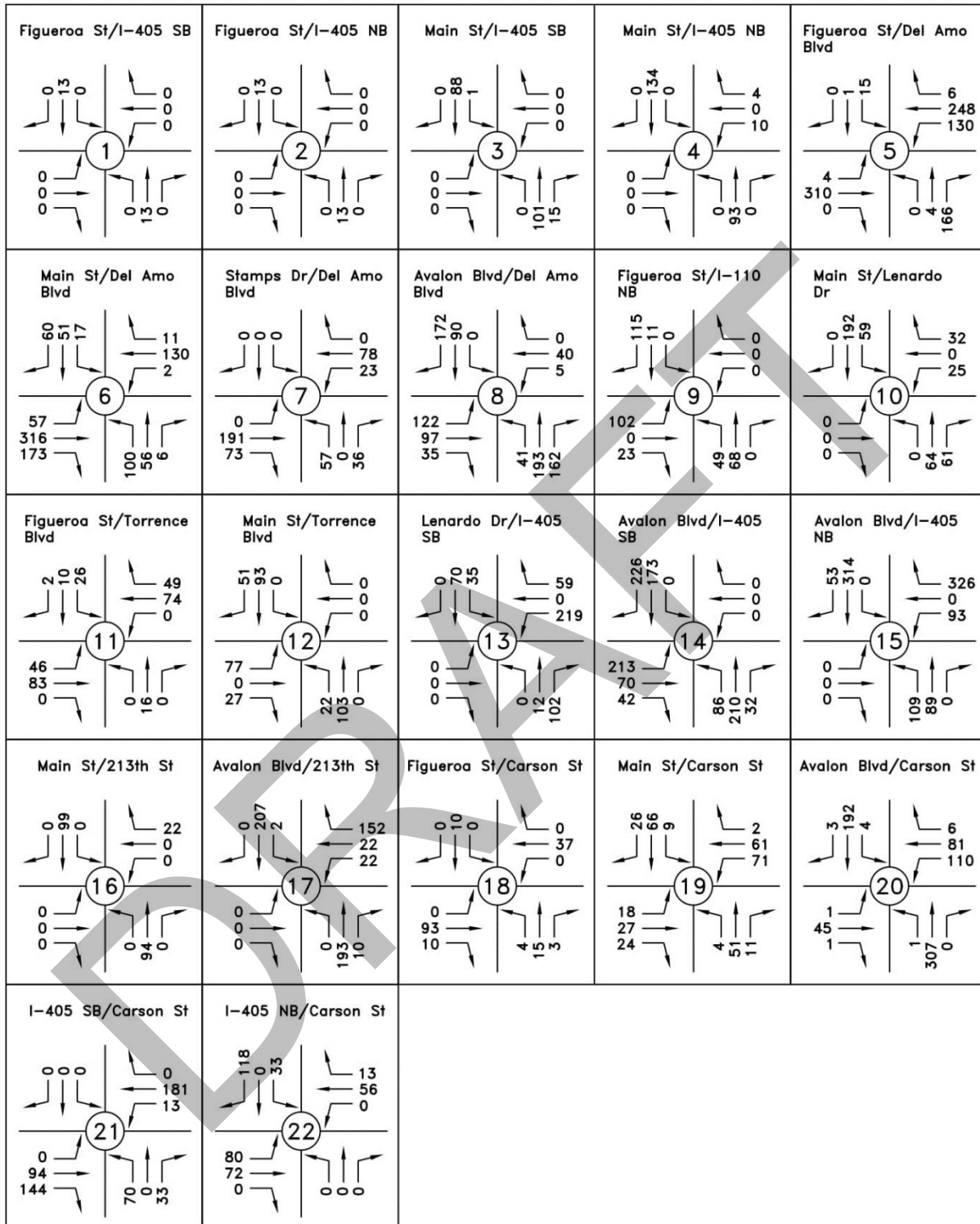


Figure 10: Projects Total Vehicles (in PCE) AM Peak Hour Intersection Turning Movement Volumes

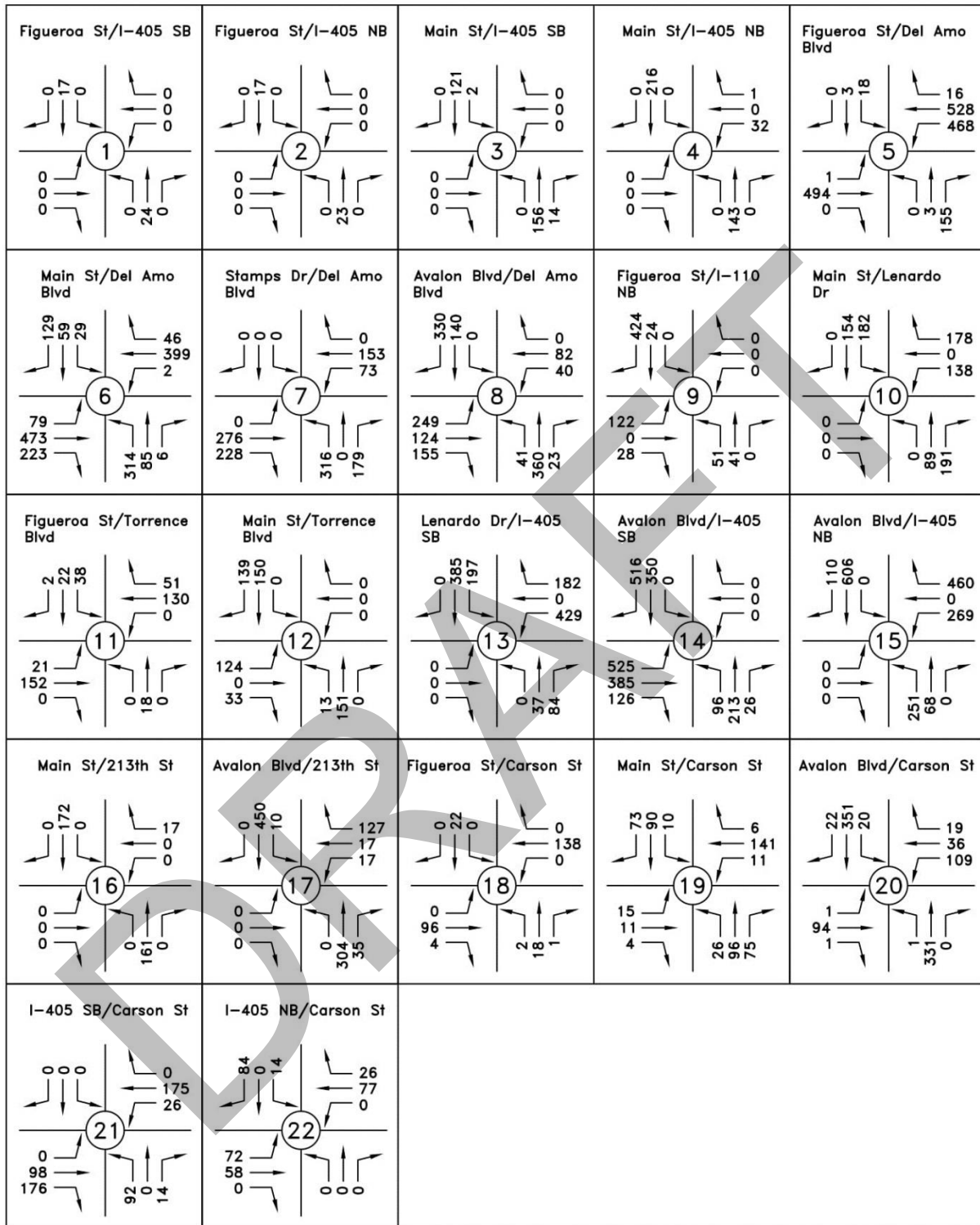


Figure 11: Projects Total Vehicles (in PCE) PM Peak Hour Intersection Turning Movement Volumes

8. Traffic Forecasts

a) Existing Plus Project

The traffic volumes for existing plus project traffic conditions have been derived by adding the project generated trips to existing traffic volumes. Existing plus project morning and evening peak hour intersection turning movement volumes are shown on Figure 12 and Figure 13, respectively.

b) Future (2023) Without Project

To assess Future (Year 2023) without project traffic conditions, existing traffic volumes were combined with an ambient growth factor of 0.5% per year over a 5-year period. Future (Year 2023) Without Project morning and evening peak hour intersection turning movement volumes are shown on Figure 14 and Figure 15, respectively.

c) Future (2023) Plus Project

To assess Future (Year 2023) plus project traffic conditions, existing traffic volumes were combined with an ambient growth over a 5-year period. Future (Year 2023) Without Project morning and evening peak hour intersection turning movement volumes are shown on Figure 14 and Figure 15, respectively.

To assess Future (Year 2023) plus project traffic conditions, project generated trips were added to Future (Year 2023) Without Project traffic volumes. Future (Year 2023) with project morning and evening peak hour intersection turning movement volumes are shown on Figure 16 and Figure 17, respectively.

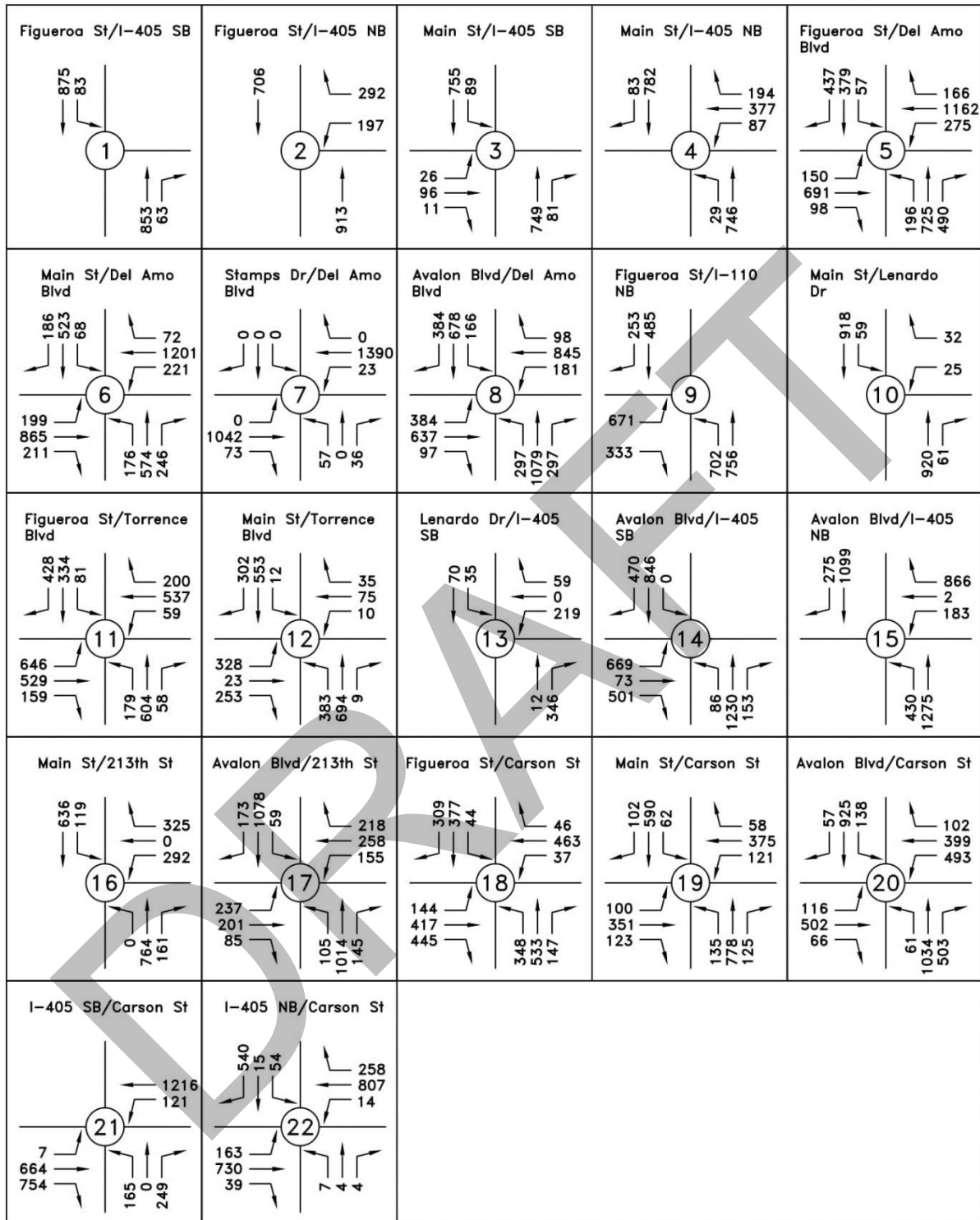


Figure 12: Existing Plus Projects AM Peak Hour Intersection Turning Movement Volumes

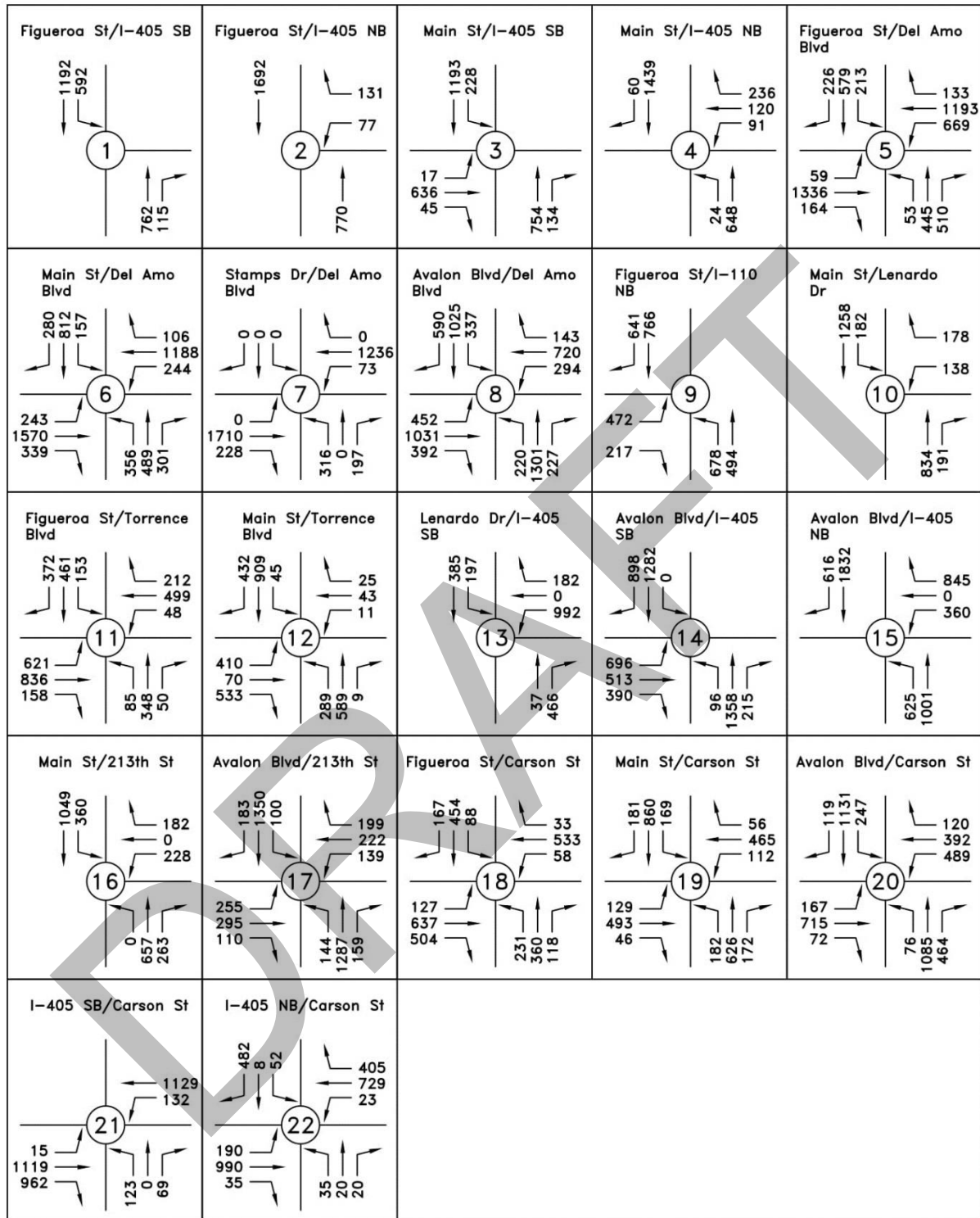


Figure 13: Existing Plus Projects PM Peak Hour Intersection Turning Movement Volumes

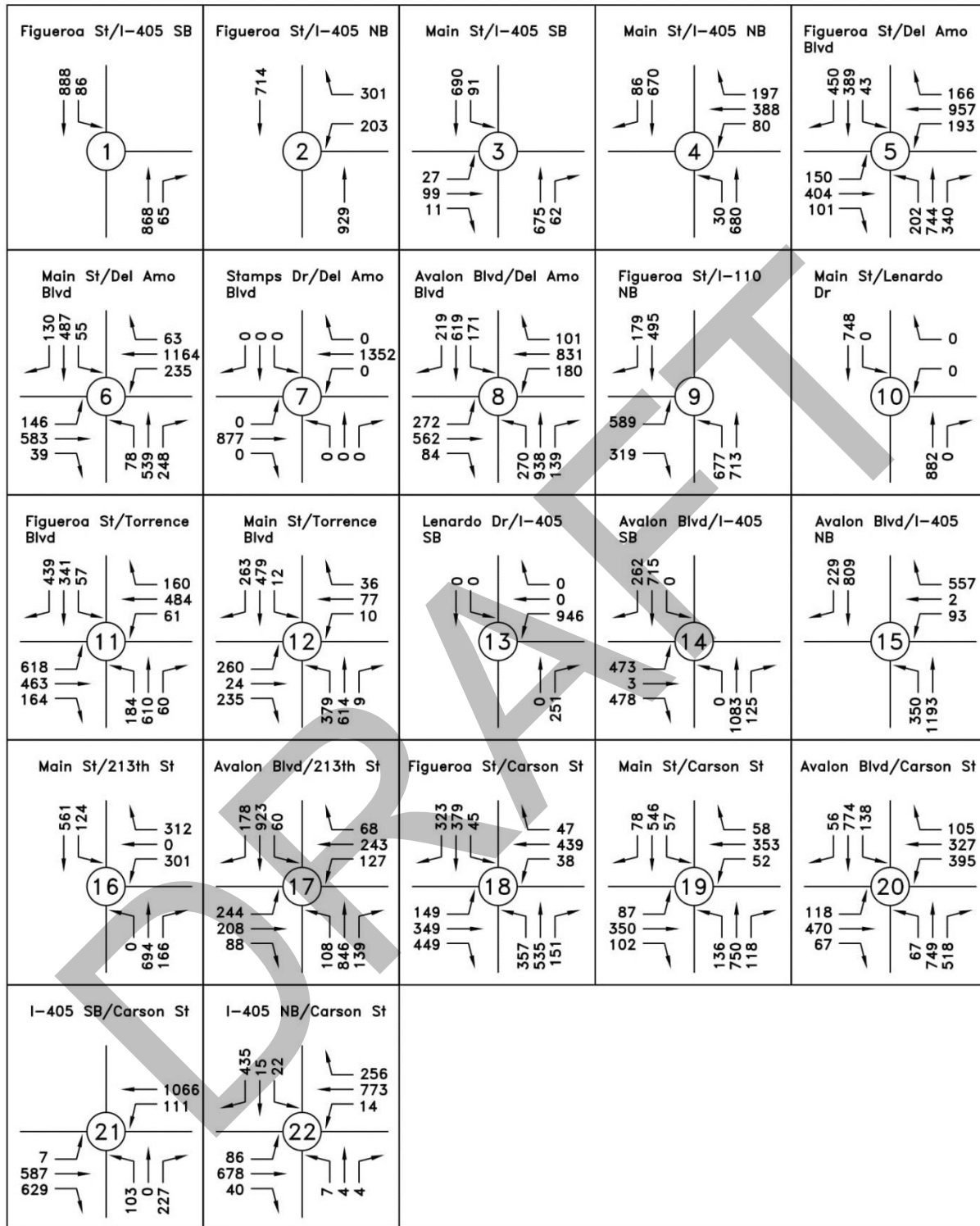


Figure 14: Future without Projects AM Peak Hour Intersection Turning Movement Volumes

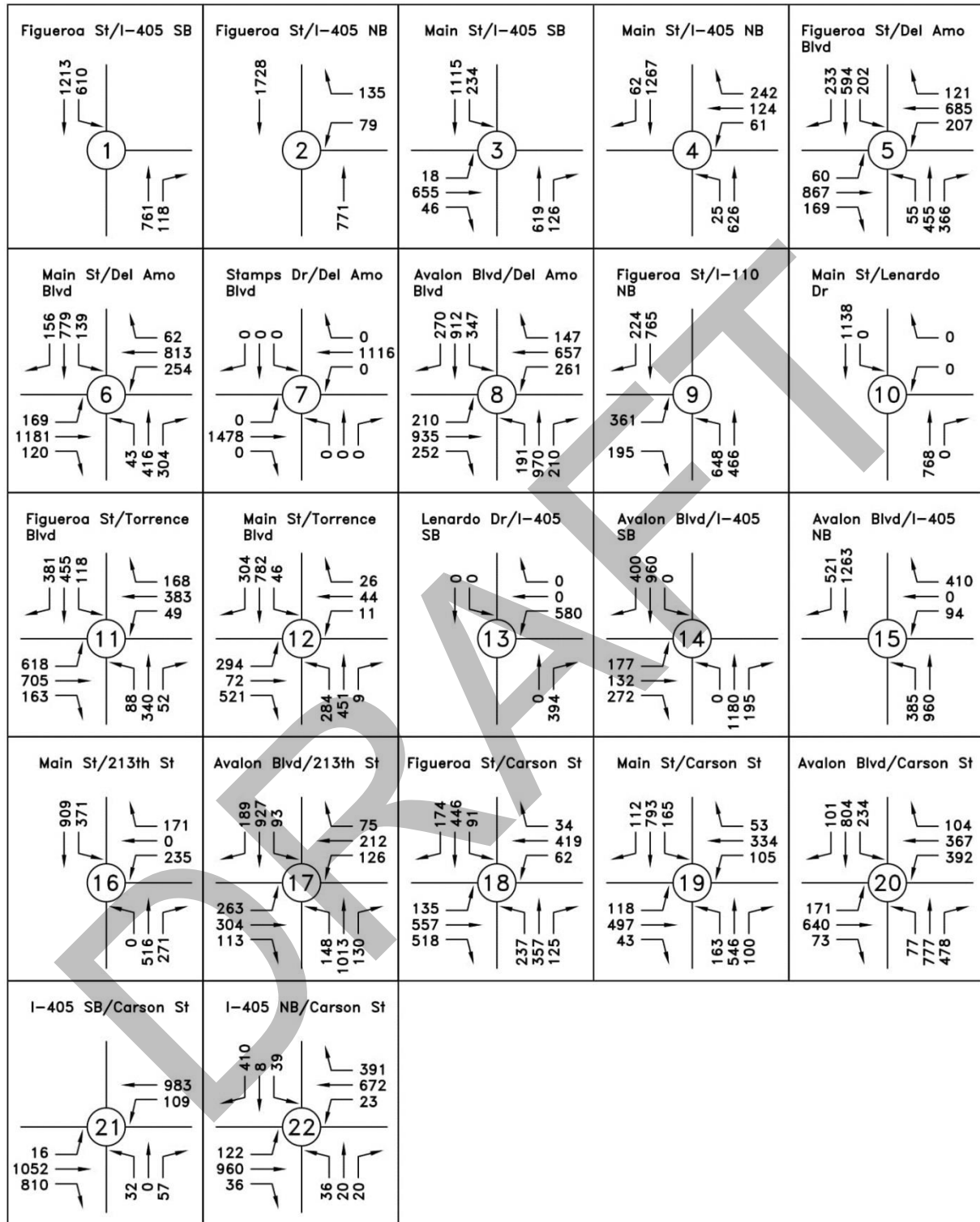


Figure 15: Future without Projects PM Peak Hour Intersection Turning Movement Volumes

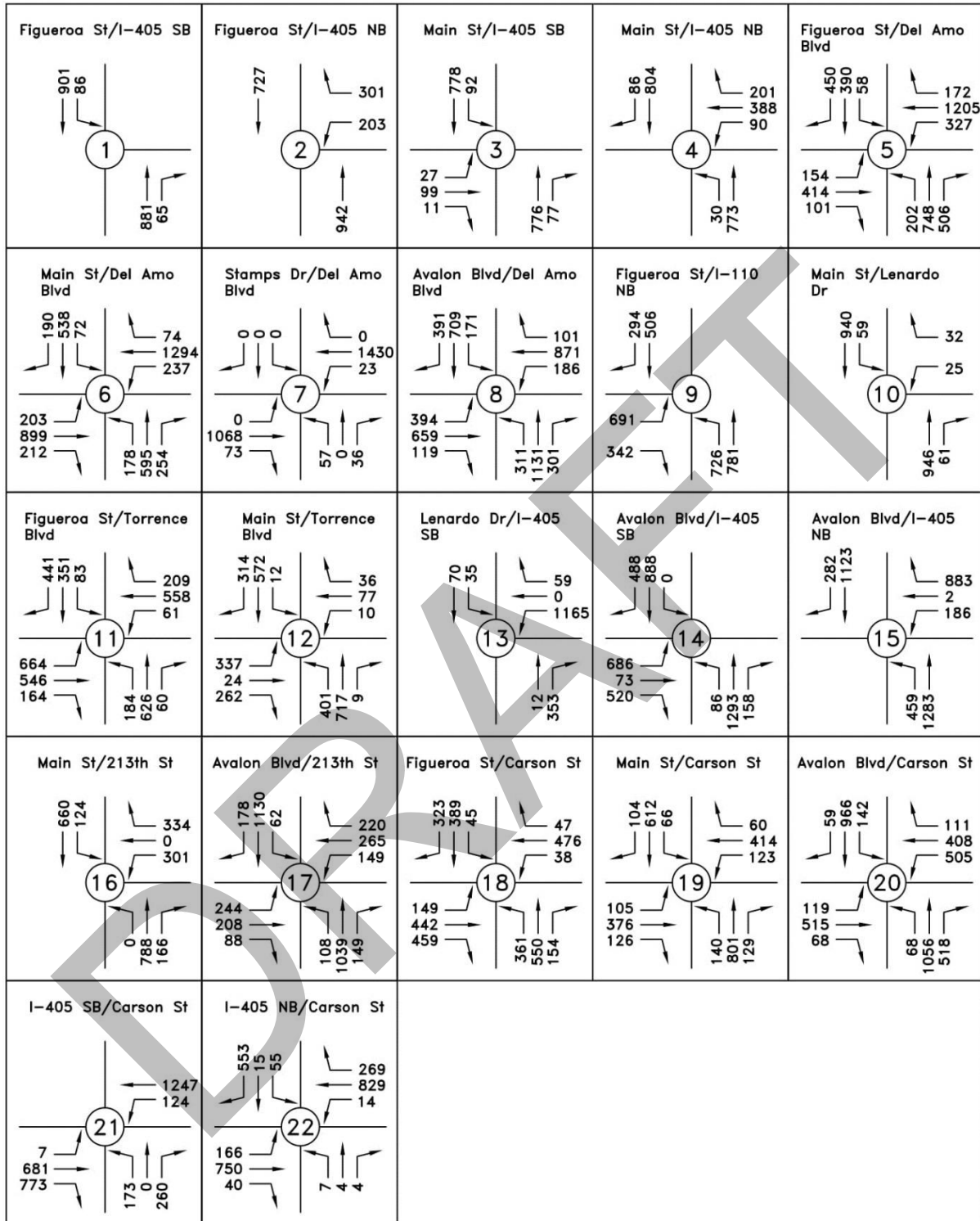


Figure 16: Future Plus Projects AM Peak Hour Intersection Turning Movement Volumes

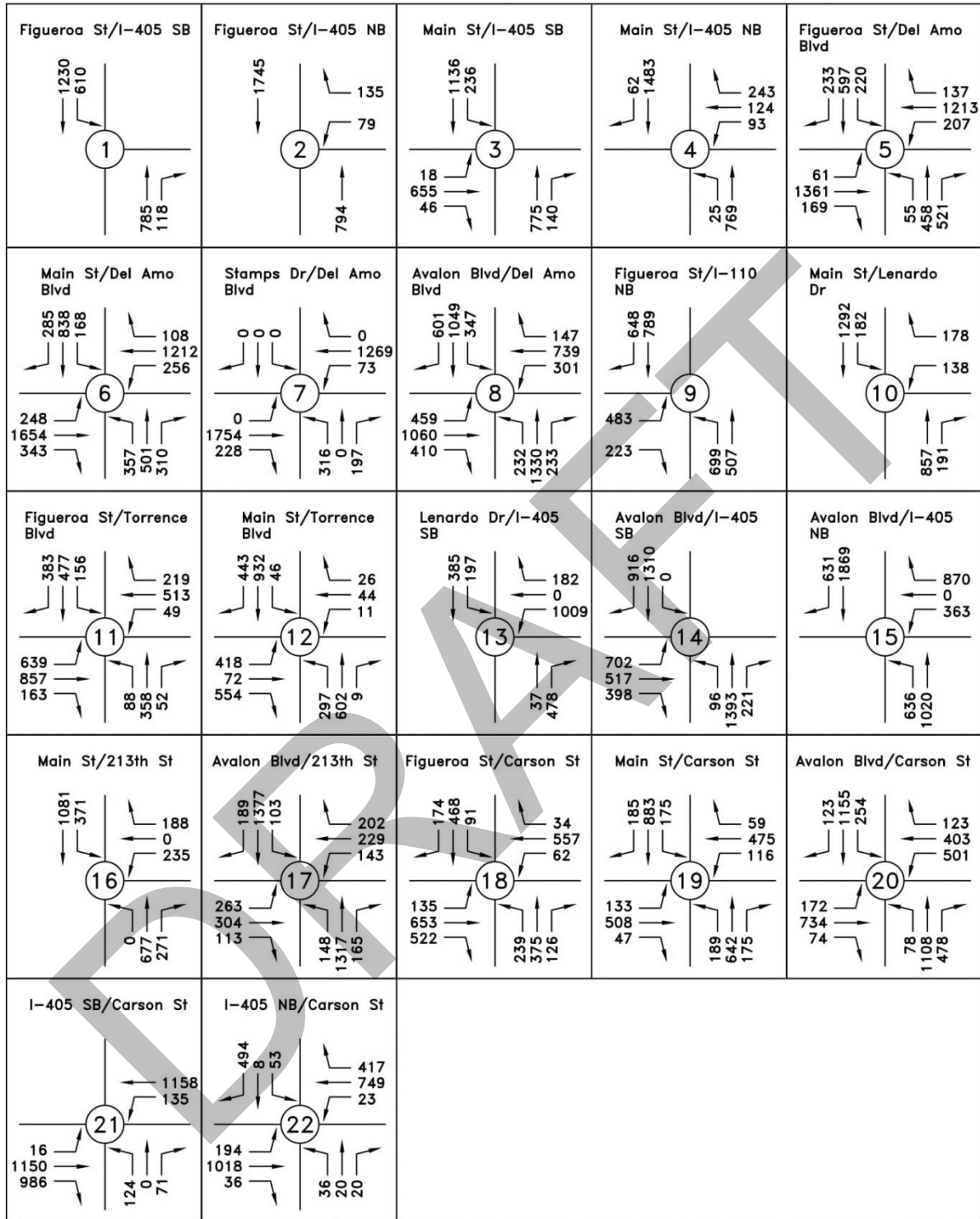


Figure 17: Future Plus Projects PM Peak Hour Intersection Turning Movement Volumes

9. Traffic Impacts

1. Project Methodology

The traffic assessment for the traffic development impact on intersections will be analyzed in the context of the City of Carson and CA MUTCD policies and guidelines. The reference material used to evaluate the study area intersections included the following:

- California Manual on Uniform Traffic Control Devices (CA-MUTCD), 2014 Edition, Rev 3.
- The Highway Capacity Manual (HCM), 2010
- City of Carson Traffic Impact Assessment Guidelines

For this study, level of service (LOS) will be used to determine the operating conditions of each intersection. The criteria for LOS in this study are based on the intersection capacity utilization (ICU) methodology for signalized intersections. The ICU methodology compares the volume-to-capacity (v/c) ratios of conflicting turn movement at the intersection, sums these conflicting V/C ratios for each intersection approach, and determines the overall ICU. The resulting ICU is expressed in terms of LOS, where LOS A represents free-flow activity and LOS F represents overcapacity operation. According to the City of Carson's Guidelines, LOS at an intersection or roadway is considered to be unsatisfactory when the ICU exceeds 0.90 (LOS D). The relationship of ICU to LOS is shown in Table 4.

Table 4: Signalized Intersection LOS Criteria

Level of Service (LOS)	Intersection Capacity Utilization (ICU)
A	0.00 - 0.60
B	0.61 - 0.70
C	0.71 - 0.80
D	0.81 - 0.90
E	0.91 - 1.00
F	> 1.00
Source: Transportation Research Circular No. 212, Interim Material on Highway Capacity.	

The HCM's (2010) methodology is used to determine the LOS at Unsignalized intersection. The relationship of delay to LOS is demonstrated in Table 5.

Table 5: Unsignalized Intersection LOS Criteria

Level of Service (LOS)	Unsignalized Intersection Delay (Sec/veh)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50
Source: Exhibit 19-1, Highway Capacity Manual, 2010	

Traffic engineering software Synchro was used to conduct the study network analysis.

2. Level of Service

The existing intersections' LOS for the study area is based on collected traffic counts. The primary measures of evaluation include level of service and delay. The study intersections' LOS was calculated using Synchro software which is based on the Highway Capacity Manual method for signalized and unsignalized intersections. The A.M. and P.M. peak hour LOS were calculated based on following conditions:

- Existing conditions (2018)
- Existing conditions (2018) plus developments
- Future conditions (2023)
- Future conditions (2023) plus developments

Table 6 summarizes the results of the existing weekday morning and evening peak hour V/C ratio and corresponding LOS at each intersection. Table 7 summarizes the results of the future (Year 2023) weekday morning and evening peak hour V/C ratio and corresponding LOS at each intersection. The detailed Synchro calculations report for existing and future conditions are attached as Appendix B.

Table 6: Existing Conditions Intersection Level of Service

ID	Intersection	Peak Hour	Existing		Existing + Project	
			V/C or Delay (s)	LOS	V/C or Delay (s)	LOS
1	Figueroa St and I-405 SB On Ramp ^[2]	AM	0.5	A	0.5	A
		PM	7.8	A	8.4	A
2	Figueroa St and I-405 NB Off Ramp ^{[1] [3]}	AM	0.50	A	0.50	A
		PM	0.64	B	0.64	B
3	S Main St and I-405 SB On Ramp	AM	0.55	A	0.59	A
		PM	0.82	D	0.86	D
4	S Main St and I-405 NB Off Ramp	AM	0.55	A	0.59	A
		PM	0.82	D	0.86	D
5	Figueroa St and Del Amo Blvd	AM	0.76	C	0.83	D
		PM	0.71	C	1.07	F
6	S Main St and E Del Amo Blvd	AM	0.72	C	0.83	D
		PM	0.83	D	1.19	F
7	Stamps Dr and Del Amo Blvd ^[2]	AM			0.50	A
		PM			0.59	A
8	S Avalon Blvd and E Del Amo Blvd	AM	0.84	D	1.02	F
		PM	0.89	D	1.11	F
9	Figueroa St and I-110 NB Ramps	AM	0.71	C	0.76	C
		PM	0.67	B	0.73	C
10	Main St and Lenardo Dr ^[2]	AM			0.47	A
		PM			0.59	A
11	Figueroa St and W Torrance Blvd	AM	0.74	C	0.80	C
		PM	0.72	C	0.81	D
12	S Main St and W Torrance Blvd	AM	0.57	A	0.65	B
		PM	0.69	B	0.79	C
13	Lenardo Dr and I-405 SB Ramps ^[2]	AM			0.33	A
		PM			0.48	A
14	S Avalon Blvd and I-405 SB Ramps	AM	0.55	A	0.66	B
		PM	0.51	A	0.73	C
15	S Avalon Blvd and I-405 NB Ramps	AM	0.74	C	0.90	D
		PM	0.58	A	0.90	D
16	S Main St and E 213th St	AM	0.78	C	0.81	D
		PM	0.77	C	0.86	D
17	S Avalon Blvd and E 213th St	AM	0.66	B	0.74	C
		PM	0.75	C	0.85	D
18	Figueroa St and W Carson St	AM	0.68	B	0.69	B
		PM	0.64	B	0.65	B
19	S Main St and W Carson St	AM	0.50	A	0.54	A
		PM	0.62	B	0.67	B
20	S Avalon Blvd and E Carson St	AM	0.75	C	0.86	D
		PM	0.84	D	0.98	E
21	I-405 SB Ramps and E Carson St	AM	0.57	A	0.68	B
		PM	0.69	B	0.83	D
22	I-405 NB Ramps and E Carson St	AM	0.63	B	0.72	C
		PM	0.59	A	0.66	B

[1] TWSC: Two-Way Stop Controlled

[2] Unsignalized

[3] Mitigations at intersections under the jurisdiction of Caltrans will require further coordination and detailed design review with the relevant jurisdiction to determine the feasibility of the mitigation.

Table 7: Future (Year 2023) Conditions Intersection Level of Service

ID	Intersection	Peak Hour	Future		Future + Project	
			V/C or Delay (s)	LOS	V/C or Delay (s)	LOS
1	Figueroa St and I-405 SB On Ramp ^[2]	AM PM	0.50 9.5	A A	0.50 10.4	A B
2	Figueroa St and I-405 NB Off Ramp ^{[1] [3]}	AM PM	0.51 0.65	A B	0.51 0.66	A B
3	S Main St and I-405 SB On Ramp	AM PM	0.56 0.84	A D	0.61 0.89	B D
4	S Main St and I-405 NB Off Ramp	AM PM	0.56 0.84	A D	0.61 0.89	A D
5	Figueroa St and Del Amo Blvd	AM PM	0.78 0.72	C C	0.85 1.09	D F
6	S Main St and E Del Amo Blvd	AM PM	0.75 0.86	C D	0.85 1.23	D F
7	Stamps Dr and Del Amo Blvd ^[2]	AM PM			0.51 0.74	A C
8	S Avalon Blvd and E Del Amo Blvd	AM PM	0.87 0.91	D E	1.05 1.14	F F
9	Figueroa St and I-110 NB Ramps	AM PM	0.72 0.69	C B	0.78 0.75	C C
10	Main St and Lenardo Dr ^[2]	AM PM			0.47 0.6	A A
11	Figueroa St and W Torrance Blvd	AM PM	0.76 0.73	C C	0.82 0.83	D D
12	S Main St and W Torrance Blvd	AM PM	0.59 0.71	A C	0.66 0.80	B C
13	Lenardo Dr and I-405 SB Ramps ^[2]	AM PM			0.50 0.55	A A
14	S Avalon Blvd and I-405 SB Ramps	AM PM	0.58 0.52	A A	0.69 0.74	B C
15	S Avalon Blvd and I-405 NB Ramps	AM PM	0.76 0.60	C A	0.90 0.90	D D
16	S Main St and E 213th St	AM PM	0.80 0.79	C C	0.84 0.85	D D
17	S Avalon Blvd and E 213th St	AM PM	0.68 0.77	B C	0.76 0.86	C D
18	Figueroa St and W Carson St	AM PM	0.70 0.66	B B	0.71 0.67	C B
19	S Main St and W Carson St	AM PM	0.52 0.63	A B	0.56 0.69	A B
20	S Avalon Blvd and E Carson St	AM PM	0.77 0.87	C D	0.87 1.00	D F
21	I-405 SB Ramps and E Carson St	AM PM	0.58 0.71	A C	0.69 0.84	B D
22	I-405 NB Ramps and E Carson St	AM PM	0.64 0.60	B A	0.73 0.67	C B

[1] TWSC: Two-Way Stop Controlled

[2] Unsignalized

[3] Mitigations at intersections under the jurisdiction of Caltrans will require further coordination and detailed design review with the relevant jurisdiction to determine the feasibility of the mitigation.

3. Significant Traffic Impact Criteria

Under the City of Carson guidelines, an intersection would be significantly impacted with an increase in V/C ratio to or greater than 0.02 for intersections operating at LOS E or F after the addition of project traffic. Based on the established criteria shown in Table 8, if a project is found to cause a significant traffic impact on a subject study intersection, then feasible mitigation measures must be provided in order to reduce the expected traffic impacts.

Table 8: Significant Traffic Impact Criteria

Significant Transportation Impact (V/C Methodology)		
Level of Service	Final V/C Ratio	Project-Related Increase In V/C
E or F	> 0.9	equal to or greater than 0.02

All 22 intersections were analyzed on future plus project traffic volumes to determine the projected V/C ratios and LOS. As shown in Tables 6 and 7, 15 of the 22 of intersections are projected to operate at an acceptable level of service (LOS D or better) during both morning and evening peak hours. The detailed analysis tables are provided in Appendix B.

4. Significant Impacted Intersections

The following four (4) intersections are projected at poor level of service (LOS E or F) after full implementation of all new projects in the City of Carson.

- Figueroa Street & Del Amo Boulevard (PM Peak Hour)
- Main Street & Del Amo Boulevard (PM Peak Hour)
- Avalon Boulevard & Del Amo Boulevard (AM & PM Peak Hour)
- Avalon Boulevard & Carson Street (PM Peak Hour)

The following three (3) unsignalized intersections have to be converted to signalized intersections after full implementation of all new projects in the City of Carson.

- Stamps Drive and Del Amo Boulevard (AM & PM Peak Hour)
- Main Street and Lenardo Drive (AM & PM Peak Hour)
- Lenardo Road and I-405 Southbound Ramps (AM & PM Peak Hour)

10. Mitigation Calculation

This section calculates the mitigation fee at seven (7) intersections described in the previous section. All mitigation geometries are based on future condition plus project analysis. The mitigation measures include a set of physical improvements as well as a set of transportation demand management strategies that would likely reduce the LOS associated with the proposed projects.

Intersection 5 – Figueroa Street & Del Amo Boulevard:

The intersection of Figueroa St. and Del Amo Blvd. would be significantly impacted by additional vehicle trips associated with the new development project during the PM peak hour under the future year analysis. Following are the proposed physical mitigation for this intersection:

- Conversion of the westbound thru lane to second left-turn lane
- Conversion of the first westbound right-turn lane to thru/right lane
- Addition of a second southbound left-turn lane
- Traffic signal modification

The improvements would require acquisition of right-of-way on the northwest of the intersection, removing the sidewalk and re-installing the curb and sidewalk, and re-striping the intersection.

Intersection 6 – Main Street & Del Amo Boulevard:

The intersection of Main St. and Del Amo Blvd. would be significantly impacted by additional vehicle trips associated with the new development project during the PM peak hour under the future year analysis. Following are the proposed physical mitigation for this intersection:

- Addition of a second westbound left-turn lane
- Addition of an eastbound right-turn lane
- Conversion of the eastbound thru/right-turn lane to thru lane
- Addition of a second northbound left-turn lane
- Addition of an northbound right-turn lane
- Conversion of the northbound thru/right-turn lane to thru lane
- Conversion of the southbound thru/right-turn lane to thru lane
- Addition of southbound thru/right-turn lane
- Traffic signal modification

The improvements would require purchasing right-of-way on northwest, northeast, and southwest of the intersection. The improvements would also require removing and re-installing of the existing median islands on the east and south approaches of the intersection, removing and re-installing the sidewalks on all 4 approaches of the intersection, and re-striping the intersection.

Intersection 7 – Stamps Drive & Del Amo Boulevard:

The unsignalized intersection of Stamps Dr. and Del Amo Blvd. would be significantly impacted by additional vehicle trips associated with the new development project during the AM and PM peak hours under the Future year analysis. Following are the proposed physical mitigation for this intersection:

- Install traffic signal and required equipment
- Addition of an eastbound dedicated left-turn lane

The improvements would require removing and re-installing of the existing median islands on the west approach of the intersection.

Intersection 8 – South Avalon Boulevard & Del Amo Boulevard:

The intersection of S. Avalon Blvd. and Del Amo Blvd. would be significantly impacted by additional vehicle trips associated with the new development project during the AM and PM peak hours under the future year analysis. Following are the proposed physical mitigation for this intersection:

- Addition of a second northbound left-turn lane
- Addition of a second westbound left-turn lane

- Conversion of the westbound right-turn lane to thru/right lane
- Conversion of the southbound thru/right-turn lane to a right-turn lane
- Traffic signal modification

The improvements would require removing the existing median islands on the south approach of the intersection, re-striping the south approach of the intersection.

Intersection 10 – Main Street & Lenardo Drive:

The unsignalized intersection of Main St. and Lenardo Dr. would be significantly impacted by additional vehicle trips associated with the new development project during the AM and PM peak hours under the Future year analysis. Following are the proposed physical mitigation for this intersection:

- Install traffic signal and required equipment
- Addition of an northbound dedicated right-turn lane

The improvements would require removing the existing median islands on the south approach of the intersection, re-striping the south approach of the intersection.

Intersection 13 – Lenardo Drive and I-405 Southbound Ramps:

The unsignalized intersection of Lenardo Dr. and I-405 SB ramps would be significantly impacted by additional vehicle trips associated with the new development project during the AM and PM peak hours under the Future year analysis. Following are the proposed physical mitigation for this intersection:

- Traffic signal modification

Intersection 20 – South Avalon Boulevard & Carson Street:

The intersection of S. Avalon Blvd. and Carson St. would be significantly impacted by additional vehicle trips associated with the new development project during the PM peak hour under the future year analysis. Following are the proposed physical mitigation for this intersection:

- Conversion of the first southbound thru lane to left-turn lane
- Conversion of the second eastbound left-turn lane to thru lane
- Conversion of the northbound thru/right-turn lane to right-turn lane
- Traffic signal modification

The improvements would require removing the existing median islands on the north approach of the intersection, re-striping the north approach of the intersection.

Table 9 shows the level of service for the affected intersections after the implementation of proposed physical mitigations.

Table 9: Intersection Impact Analysis

ID	Peak Hour Period	Future		Future+Project		V/C Increase	Significant Impact?	After mitigation	
		V/C	LOS	V/C	LOS			V/C	LOS
5	AM	0.78	C	0.85	D	0.07	Yes	0.86	D
	PM	0.72	C	1.09	F	0.37	Yes	0.90	D
6	AM	0.75	C	0.85	D	0.10	Yes	0.75	C
	PM	0.86	D	1.23	F	0.37	Yes	0.89	D
8	AM	0.87	D	1.05	F	0.17	Yes	0.84	D
	PM	0.91	E	1.14	F	0.23	Yes	0.90	D
20	AM	0.77	C	0.87	D	0.10	Yes	0.76	C
	PM	0.87	D	1.00	F	0.13	Yes	0.87	D

11. Improvement Cost

The estimated costs of improvements for each impacted intersection are shown in Table 10.

Table 10: Intersection Mitigation Cost

ID	Intersection	Mitigation	Cost
5	Figueroa St. and Del Amo Blvd.	Acquire ROW from the undeveloped parcel on the northwest of intersection to widening the north and west approaches.	\$700,000.00
		Convert the first westbound thru lane to second westbound Left-turn lane.	\$54,000.00
		Convert the westbound right lane to a to a thru/right-turn lane.	\$30,000.00
		Convert the first southbound thru lane to second left-turn lane	\$54,000.00
		Add dedicated southbound right-turn lane	\$72,000.00
		Remove sidewalk on southbound and eastbound approaches of intersection, reinstall sidewalk, re-striping the north, west, and east approaches	\$60,000.00
		Traffic signal modification	\$150,000.00
		Total	\$1,120,000.00
6	S. Main St. and E. Del Amo Blvd.	Acquire ROW on northeast and northwest of intersection to accommodate westbound and southbound right-turn lanes.	\$700,000.00
		Convert the first northbound thru lane to second northbound left-turn lane.	\$54,000.00

		Add dedicated northbound right-turn lane.	\$120,000.00
		Convert the northbound thru/right-turn lane to a thru lane.	\$30,000.00
		Add dedicated eastbound right-lane.	\$72,000.00
		Convert the eastbound thru/right-turn lane to thru lane.	\$30,000.00
		Convert the first westbound thru lane to second westbound Left-turn lane.	\$54,000.00
		Convert the southbound thru/right-turn lane to thru lane.	\$30,000.00
		Add southbound thru/right-turn lane.	\$72,000.00
		Remove and re-install medians on east and south approaches of intersection and re-install striping on all 4 approaches, remove and re-install the sidewalks on all 4 approaches	\$150,000.00
		Traffic signal modification	\$150,000.00
		Total	\$1,462,000.00
7	Stamps Dr. and Del Amo Blvd.	Add dedicated eastbound left-turn lane.	\$72,000.00
		Remove and re-install median on eastbound approach of intersection.	\$32,000.00
		Convert from unsignalized to signalized intersection.	\$250,000.00
		Total	\$354,000.00
8	S. Avalon Blvd. and E. Del Amo Blvd.	Acquire ROW on southwest and northwest of intersection to accommodate northbound and southbound additional lanes.	\$700,000.00
		Convert the northbound thru lane to second northbound left-turn lane.	\$40,000.00
		Remove medians on northbound approach of intersection and re-install median and new striping on southbound approach.	\$80,000.00
		Convert the westbound thru lane to second westbound left-turn lane.	\$40,000.00
		Convert the westbound right-turn lane to a to a thru/right-turn lane.	\$40,000.00
		Traffic signal modification	\$150,000.00

		Total	\$1,050,000.00
10	Main St. and Lenardo Dr.	Add dedicated northbound right-turn lane.	\$72,000.00
		Remove and re-install median on eastbound approach of intersection.	\$32,000.00
		Convert from unsignalized to signalized intersection.	\$250,000.00
		Total	\$354,000.00
13	Lenardo Dr. and I-405 SB On/Off Ramps	Traffic signal modification	\$150,000.00
		Total	\$150,000.00
20	S. Avalon Blvd. and E. Carson St.	Convert #1 southbound thru lane to second dedicated left-turn lane.	\$40,000.00
		Remove and re-install the medians on southbound approach of intersection, re-striping on north side of the intersection.	\$32,000.00
		Convert the northbound thru/right-turn lane to right-turn lane	\$40,000.00
		Convert the second eastbound left-turn lane to thru lane	\$40,000.00
		Traffic signal modification	\$150,000.00
		Total	\$302,000.00
Total			\$4,792,000.00
Soil Remediation and Unknown Conditions Costs (10%)			\$ 479,200.00
Contingency Costs (15%)			\$ 718,800.00
Administrative / Procurement Costs (10%)			\$ 479,200.00
Grand Total			\$6,469,200.00

12. Allocation of Costs

As shown in Table 11, the allocation of intersection improvement costs by development type is based on the share of daily vehicle trips associated with each type of development.

Table 11: Allocation of Costs per Development type

Development Type	Dev Units	Estimated Units	Estimated Average Daily Traffic ¹	Share of New Trips	Share of Cost ²
Residential, Multi-Family	DU	1,470	8,717	12%	\$793,985
Commercial	KSF	810	20,393	29%	\$1,857,488
Office	KSF	68.36	824	1%	\$75,030
Industrial/Business Park	KSF	1,073.28	7,634	11%	\$695,339
Truck Yard	Space	2,187	5,714	8%	\$520,405
Hotel	Room	247	2,018	3%	\$183,803
Recreational	KSF	599	25,130	35%	\$2,288,865
Dormitory	Bed	300	596	1%	\$54,285
Total			71,026	100%	\$6,469,200.00
¹ New vehicle trips by development type as a percentage of total new vehicle trips; percentages based on data from Table 3 ² Share of improvement cost = total improvement cost from Table 10 x share of new trips					

13. Projected Revenue

Potential revenue from the development impact fees calculated in this section can be projected by applying each development cost share from Table 11 to forecasted future units as shown in Table 3. The results are shown in Table 12.

Impact fees calculated in this section are based on the cost of providing intersection improvements that are needed to serve future development, generally.

Assuming that development occurs and improvements are constructed as anticipated in this study; the revenue projected in Table 12 would approximately cover the share of improvement costs assigned to

impact fees in Table 10, provided that fees are adjusted periodically to keep pace with changes in construction costs.

Costs and impact fees in this report are shown in current (2019) dollars. Once adopted, impact fees should be adjusted at least annually, to reflect changes in price levels. An appropriate index can be used to adjust facility cost estimates until the cost estimates and fee calculations are updated.

Table 12: Projected Revenue-Intersection Traffic Fees

Development Type	Dev Units ¹	Share of New Trips ²	Share of Cost ³	Added Trips	Trips per Unit	Fee per Unit
Residential, Multi-Family	DU	12%	\$793,985	8,717	5.93	\$540.13
Commercial	KSF	29%	\$1,857,488	20,393	25.18	\$2,293.19
Office	KSF	1%	\$75,030	824	12.05	\$1,097.57
Industrial/Business Park	KSF	11%	\$695,339	7,634	7.11	\$647.87
Truck Yard	Space	8%	\$520,405	5,714	2.61	\$ 237.95
Hotel	Room	3%	\$183,803	2,018	8.17	\$744.14
Recreational	Ksf	35%	\$2,288,865	25,130	41.99	\$3,824.34
Dormitory	Bed	1%	\$54,285	596	1.99	\$180.95
Total		100%	\$6,469,200.00			

¹ Units of development; DU = dwelling unit, KSF = 1,000 gross square feet of building area

² New vehicle trips by development type as a percentage of total new vehicle trips; percentages based on data from Table 3

³ Share of improvement cost = total improvement cost from Table 10 x share of new trips

B- SOUNDWALL FEE ANALYSIS

14. Summary

1. Introduction

This Fee Analysis develops an impact fee for the City of Carson to apply towards development projects. The process calculates the percentage of traffic from each development projects produce in the City. Based on the cost of various mitigations needed to better handle the increase in traffic a cost can be applied per trip produced by the different developments across the City. As a result the City can shift part of the cost on to the developers based on the projected amount of trips their project will create. Similarly, this section of the report will analyze the noise level impact certain projects will have on truck routes in the City that border residential neighborhoods. The noise levels are measured in decibels (dBA). Decibels are based on the logarithmic scale, the scale compresses the range of sound pressure to a range of numbers similar to the Richter scale used to measure earthquakes. The type of mitigation to be proposed will be soundwalls placed along truck routes which border the affected neighborhoods. The cost of the soundwalls will be distributed to the various projects contributing to the increase in noise levels along the truck routes.

2. Existing Conditions

This report provides an analysis of the various projects in the City of Carson and the impact they have on traffic. Several projects involve the construction of various warehouses and retail centers which contribute to the increase in truck traffic. The City has several truck routes used for hauling and delivering goods throughout the area; see Figure 18. These truck routes are impacted by the increase in traffic and as a result, raise the noise level. In this fee analysis, the noise level of truck routes bordering residential neighborhoods was studied and used to determine the proposed location of soundwall barriers. Sections of roadways along Sepulveda Boulevard, Wilmington Avenue, Del Amo Boulevard, 223rd Street, and Albertoni Street have been considered using their proximity to future development projects, as shown in Figure 19, and the existing decibel level data collected from The City of Carson's General Plan Chapter 7; See Table 14.

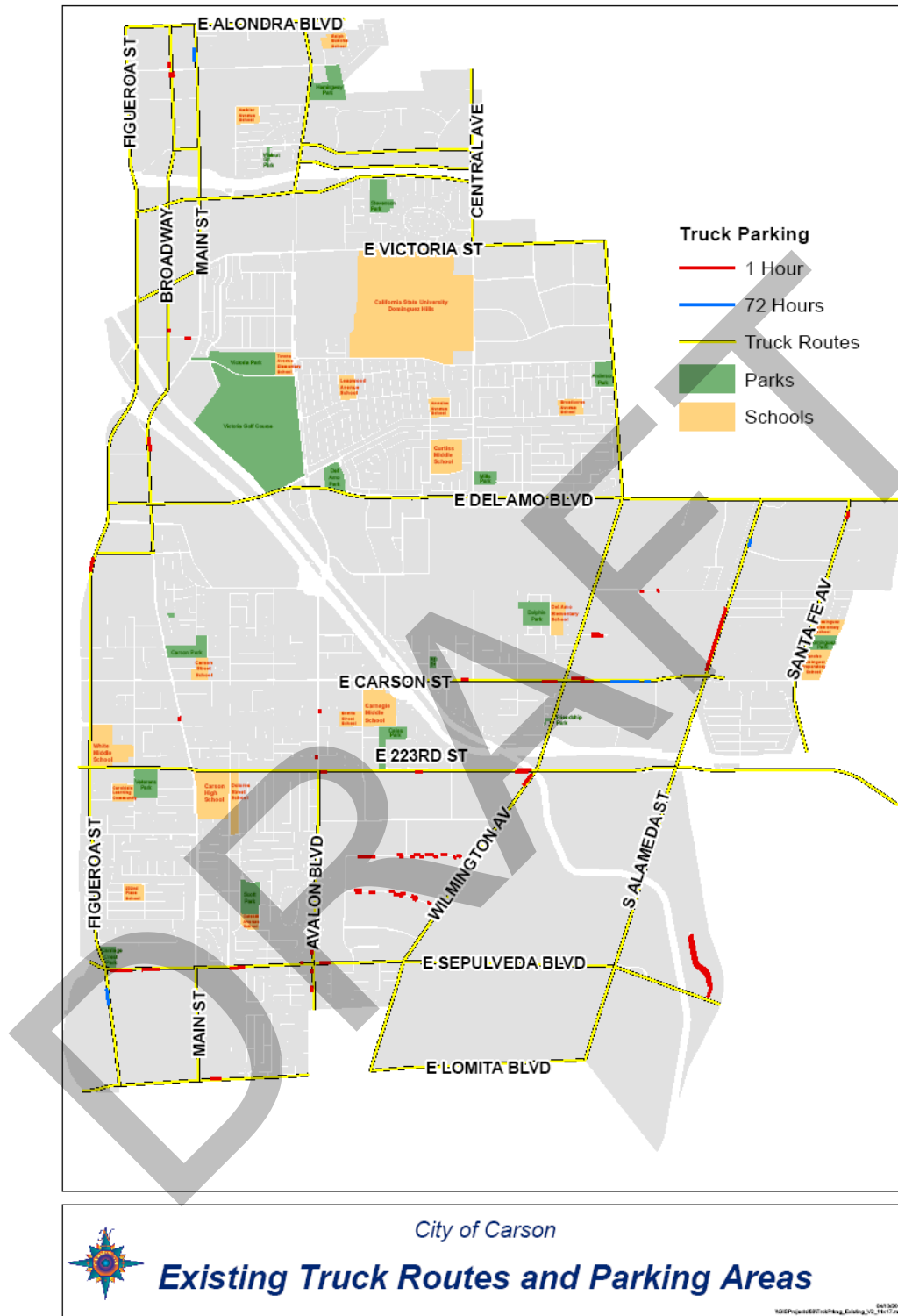


Figure 18: City of Carson Truck Routes

15. Location

As illustrated in Figure 19, 7 sections of truck routes were identified for the removal and replacement, or installation of a soundwall. These streets are listed below:

1. Albertoni Street – Main Street to Central Avenue (3,000 feet)
2. Del Amo Boulevard – Main Street to I-405 (4,000 feet)
3. Wilmington Avenue – University Avenue to Del Amo Boulevard (3,000 feet)
4. Wilmington Avenue – 213th Street to 300 feet N/O Carson Street (1,000 feet)
5. Wilmington Avenue – 300 feet S/O Carson Street to I-405 (1,800 feet)
6. 223rd Street – Figueroa Street to Avalon Boulevard (8,000 feet)
7. Sepulveda Boulevard – Main Street to Wilmington Avenue (8,000 feet)

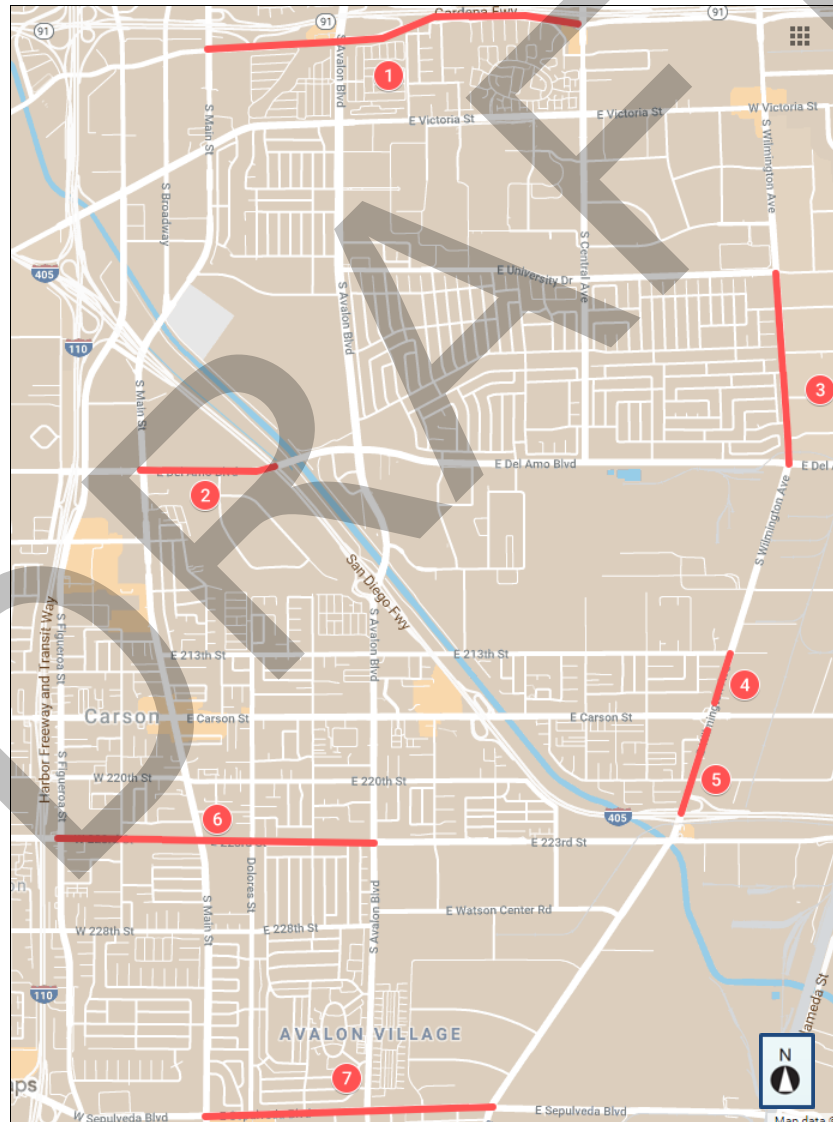


Figure 19: Sound Wall Locations

16. Projects

The Interim Development Impact Fee Analysis studies the impact on traffic and noise from development and determines the cost allocation which is distributed to the various developers. This report analyzes 23 different projects throughout the City. This section concentrates on the proposed placement of soundwalls and has determined the location of the soundwalls and the projects which contribute to the increase in traffic along the truck routes. As shown in Figure 20, a total of 10 projects have been identified which are contributing factors to the increase in noise levels along the truck routes requiring a soundwall. The projects are listed below in Table 13 with trip generation and land use data included:

Table 13: Project Trip Generation Estimate

Related Project Trip Generation Estimate											
No.	Project Location	Land Use	Quantity	Unit	Trip Generation (Passenger Car Equivalent)						
					Daily	AM			PM		
						IN	OUT	TOTAL	IN	OUT	TOTAL
1	2315 E. Dominguez Street	Industrial	132	TS	378	48	19	66	20	37	57
2	2149 E. Sepulveda Boulevard	Industrial	800	TS	1,305	165	64	229	69	129	198
6	24700 Main Street	Industrial	253	KSF	2,010	234	32	265	34	246	280
7	20400 Main Street	Commercial	730	KSF	18,808	290	178	468	911	987	1,898
8	20881 S. Main Street	Industrial	158.45	KSF	1,372	193	79	272	82	147	229
9	18701 S. Wilmington Avenue	Industrial	438.67	KSF	3,486	405	55	460	58	427	485
13	LA DWP corridor in South Carson	Industrial	580	TS	2,204	273	410	683	270	358	628
14	22632 S. Alameda Street	Industrial	18.36	KSF	221	28	4	32	5	25	30
15	18530 Broadway	Industrial	20.16	KSF	169	20	3	23	3	21	24
18	20601 S. Main Street	Industrial	53	KSF	1,358	177	71	248	75	137	212
KSF = 1,000 gross square feet of building area, TS = Truck Space											

17. Future Conditions

The City of Carson has 23 projects planned for the future which were studied in this report. It was determined that 10 of these projects have a direct impact on the increase of noise levels along the truck routes shown in Figure 20. These projects include the construction of commercial and industrial storage facilities, truck yards, and warehouses which will add a combined total of 31,311 daily trips to the roadway sections selected for the installation of soundwall. This increase in traffic added by the future developments will increase the amount and level of noise throughout the City. The installation of the soundwalls will help mitigate the noise pollution along the truck routes by decreasing the noise level. The height and location of the walls will be based on lowering the noise level as close to 67 decibels (dBA) per the 2013 Caltrans Technical Noise Supplement (TeNS). This report focused on areas of the City which have the highest levels of noise according to the City of Carson's General Plan. The projects listed in Table 13 are illustrated below in Figure 20.

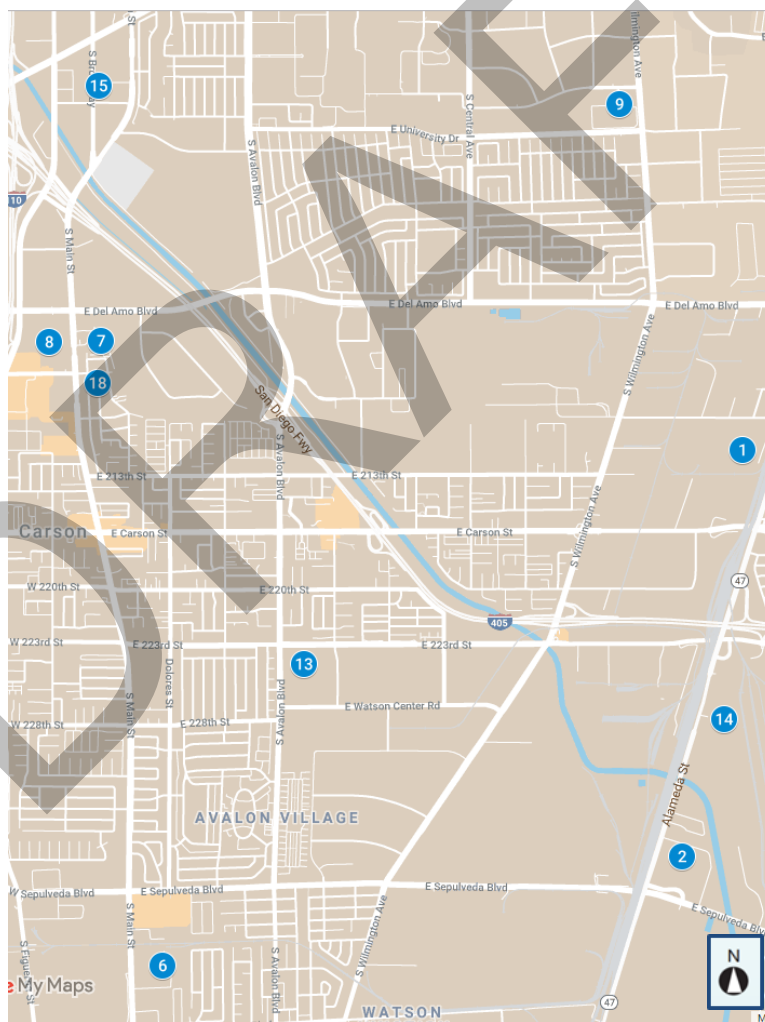


Figure 20: Project Locations

18. Methodology

The process used for determining the development impact on noise levels along selected truck routes in the City of Carson utilizes the guidelines, data, and policies provided by the City of Carson's General Plan, Caltrans Standard Plans, Caltrans Contract Cost Data, the Caltrans Highway Design Manual, Caltrans Technical Noise Supplement (TeNS), and California Manual on Uniform Traffic Control Devices (CA MUTCD). Truck routes (as shown in Figure3) in the City were examined for proximity to the list of projects provided and whether or not roadway segments were adjacent to residential neighborhoods. After identifying the corridors which qualify as being affected by nearby development impacts, noise level data was evaluated to determine which areas exceeded the standard of 67 dBA. Once the areas of concern were identified, the corridors were evaluated for soundwall design considerations to reduce the noise level to below the standard. According to Chapter 7 of the City's General Plan, the existing noise levels at the residential locations decrease due to various sound barriers such as vegetation or trees, embankments, and fencing or property walls in place. These barriers can reduce the measured noise level by as much as 5-10 dBA, this study will use the minimum decrease in noise level of 5 dBA (See Table 14). These areas currently exceed the maximum noise level standard and will be further impacted by the projects listed in Table 13.

Table 14: Selected Truck Routes Noise Levels

Selected Truck Route Sections and Current Noise Levels			
Location (List From Section 3)	Associated Project	Existing Noise Level	Existing Noise Level (minus 5 dBA)
1. Albertoni Street	9 – 18701 S. Wilmington Avenue 15 – 18530 Broadway	74.4 dBA	69.4 dBA
2. Del Amo Boulevard	7 – 20400 Main Street 8 – 20881 S. Main Street 18 – 20601 S. Main Street	75.1 dBA	70.1 dBA
3. Wilmington Avenue	1 – 2315 E. Dominguez Street 9 – 18701 S. Wilmington Avenue	75.5 dBA	70.5 dBA
4. Wilmington Avenue	1 – 2315 E. Dominguez Street 14 – 22632 S. Alameda Street	79.5 dBA	74.5 dBA
5. Wilmington Avenue	1 – 2315 E. Dominguez Street 14 – 22632 S. Alameda Street	79.5 dBA	74.5 dBA

Selected Truck Route Sections and Current Noise Levels			
Location (List From Section 3)	Associated Project	Existing Noise Level	Existing Noise Level (minus 5 dBA)
6. 223 rd Street	13 – LA DWP 14 – 22632 S. Alameda Street	74.4 dBA	69.4 dBA
7. Sepulveda Boulevard	2 – 2149 E Sepulveda Boulevard 6 – 24700 S. Main Street	77.7 dBA	74.7 dBA

19. Cost of Sound Wall

All mitigations include the construction of a soundwall and based upon existing and future conditions. The cost of the soundwall varies in height, length, materials, and installation costs. The cost estimates for the proposed sound walls were obtained from 2018 Caltrans Contract Cost Data and is presented below in Table 15.

Table 15: Cost of Sound Wall Barrier per Linear Foot

Height of wall	Material	Quantity (1)	Unit Cost (2)	Cost per Item (1x2)	Total Cost per Linear Foot
6 Feet	Structural Concrete	.33 Cubic Yards	\$950.00	= \$314	\$494 + 20% Construction Contingency = \$593
	Rebar	20 lb	\$1.50	= \$30	
	Soundwall	6 Feet	\$30.00	= \$150	
10 Feet	Structural Concrete	.55 Cubic Yards	\$950.00	= \$523	\$868 + 20% Construction Contingency = \$1040
	Rebar	30 lb	\$1.50	= \$45	
	Soundwall	10 Feet	\$30.00	= \$300	

The height of each soundwall was based on the potential reduction in noise level per the Caltrans Technical Noise Supplement. The installation of a 6 foot soundwall will reduce the noise level by 5 dBA and the installation of a 10 foot soundwall will reduce the noise level by 7 dBA. Each wall was selected according to the number of decibels needed to reduce each roadway section to below or close to the standard noise level of 67 dBA.

1. Albertoni Street – Portions from Main Street to Central Avenue (3,000 feet). This segment borders a residential neighborhood on the south side of the truck route for a length of 3,000 feet.

The corridor has an existing noise level of 69.4 dBA, the installation of a 6 foot soundwall will decrease the noise level to 64.4 dBA.

2. Del Amo Boulevard – Main Street to I-405 (4,000 feet). This segment borders a residential neighborhood on the north and south side of the truck route for a length of 4,000 feet. The selected corridor has an existing decibel noise level of 70.1 dBA, the installation of a 6 foot soundwall will decrease the noise level to 66.1 dBA.
3. Wilmington Avenue – University Avenue to Del Amo Boulevard (3,000 feet). This length of Wilmington Avenue borders a residential neighborhood on the west side of the truck route for a length of 3,000 feet. This segment has an existing noise level of 70.5 dBA, the installation of a 6 foot soundwall will decrease the noise level to 65.5dBA.
4. Wilmington Avenue – 213th Street to 300 feet N/O Carson Street (1,000 feet). This segment borders a residential neighborhood on the west side of the truck route for a length of 1,000 feet. The selected street has an existing decibel noise level of 74.5 dBA, the installation of a 10 foot soundwall will decrease the noise level to 67.5 dBA.
5. Wilmington Avenue – 300 feet S/O Carson Street to I-405 (1,800 feet). This segment borders a residential neighborhood on the west side of the truck route for a length of 1,800 feet. The selected roadway has an existing decibel noise level of 74.5 dBA, the installation of a 10 foot soundwall will decrease the noise level to 67.5 dBA.
6. 223rd Street – Portions from Figueroa Street to Avalon Boulevard (8,000 feet). This segment borders a residential neighborhood on the north and south side of the truck route for a length of 8,000 feet. The selected route has an existing noise level of 69.4 dBA, the installation of a 6 foot soundwall will decrease the noise level to 64.4 dBA.
7. Sepulveda Boulevard – Main Street to Wilmington Avenue (8,000 feet). This portion of Sepulveda Boulevard borders a residential neighborhood on the north and south side of the truck route for a length or 8,000 feet. The study corridor has an existing noise level of 74.7 dBA, the installation of a 10 foot soundwall will decrease the noise level to 67.7 dBA.

20. Improvement Cost:

The cost estimate of improvements for each impacted truck route is shown in Table 16.

Table 16: *Truck Route Mitigation Cost*

Total Cost of Improvements for Impacted Truck Routes				
Impacted Truck Routes	Proposed Height of Sound Wall	Length of Sound Wall	Unit Cost of Sound Wall per Linear Foot	Total Cost
1. Albertoni St.	6 Feet	3,000 Feet	\$593	\$1,779,000
2. Del Amo Blvd.	6 Feet	4,000 Feet	\$593	\$2,372,000
3. Wilmington Ave.	6 Feet	4,000 Feet	\$593	\$2,372,000
4. Wilmington Ave.	10 Feet	1,000 Feet	\$1,040	\$1,040,000
5. Wilmington Ave.	10 Feet	1,800 Feet	\$1,040	\$1,872,000
6. 223 rd St.	6 Feet	8,000 Feet	\$593	\$4,744,000
7. Sepulveda Blvd.	10 Feet	8,000 Feet	\$1,040	\$8,320,000
Total =				\$22,499,000

The total cost of \$22,499,000 shown in Table 16 is distributed to each associated project by dividing the total cost by the number of daily trips produced by each project per square feet of building space or per truck space. Based on each projects percentage of the trips contributed will determine the cost allocation to each individual development as shown in Table 17.

Table 17: Allocation of Costs per Development

Allocation of Costs						
Impacted Truck Routes	Associated Projects	Total Trips/ KSF or TS ^[1]	% Share of Improvements	Total Cost of Improvements	Cost Per SF or TS	Cost Allocation
1. Albertoni St.	9 – 18701 S. Wilmington Ave.	3,486/438.66KSF	95%	\$1,779,000	\$3.85	\$1,690,050
	15 – 18530 Broadway	169/ 20.16 KSF	5%		\$4.41	\$88,950
2. Del Amo Blvd.	7 – 20400 Main St.	18,808/730 KSF	87%	\$2,372,000	\$2.83	\$2,063,640
	8 – 20881 S. Main St.	1,372/158.45 KSF	7%		\$1.05	\$166,040
	18 – 20601 S. Main St	1,358/53 KSF	6%		\$2.69	\$142,320
3. Wilmington Ave.	1 – 2315 E. Dominguez St.	378/ 132 TS	10%	\$2,372,000	\$1,797	\$237,200
	9 – 18701 S. Wilmington Ave.	3,486/ 438.66 KSF	90%		\$4.87	\$2,134,800
4. Wilmington Ave.	1 – 2315 E. Dominguez St.	378/ 132 TS	63%	\$1,040,000	\$4,964	\$655,200
	14 – 22632 S. Alameda St.	221/ 18.36 KSF	37%		\$20.96	\$384,800
5. Wilmington Ave.	1 – 2315 E. Dominguez St.	378/ 132 TS	63%	\$1,872,000	\$8,935	\$1,179,360
	14 – 22632 S. Alameda St.	221/ 18.36 KSF	37%		\$37.73	\$692,640
6. 223 rd St.	13 – LA DWP	2,204/ 580 TS	91%	\$4,744,000	\$7,443	\$4,317,040
6. 223 rd St.	14 – 22632 S. Alameda St.	221/ 18.36 KSF	9%	\$4,744,000	\$23.25	\$426,960

Allocation of Costs						
Impacted Truck Routes	Associated Projects	Total Trips/ KSF or TS ^[1]	% Share of Improvements	Total Cost of Improvements	Cost Per SF or TS	Cost Allocation
7. Sepulveda Blvd.	2 – 2149 E. Sepulveda Blvd.	1,305/ 800 TS	39%	\$8,320,000	\$4056	\$3,244,800
	6 – 24700 Main St.	2,010/253 KSF	61%		\$20	\$5,075,200
Total =						\$22,499,000
¹ KSF = 1,000 gross square feet of building area, TS = Truck Space						

21. Projected Revenue

Revenue from the development impact fees concerning the installation of sound wall barriers to mitigate noise levels can be found in Total Cost Allocation in Table 17. Assuming that development occurs and the sound wall barriers are constructed the revenue projected in Table 17 would approximately cover the share of improvement costs. Costs and impact fees in this report are shown in current (2019) dollars. Once adopted, impact fees should be adjusted at least annually, to reflect changes in price levels.

Appendix A: Intersection Turning Movements

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ITM Peak Hour Summary

Prepared by:

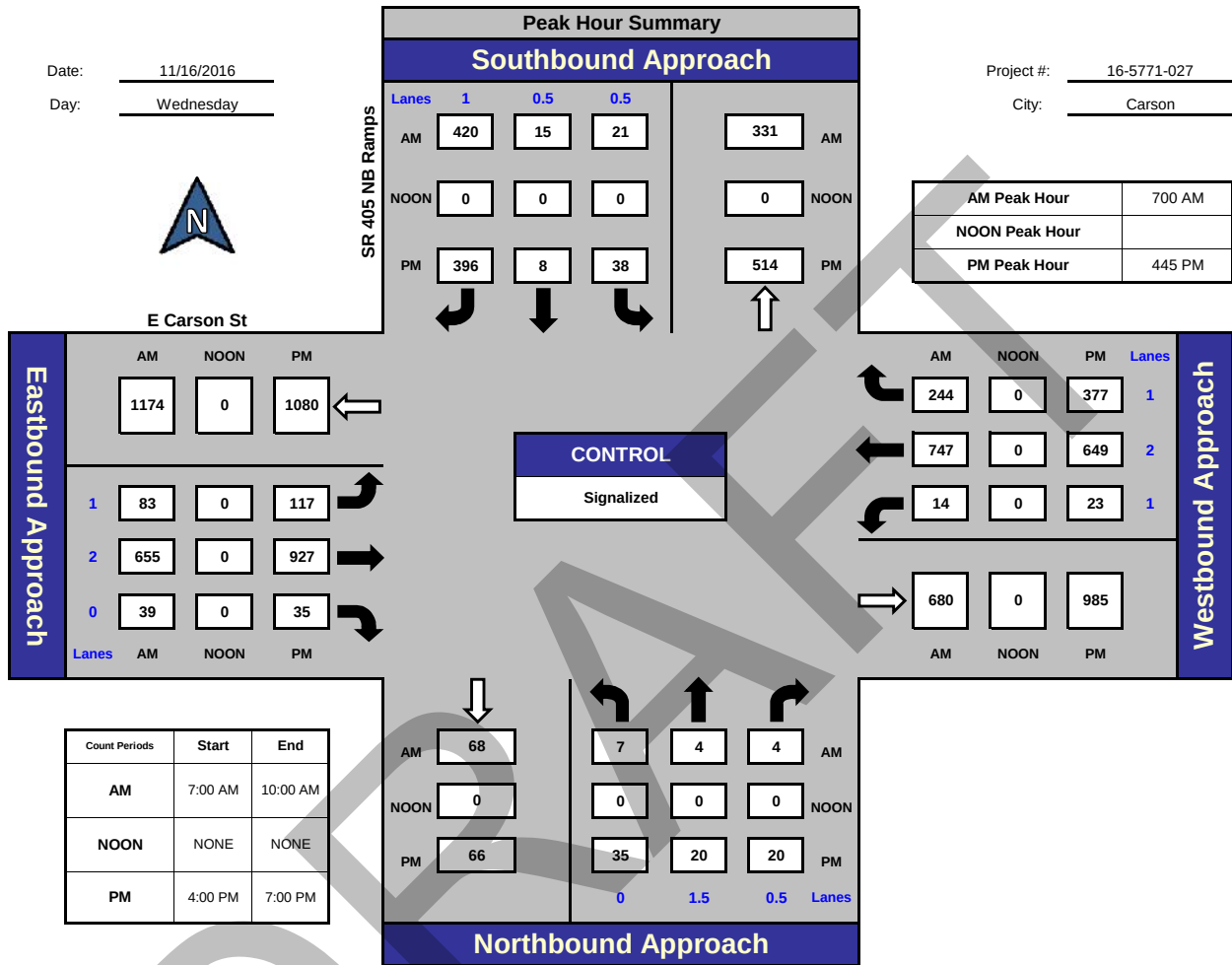


National Data & Surveying Services

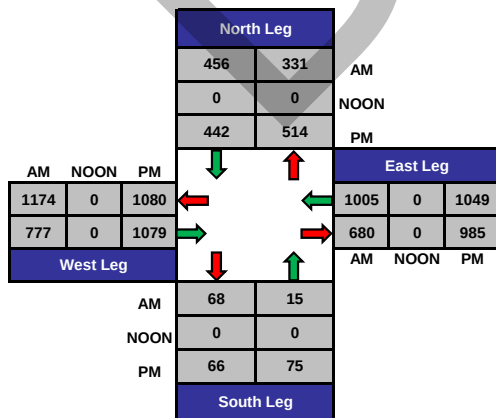
SR 405 NB Ramps and E Carson St, Carson

Date: 11/16/2016
Day: Wednesday

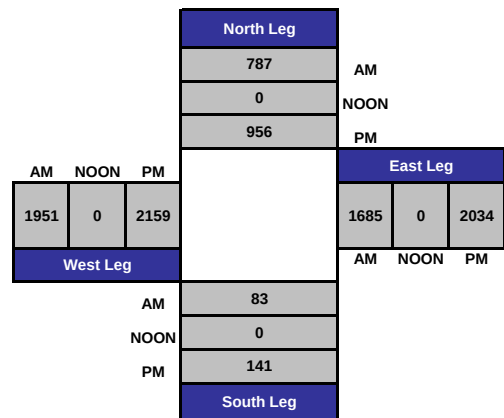
Project #: 16-5771-027
City: Carson



Total Ins & Outs



Total Volume Per Leg



ITM Peak Hour Summary

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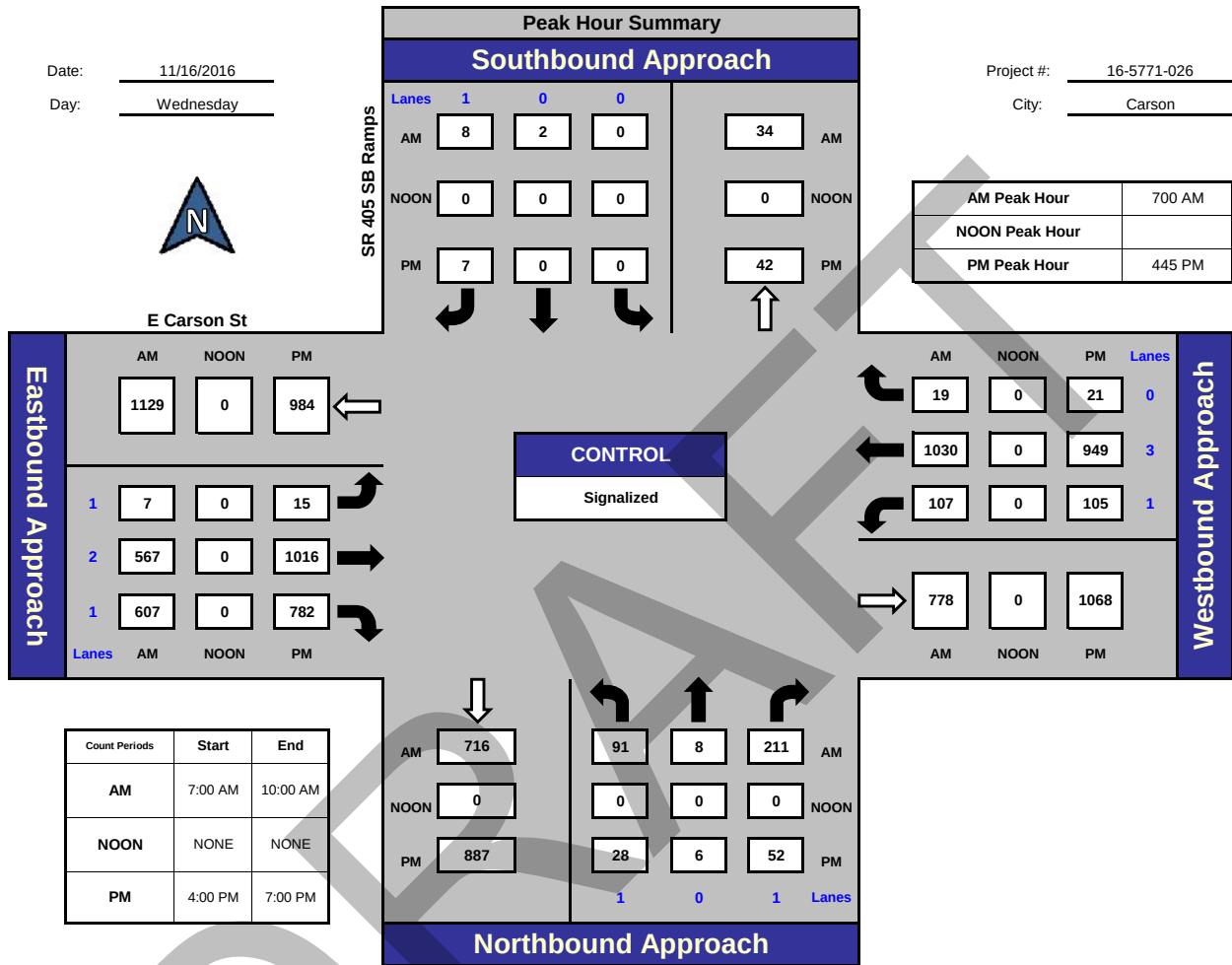


National Data & Surveying Services

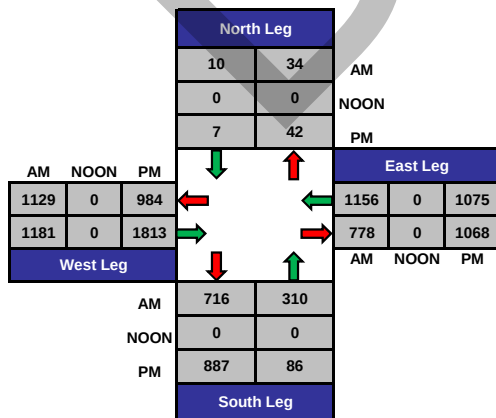
SR 405 SB Ramps and E Carson St, Carson

Date: 11/16/2016
Day: Wednesday

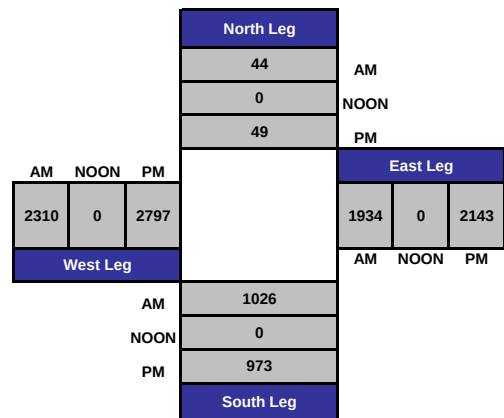
Project #: 16-5771-026
City: Carson



Total Ins & Outs



Total Volume Per Leg



ITM Peak Hour Summary

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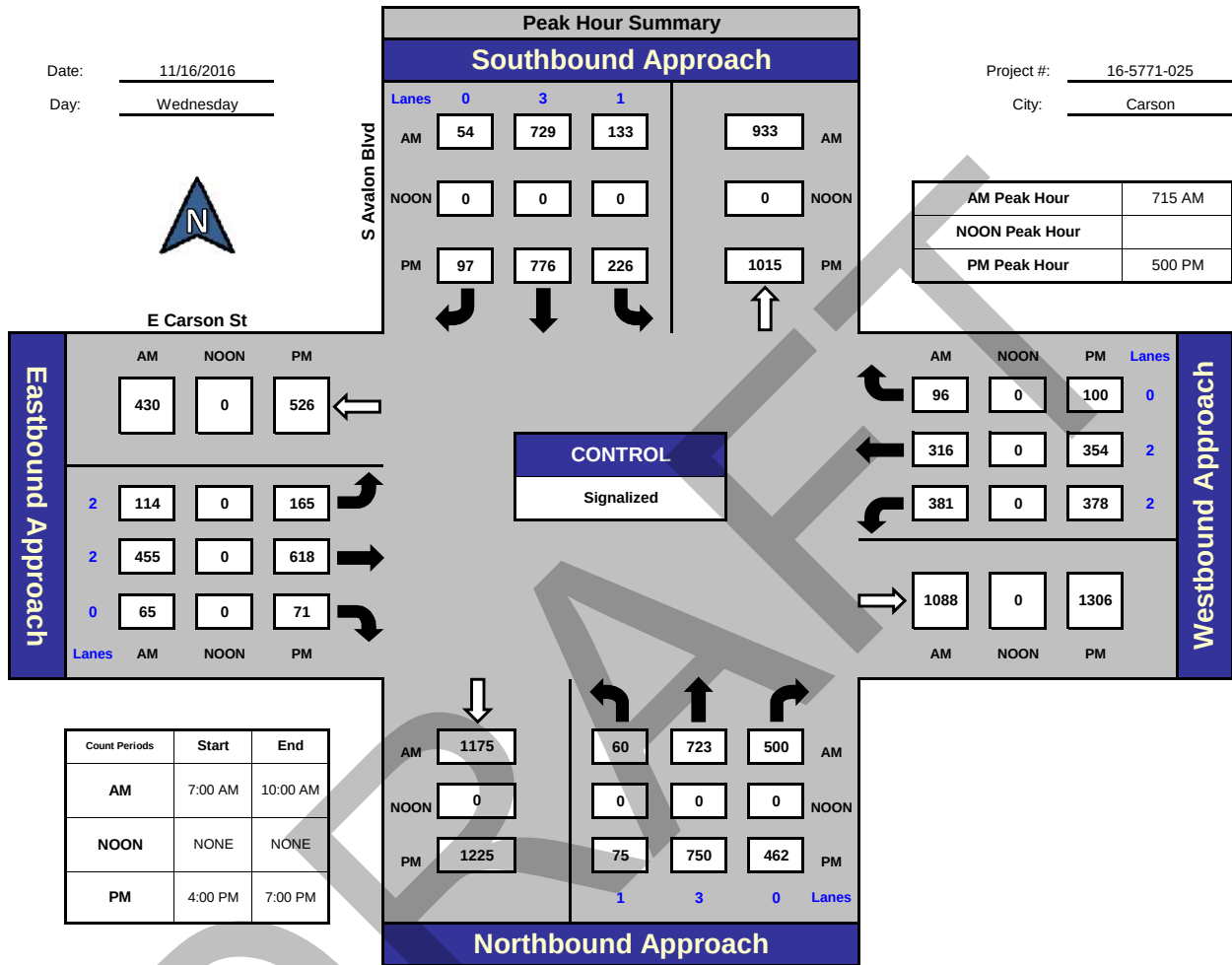


National Data & Surveying Services

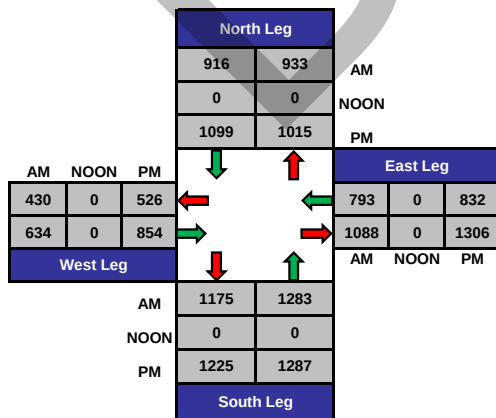
S Avalon Blvd and E Carson St, Carson

Date: 11/16/2016
Day: Wednesday

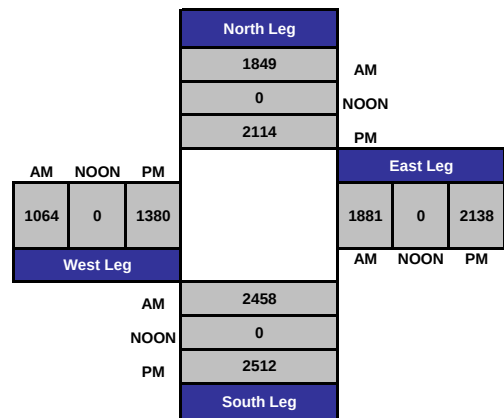
Project #: 16-5771-025
City: Carson



Total Ins & Outs



Total Volume Per Leg



ITM Peak Hour Summary

Prepared by:

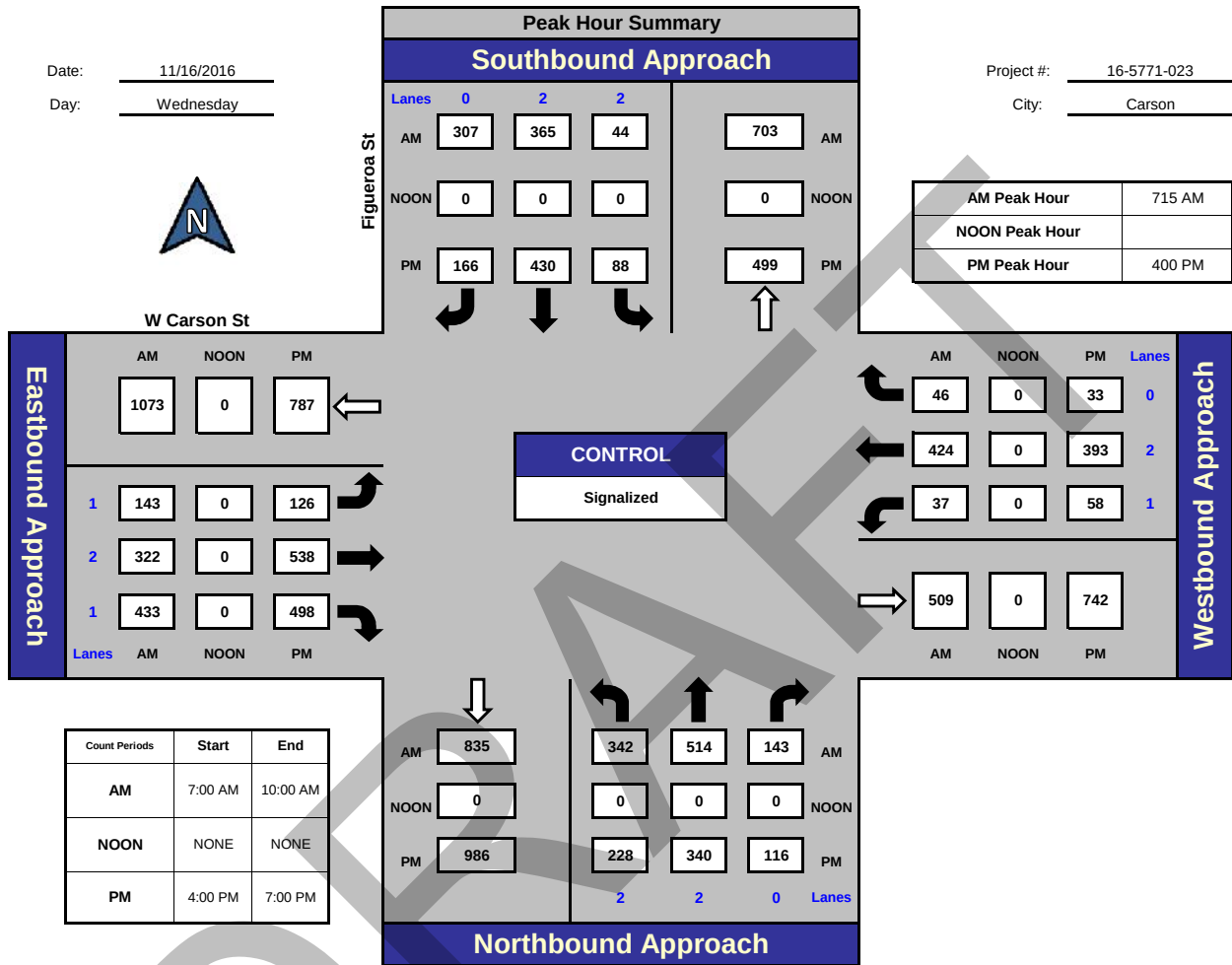


National Data & Surveying Services

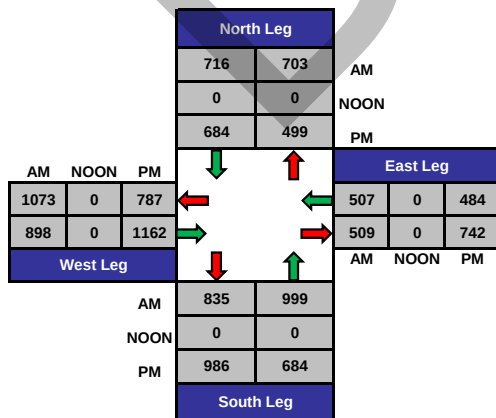
Figueroa St and W Carson St, Carson

Date: 11/16/2016
Day: Wednesday

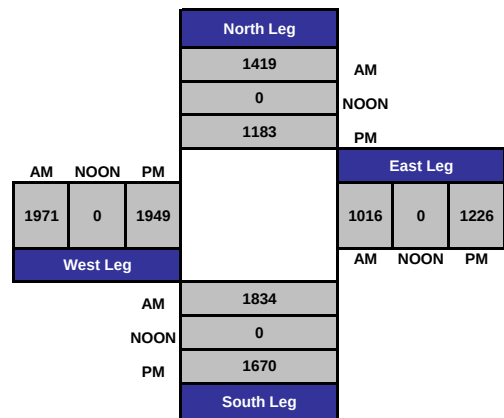
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City: Carson



Total Ins & Outs



Total Volume Per Leg



ITM Peak Hour Summary

Prepared by:

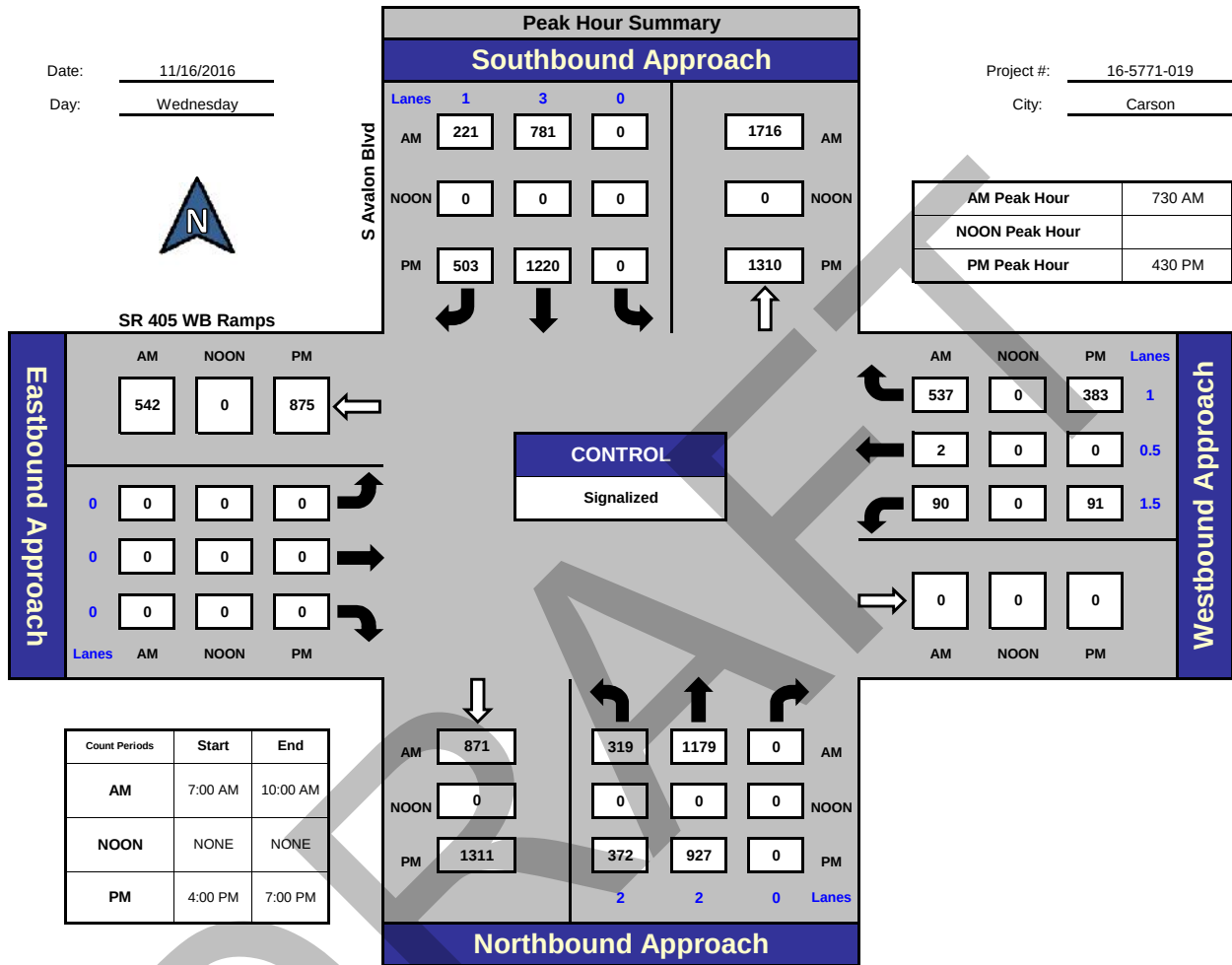


National Data & Surveying Services

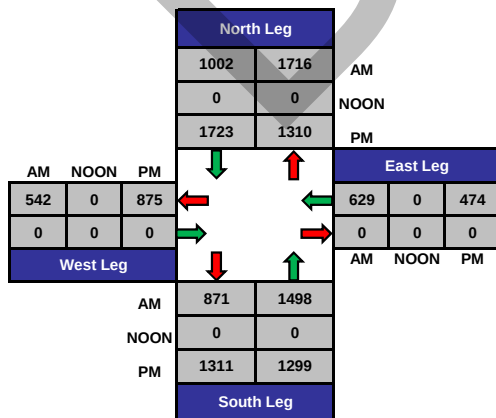
S Avalon Blvd and SR 405 WB Ramps, Carson

Date: 11/16/2016
Day: Wednesday

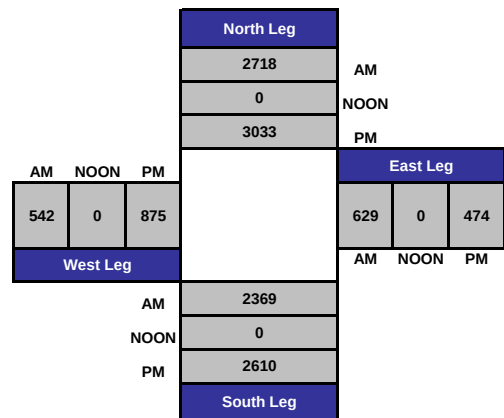
Project #: 16-5771-019
City: Carson



Total Ins & Outs



Total Volume Per Leg



ITM Peak Hour Summary

Prepared by:

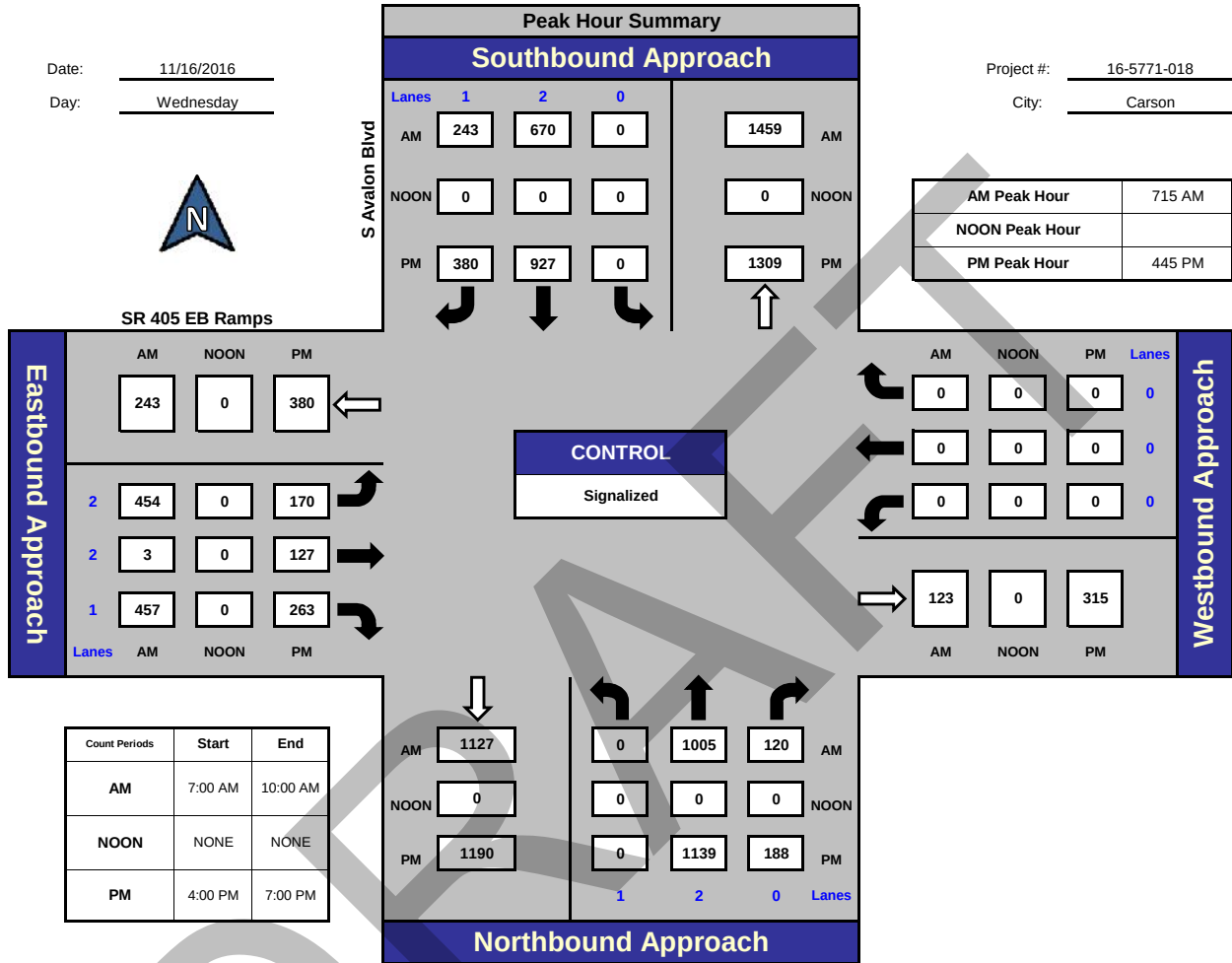


National Data & Surveying Services

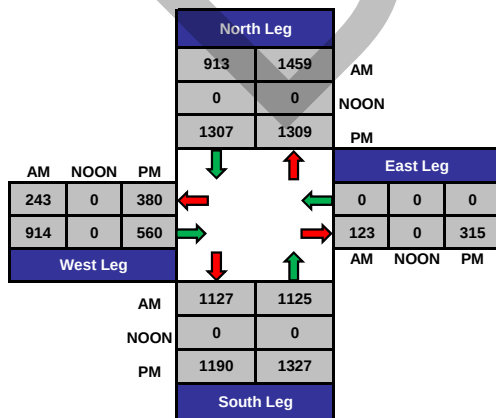
S Avalon Blvd and SR 405 EB Ramps, Carson

Date: 11/16/2016
Day: Wednesday

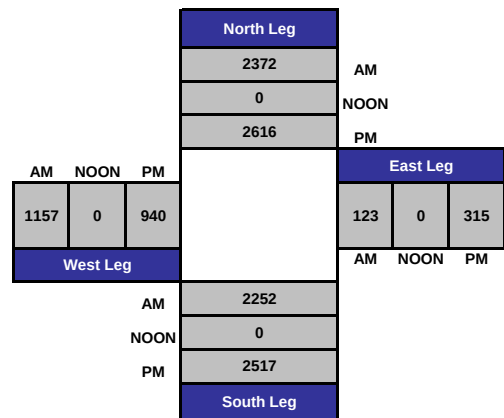
Project #: 16-5771-018
City: Carson



Total Ins & Outs



Total Volume Per Leg



ITM Peak Hour Summary

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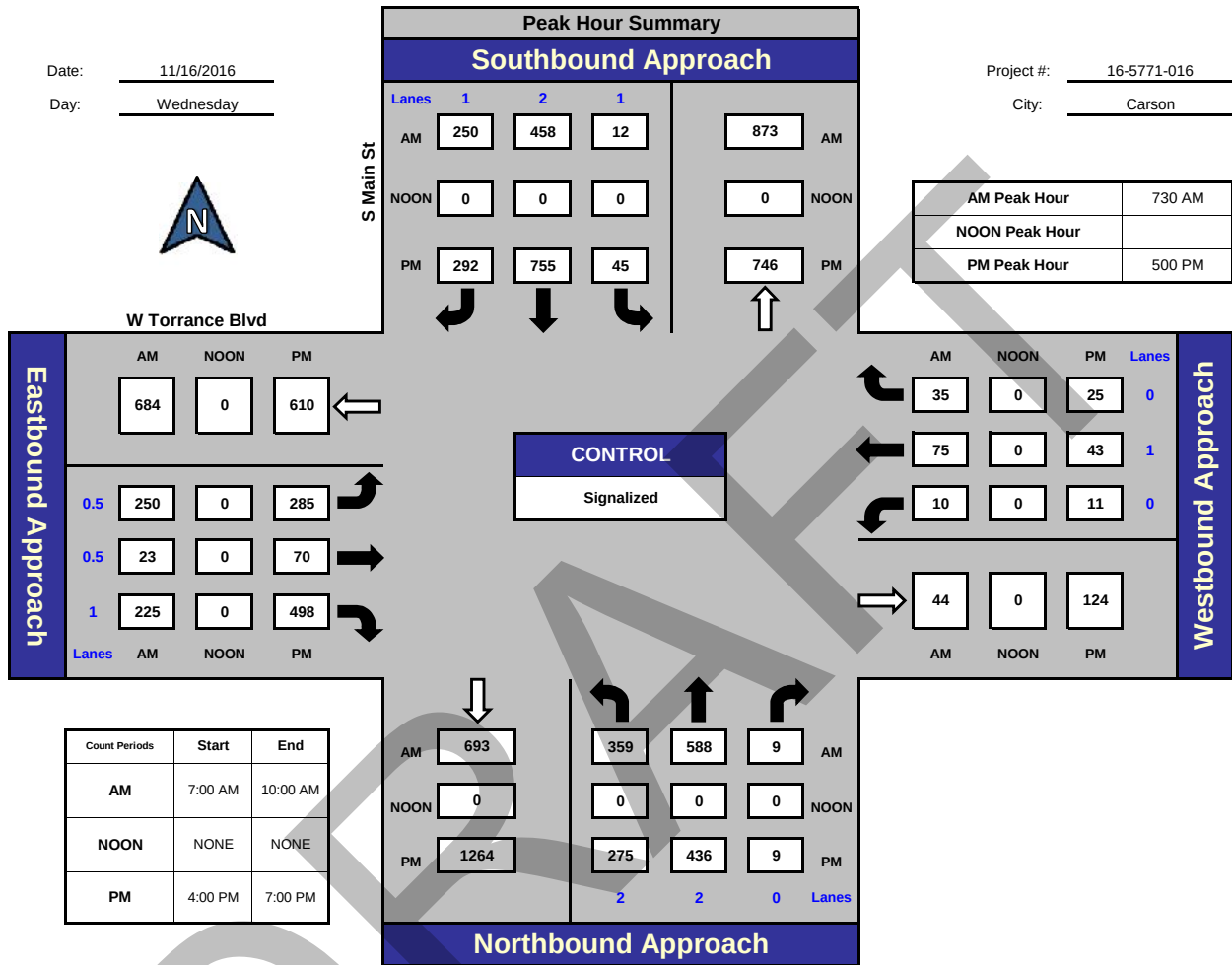


National Data & Surveying Services

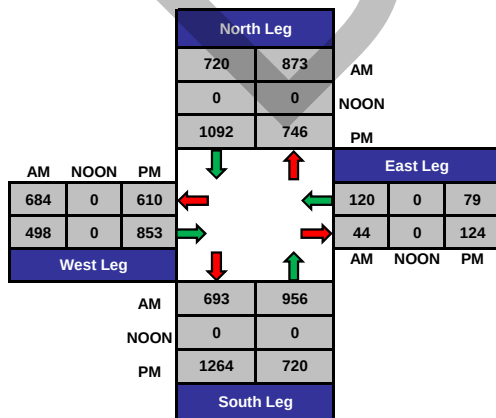
S Main St and W Torrance Blvd , Carson

Date: 11/16/2016
Day: Wednesday

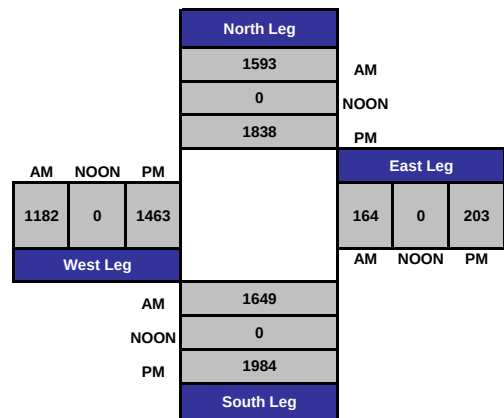
Project #: 16-5771-016
City: Carson



Total Ins & Outs



Total Volume Per Leg



ITM Peak Hour Summary

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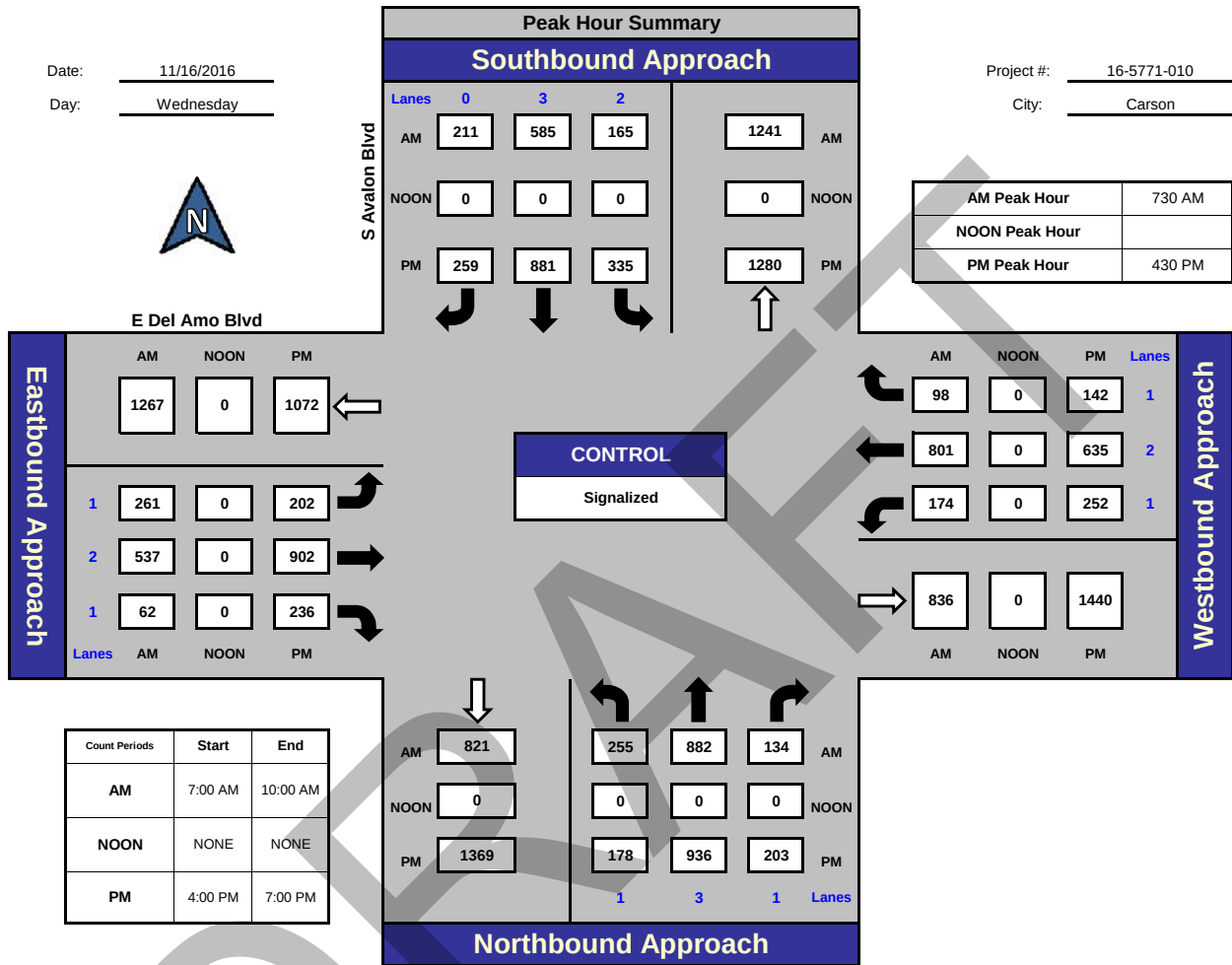


National Data & Surveying Services

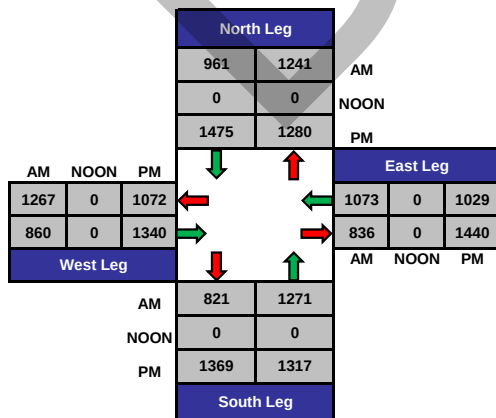
S Avalon Blvd and E Del Amo Blvd, Carson

Date: 11/16/2016
Day: Wednesday

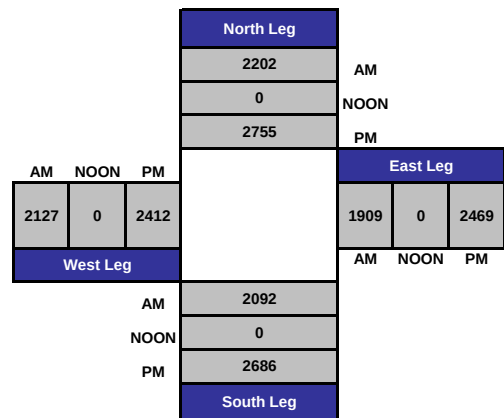
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City: Carson



Total Ins & Outs



Total Volume Per Leg



ITM Peak Hour Summary

Prepared by:

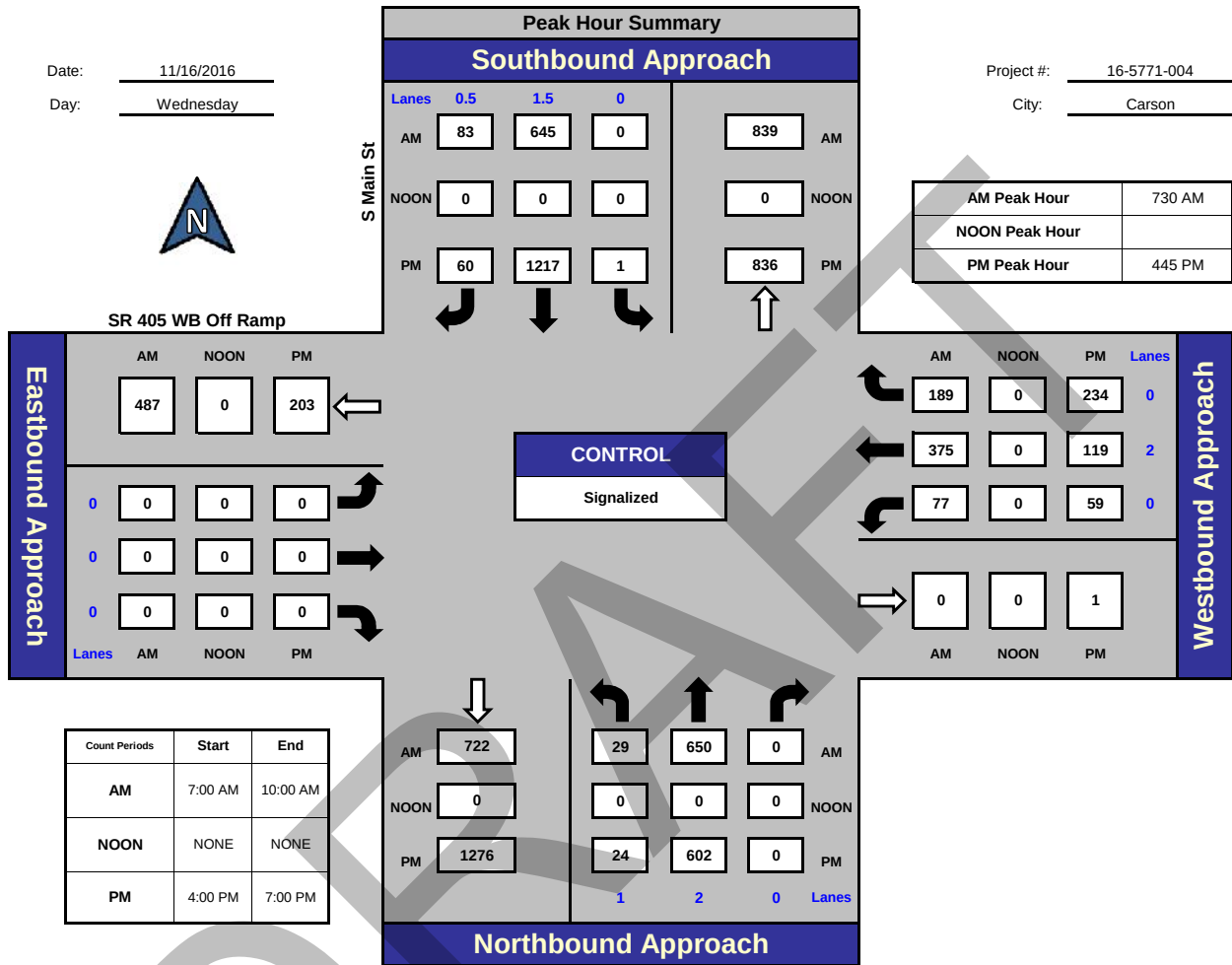


National Data & Surveying Services

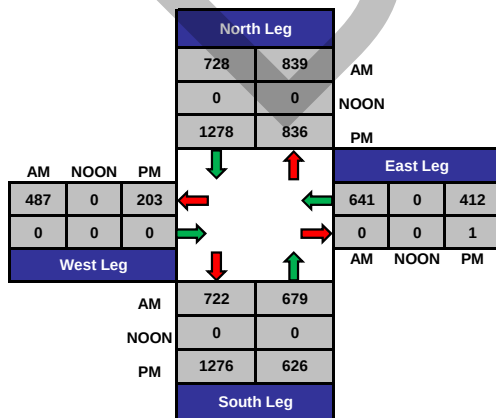
S Main St and SR 405 WB Off Ramp , Carson

Date: 11/16/2016
Day: Wednesday

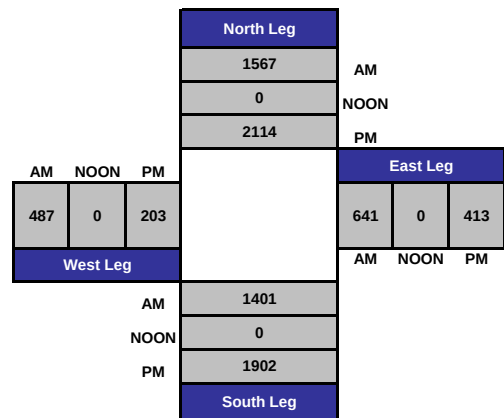
Project #: 16-5771-004
City: Carson



Total Ins & Outs



Total Volume Per Leg



ITM Peak Hour Summary

Prepared by:

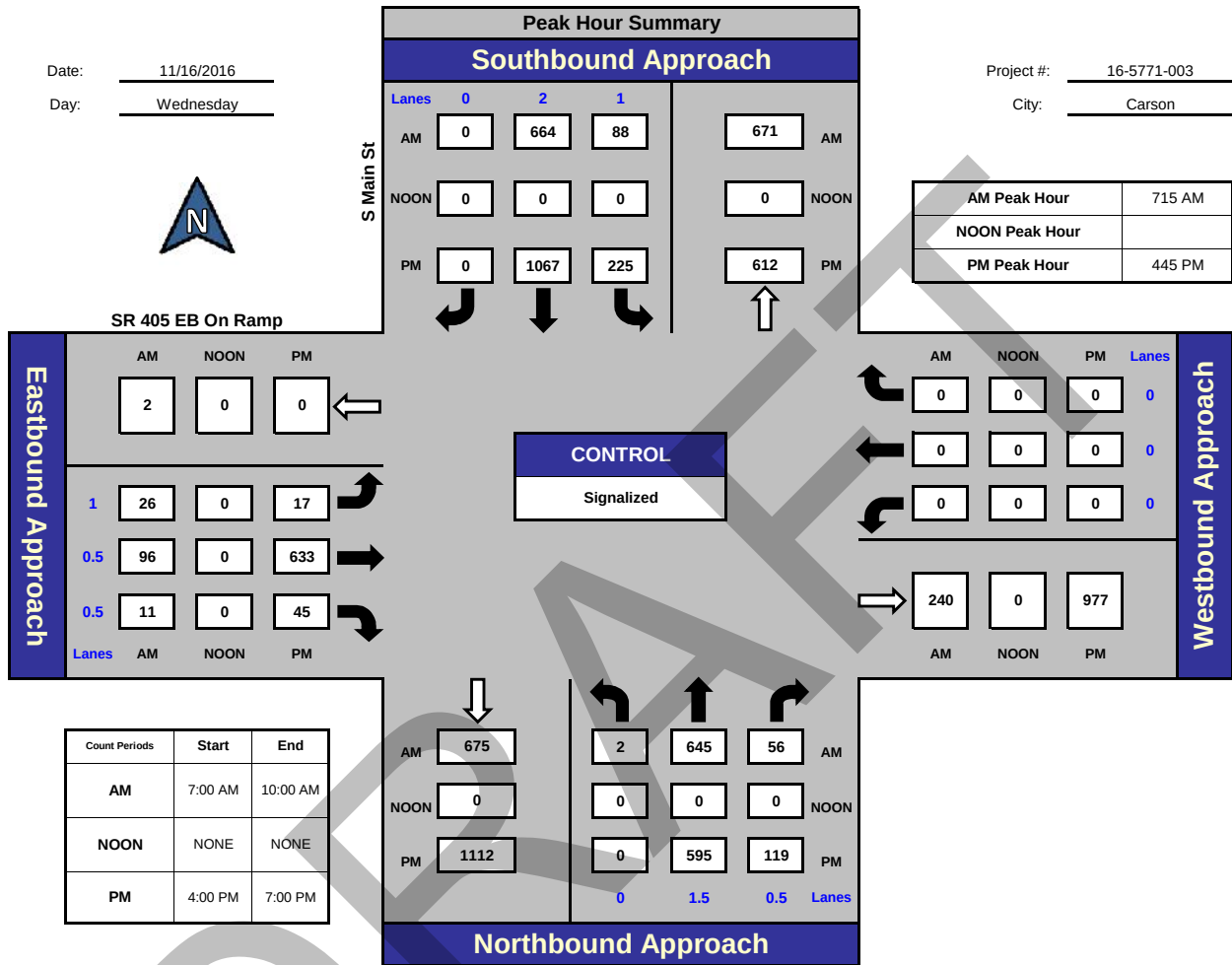


National Data & Surveying Services

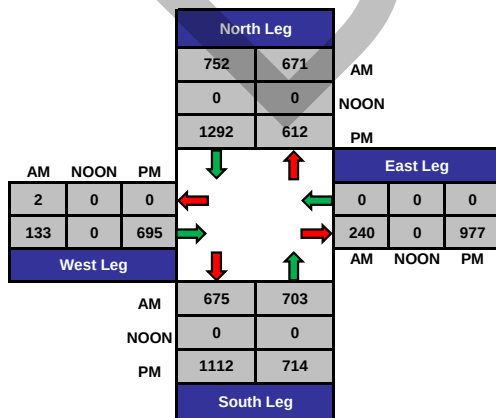
S Main St and SR 405 EB On Ramp , Carson

Date: 11/16/2016
Day: Wednesday

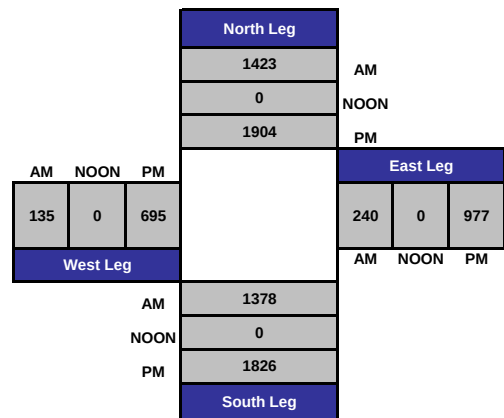
Project #: 16-5771-003
City: Carson



Total Ins & Outs



Total Volume Per Leg



Appendix B: Level of Service

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Existing without Development

Lanes, Volumes, Timings
1: S Figueroa St & I-405 SB Ramps

1/3/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	0	0	840	63	83	862
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	220	
Storage Lanes	0	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt			0.990			
Flt Protected					0.950	
Satd. Flow (prot)	0	0	3504	0	1770	3539
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	3504	0	1770	3539
Link Speed (mph)	40		40			40
Link Distance (ft)	607		2451			246
Travel Time (s)	10.3		41.8			4.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	913	68	90	937
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	981	0	90	937
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	12		12			12
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Yield		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	49.6%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
2: S Figueroa St & I-405 NB Ramps

1/3/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	197	292	900	0	0	693
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1770	1583	3539	0	0	3539
Flt Permitted	0.950					
Satd. Flow (perm)	1770	1583	3539	0	0	3539
Link Speed (mph)	40		40			40
Link Distance (ft)	724		246			1243
Travel Time (s)	12.3		4.2			21.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	214	317	978	0	0	753
Shared Lane Traffic (%)						
Lane Group Flow (vph)	214	317	978	0	0	753
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	12		12			12
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	49.6%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings

3: S Main St & I-405 SB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	96	11	0	0	0	0	648	56	88	667	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	250		0
Storage Lanes	1		0	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.984						0.988				
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	1833	0	0	0	0	0	3497	0	1770	3539	0
Flt Permitted	0.950									0.950		
Satd. Flow (perm)	1770	1833	0	0	0	0	0	3497	0	1770	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11						17				
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		607			169			2341			290	
Travel Time (s)		10.3			2.9			35.5			4.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	104	12	0	0	0	0	704	61	96	725	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	116	0	0	0	0	0	765	0	96	725	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2						2		1	2	
Detector Template	Left	Thru						Thru		Left	Thru	
Leading Detector (ft)	20	100						100		20	100	
Trailing Detector (ft)	0	0						0		0	0	
Detector 1 Position(ft)	0	0						0		0	0	
Detector 1 Size(ft)	20	6						6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex						Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0						0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0						0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0						0.0		0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Prot	NA						NA		Prot	NA	
Protected Phases	4							2		1	6	
Permitted Phases		4										
Detector Phase	4	4						2		1	6	

Lanes, Volumes, Timings

3: S Main St & I-405 SB Ramps

1/3/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0						4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0						21.0		9.0	21.0	
Total Split (s)	21.0	21.0						22.0		12.0	34.0	
Total Split (%)	38.2%	38.2%						40.0%		21.8%	61.8%	
Maximum Green (s)	16.0	16.0						17.0		7.0	29.0	
Yellow Time (s)	4.0	4.0						4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0						1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0						0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0						5.0		5.0	5.0	
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Recall Mode	None	None						Max		None	Max	
Walk Time (s)	5.0	5.0						5.0			5.0	
Flash Dont Walk (s)	11.0	11.0						11.0			11.0	
Pedestrian Calls (#/hr)	0	0						0			0	
Act Effect Green (s)	8.2	8.2						27.6		6.7	35.0	
Actuated g/C Ratio	0.16	0.16						0.55		0.13	0.70	
v/c Ratio	0.10	0.38						0.40		0.41	0.29	
Control Delay	17.0	19.9						10.8		25.1	4.6	
Queue Delay	0.0	0.0						0.0		0.0	0.1	
Total Delay	17.0	19.9						10.8		25.1	4.7	
LOS	B	B						B		C	A	
Approach Delay		19.3						10.8			7.1	
Approach LOS		B						B			A	

Intersection Summary

Area Type: Other

Cycle Length: 55

Actuated Cycle Length: 50.1

Natural Cycle: 55

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.41

Intersection Signal Delay: 9.8

Intersection LOS: A

Intersection Capacity Utilization 55.1%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: S Main St & I-405 SB Ramps

ø1	ø2	ø4
12 s	22 s	21 s
ø6		
34 s		

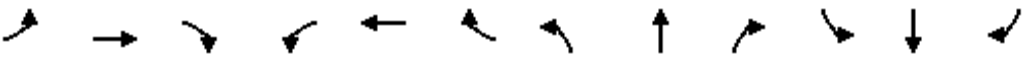
Lanes, Volumes, Timings
4: S Main St & I-405 NB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	77	377	190	29	653	0	0	648	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt					0.956						0.983	
Flt Protected					0.994		0.950					
Satd. Flow (prot)	0	0	0	0	3363	0	1770	3539	0	0	3479	0
Flt Permitted					0.994		0.316					
Satd. Flow (perm)	0	0	0	0	3363	0	589	3539	0	0	3479	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					118						38	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		724			336			290			724	
Travel Time (s)		12.3			5.7			4.4			11.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	84	410	207	32	710	0	0	704	90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	701	0	32	710	0	0	794	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	2		1	2			2	
Detector Template				Left	Thru		Left	Thru			Thru	
Leading Detector (ft)				20	100		20	100			100	
Trailing Detector (ft)				0	0		0	0			0	
Detector 1 Position(ft)				0	0		0	0			0	
Detector 1 Size(ft)				20	6		20	6			6	
Detector 1 Type				Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0		0.0	0.0			0.0	
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Detector Phase				8	8		2	2			6	
Switch Phase												
Minimum Initial (s)				4.0	4.0		4.0	4.0			4.0	
Minimum Split (s)				21.0	21.0		21.0	21.0			21.0	

Lanes, Volumes, Timings
4: S Main St & I-405 NB Ramps

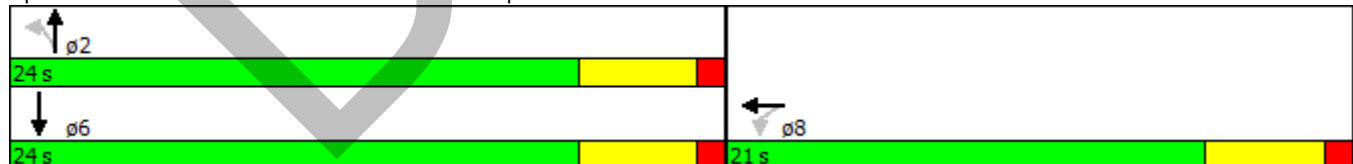
1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)				21.0	21.0		24.0	24.0			24.0	
Total Split (%)				46.7%	46.7%		53.3%	53.3%			53.3%	
Maximum Green (s)				16.0	16.0		19.0	19.0			19.0	
Yellow Time (s)				4.0	4.0		4.0	4.0			4.0	
All-Red Time (s)				1.0	1.0		1.0	1.0			1.0	
Lost Time Adjust (s)					0.0		0.0	0.0			0.0	
Total Lost Time (s)					5.0		5.0	5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0	3.0			3.0	
Recall Mode				None	None		Max	Max			Max	
Walk Time (s)				5.0	5.0		5.0	5.0			5.0	
Flash Dont Walk (s)				11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)				0	0		0	0			0	
Act Effect Green (s)					12.9		19.1	19.1			19.1	
Actuated g/C Ratio					0.31		0.45	0.45			0.45	
v/c Ratio					0.63		0.12	0.44			0.50	
Control Delay					12.9		9.3	9.5			9.6	
Queue Delay					0.0		0.0	0.0			0.0	
Total Delay					12.9		9.3	9.5			9.6	
LOS					B		A	A			A	
Approach Delay					12.9			9.5			9.6	
Approach LOS					B			A			A	

Intersection Summary

Area Type:	Other
Cycle Length: 45	
Actuated Cycle Length: 42.1	
Natural Cycle: 45	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 10.6	Intersection LOS: B
Intersection Capacity Utilization 55.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: S Main St & I-405 NB Ramps



Lanes, Volumes, Timings
5: S Figueroa St & W Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	146	381	98	145	914	160	196	721	324	42	378	437
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	60		0	240		240	240		0	245		245
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.969				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4928	0	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	4928	0	1770	3539	1583	1770	3539	1583	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		74				232			352			300
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		519			1251			791			2451	
Travel Time (s)		7.9			19.0			13.5			41.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	159	414	107	158	993	174	213	784	352	46	411	475
Shared Lane Traffic (%)												
Lane Group Flow (vph)	159	521	0	158	993	174	213	784	352	46	411	475
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6

Lanes, Volumes, Timings
5: S Figueroa St & W Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	21.0		9.0	21.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	13.0	23.0		19.0	29.0	29.0	16.0	29.0	29.0	9.0	22.0	22.0
Total Split (%)	16.3%	28.8%		23.8%	36.3%	36.3%	20.0%	36.3%	36.3%	11.3%	27.5%	27.5%
Maximum Green (s)	8.0	18.0		14.0	24.0	24.0	11.0	24.0	24.0	4.0	17.0	17.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)		5.0			5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0			11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0	0		0	0		0	0
Act Effect Green (s)	8.0	20.3		11.7	24.0	24.0	11.0	27.6	27.6	4.0	17.0	17.0
Actuated g/C Ratio	0.10	0.25		0.15	0.30	0.30	0.14	0.34	0.34	0.05	0.21	0.21
v/c Ratio	0.90	0.40		0.61	0.94	0.27	0.88	0.64	0.45	0.52	0.55	0.83
Control Delay	84.3	22.7		42.2	44.5	2.4	69.6	26.0	4.7	59.5	31.2	25.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.3	22.7		42.2	44.5	2.4	69.6	26.0	4.7	59.5	31.2	25.5
LOS	F	C		D	D	A	E	C	A	E	C	C
Approach Delay		37.1			38.7			27.3			29.7	
Approach LOS		D			D			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 32.9

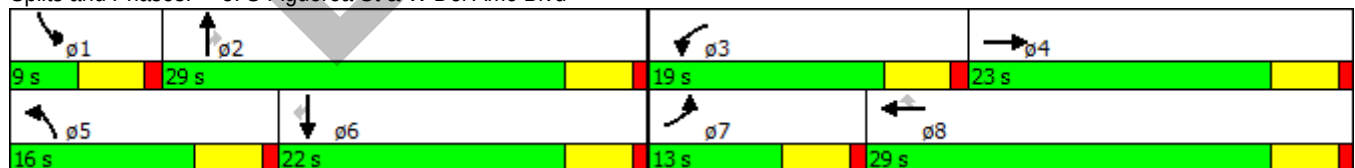
Intersection LOS: C

Intersection Capacity Utilization 75.7%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: S Figueroa St & W Del Amo Blvd



Lanes, Volumes, Timings

6: S Main St & W Del Amo Blvd/E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	142	549	38	219	1071	61	76	518	240	51	472	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		0	195		0	150		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.990			0.992			0.952			0.968	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5034	0	1770	5045	0	1770	3369	0	1770	3426	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	5034	0	1770	5045	0	1770	3369	0	1770	3426	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			13			111			49	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1251			1668			534			2341	
Travel Time (s)		19.0			25.3			8.1			35.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	154	597	41	238	1164	66	83	563	261	55	513	137
Shared Lane Traffic (%)												
Lane Group Flow (vph)	154	638	0	238	1230	0	83	824	0	55	650	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Detector Phase	7	4		3	8		5	2		1	6	

Lanes, Volumes, Timings

6: S Main St & W Del Amo Blvd/E Del Amo Blvd

1/3/2019

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	21.0		9.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	13.0	21.0		14.0	22.0		9.0	21.0		9.0	21.0	
Total Split (%)	20.0%	32.3%		21.5%	33.8%		13.8%	32.3%		13.8%	32.3%	
Maximum Green (s)	8.0	16.0		9.0	17.0		4.0	16.0		4.0	16.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		5.0			5.0			5.0			5.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	7.8	15.8		9.0	17.1		4.0	17.8		4.0	16.1	
Actuated g/C Ratio	0.12	0.25		0.14	0.27		0.06	0.28		0.06	0.26	
v/c Ratio	0.70	0.50		0.94	0.89		0.74	0.80		0.49	0.71	
Control Delay	47.3	21.7		75.0	33.0		70.7	27.0		46.4	25.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	47.3	21.7		75.0	33.0		70.7	27.0		46.4	25.5	
LOS	D	C		E	C		E	C		D	C	
Approach Delay		26.7			39.8			31.0			27.1	
Approach LOS		C			D			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 63

Natural Cycle: 65

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 32.8

Intersection LOS: C

Intersection Capacity Utilization 71.9%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 6: S Main St & W Del Amo Blvd/E Del Amo Blvd

 ø1	 ø2	 ø3	 ø4
9 s	21 s	14 s	21 s
 ø5	 ø6	 ø7	 ø8
9 s	21 s	13 s	22 s

Lanes, Volumes, Timings
7: Stamps Dr & E Del Amo Blvd

1/3/2019

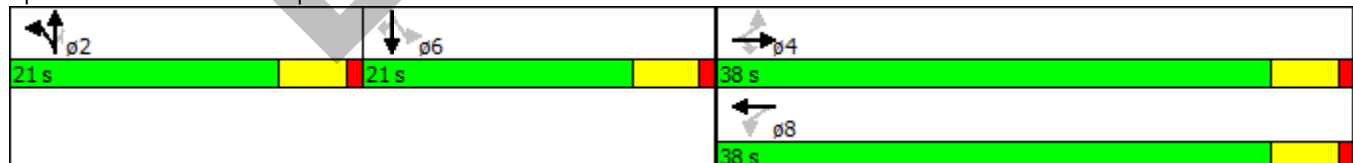
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	851	0	0	1312	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	155		0	0		0	0		0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Frts												
Flt Protected												
Satd. Flow (prot)	1863	3539	1863	1863	3539	0	1770	1770	1863	1863	1770	1770
Flt Permitted												
Satd. Flow (perm)	1863	3539	1863	1863	3539	0	1770	1770	1863	1863	1770	1770
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			50	
Link Distance (ft)		1668			3009			694			308	
Travel Time (s)		25.3			45.6			18.9			4.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	925	0	0	1426	0	0	0	0	0	0	0
Shared Lane Traffic (%)							0%					0%
Lane Group Flow (vph)	0	925	0	0	1426	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Split		Perm	Perm		Perm
Protected Phases		4			8		2	2			6	
Permitted Phases	4		4	8					2	6		6
Detector Phase	4	4	4	8	8		2	2	2	6	6	6

Lanes, Volumes, Timings
7: Stamps Dr & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	38.0	38.0	38.0	38.0	38.0		21.0	21.0	21.0	21.0	21.0	21.0
Total Split (%)	47.5%	47.5%	47.5%	47.5%	47.5%		26.3%	26.3%	26.3%	26.3%	26.3%	26.3%
Maximum Green (s)	33.0	33.0	33.0	33.0	33.0		16.0	16.0	16.0	16.0	16.0	16.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		Max	Max	Max	Max	Max	Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0	0	0	0	0
Act Effect Green (s)		33.0			33.0							
Actuated g/C Ratio		0.41			0.41							
v/c Ratio		0.63			0.98							
Control Delay		21.1			43.3							
Queue Delay		0.0			0.0							
Total Delay		21.1			43.3							
LOS		C			D							
Approach Delay		21.1			43.3							
Approach LOS		C			D							
Intersection Summary												
Area Type:	Other											
Cycle Length: 80												
Actuated Cycle Length: 80												
Natural Cycle: 80												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.98												
Intersection Signal Delay: 34.6							Intersection LOS: C					
Intersection Capacity Utilization 40.4%							ICU Level of Service A					
Analysis Period (min) 15												

Splits and Phases: 7: Stamps Dr & E Del Amo Blvd



Lanes, Volumes, Timings
8: S Avalon Blvd & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	262	540	62	175	805	98	256	886	135	166	588	212
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		160	195		195	180		310	100		0
Storage Lanes	1		0	0		1	1		1	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	0.97	0.91	0.91
Frt			0.850			0.850			0.850		0.960	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	3433	4882	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	5085	1583	3433	4882	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			206			206			147		89	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		3009			3520			2946			3936	
Travel Time (s)		45.6			53.3			57.4			76.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	285	587	67	190	875	107	278	963	147	180	639	230
Shared Lane Traffic (%)												
Lane Group Flow (vph)	285	587	67	190	875	107	278	963	147	180	869	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	

Lanes, Volumes, Timings
8: S Avalon Blvd & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	21.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	20.0	27.0	27.0	21.0	28.0	28.0	20.0	30.0	30.0	12.0	22.0	22.0
Total Split (%)	22.2%	30.0%	30.0%	23.3%	31.1%	31.1%	22.2%	33.3%	33.3%	13.3%	24.4%	24.4%
Maximum Green (s)	15.0	22.0	22.0	16.0	23.0	23.0	15.0	25.0	25.0	7.0	17.0	17.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (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
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effect Green (s)	15.0	24.3	24.3	13.7	23.0	23.0	15.0	25.0	25.0	7.0	17.0	17.0
Actuated g/C Ratio	0.17	0.27	0.27	0.15	0.26	0.26	0.17	0.28	0.28	0.08	0.19	0.19
v/c Ratio	0.97	0.62	0.12	0.70	0.97	0.19	0.94	0.68	0.27	0.67	0.87	0.87
Control Delay	84.0	32.7	0.4	50.4	57.5	0.8	78.8	31.9	5.9	53.9	43.0	43.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.0	32.7	0.4	50.4	57.5	0.8	78.8	31.9	5.9	53.9	43.0	43.0
LOS	F	C	A	D	E	A	E	C	A	D	D	D
Approach Delay		46.0			51.2			38.5			44.9	
Approach LOS		D			D			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 44.8

Intersection LOS: D

Intersection Capacity Utilization 83.7%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 8: S Avalon Blvd & E Del Amo Blvd

			
12 s	30 s	21 s	27 s
			
20 s	22 s	20 s	28 s

Lanes, Volumes, Timings
9: S Figueroa St & I-110 NB Ramps

1/3/2019

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	569	310	653	688	474	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	235			250
Storage Lanes	2	0	2			1
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	0.95	0.97	0.95	0.95	1.00
Frt	0.947					0.850
Flt Protected	0.969		0.950			
Satd. Flow (prot)	3316	0	3433	3539	3539	1583
Flt Permitted	0.969		0.462			
Satd. Flow (perm)	3316	0	1670	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	201					150
Link Speed (mph)	40			40	40	
Link Distance (ft)	170			828	791	
Travel Time (s)	2.9			14.1	13.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	618	337	710	748	515	150
Shared Lane Traffic (%)						
Lane Group Flow (vph)	955	0	710	748	515	150
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	12			12	12	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1		1	2	2	1
Detector Template	Left		Left	Thru	Thru	Right
Leading Detector (ft)	20		20	100	100	20
Trailing Detector (ft)	0		0	0	0	0
Detector 1 Position(ft)	0		0	0	0	0
Detector 1 Size(ft)	20		20	6	6	20
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Detector Phase	4		2	2	6	6

Lanes, Volumes, Timings
9: S Figueroa St & I-110 NB Ramps

1/3/2019



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	21.0		21.0	21.0	21.0	21.0
Total Split (s)	21.0		34.0	34.0	34.0	34.0
Total Split (%)	38.2%		61.8%	61.8%	61.8%	61.8%
Maximum Green (s)	16.0		29.0	29.0	29.0	29.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		Max	Max	Max	Max
Walk Time (s)	5.0		5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effect Green (s)	15.4		29.0	29.0	29.0	29.0
Actuated g/C Ratio	0.28		0.53	0.53	0.53	0.53
v/c Ratio	0.88		0.80	0.40	0.27	0.16
Control Delay	26.4		19.8	8.4	7.6	2.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	26.4		19.8	8.4	7.6	2.0
LOS	C		B	A	A	A
Approach Delay	26.4			14.0	6.3	
Approach LOS	C			B	A	

Intersection Summary

Area Type: Other
Cycle Length: 55
Actuated Cycle Length: 54.4
Natural Cycle: 55
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 16.2
Intersection Capacity Utilization 70.2%
Analysis Period (min) 15

Intersection LOS: B
ICU Level of Service C

Splits and Phases: 9: S Figueroa St & I-110 NB Ramps

 ø2 34 s	 ø4 21 s
 ø6 34 s	

Lanes, Volumes, Timings
10: S Main St & Lenardo Rd

1/3/2019

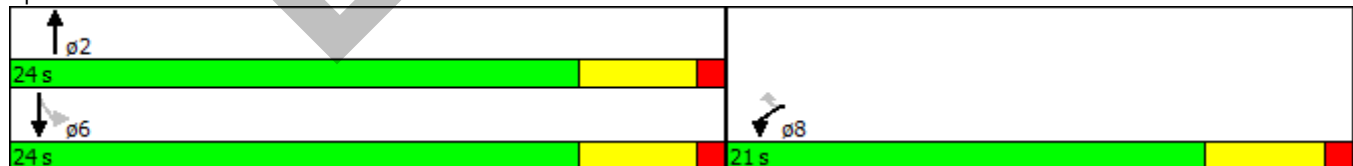
	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↑↑		↘	↑↑
Volume (vph)	0	0	856	0	0	726
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	145	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frnt						
Flt Protected						
Satd. Flow (prot)	1863	1863	3539	0	1863	3539
Flt Permitted						
Satd. Flow (perm)	1863	1863	3539	0	1863	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)						
Link Speed (mph)	25		45			45
Link Distance (ft)	479		971			534
Travel Time (s)	13.1		14.7			8.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	930	0	0	789
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	930	0	0	789
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	12		12			12
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (ft)	20	20	100		20	100
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	20	6		20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6

Lanes, Volumes, Timings
10: S Main St & Lenardo Rd

1/3/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	21.0	21.0	21.0		21.0	21.0
Total Split (s)	21.0	21.0	24.0		24.0	24.0
Total Split (%)	46.7%	46.7%	53.3%		53.3%	53.3%
Maximum Green (s)	16.0	16.0	19.0		19.0	19.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		Max	Max
Walk Time (s)	5.0	5.0	5.0		5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)			39.0			39.0
Actuated g/C Ratio			1.00			1.00
v/c Ratio			0.26			0.22
Control Delay			0.2			0.1
Queue Delay			0.0			0.0
Total Delay			0.2			0.1
LOS			A			A
Approach Delay			0.2			0.1
Approach LOS			A			A
Intersection Summary						
Area Type:	Other					
Cycle Length: 45						
Actuated Cycle Length: 39						
Natural Cycle: 45						
Control Type: Semi Act-Uncoord						
Maximum v/c Ratio: 0.26						
Intersection Signal Delay: 0.2				Intersection LOS: A		
Intersection Capacity Utilization 27.8%				ICU Level of Service A		
Analysis Period (min) 15						

Splits and Phases: 10: S Main St & Lenardo Rd



Lanes, Volumes, Timings
11: S Figueroa St & W Torrance Blvd

1/3/2019

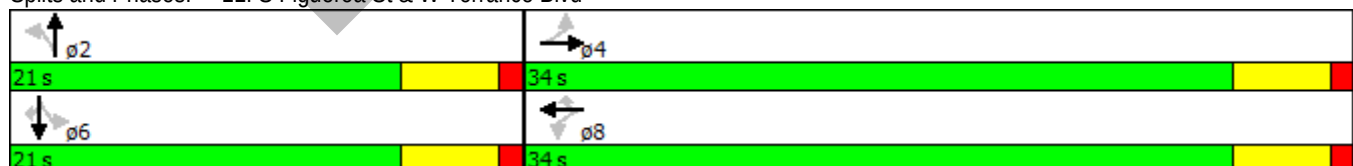
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	446	159	59	463	151	179	588	58	55	324	426
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12	12	16	12	12	12	12
Storage Length (ft)	180		0	115		0	255		0	185		185
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.91	0.91	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.974				0.850		0.987				0.850
Flt Protected	0.950	0.984		0.950			0.950			0.950		
Satd. Flow (prot)	1610	3682	0	1770	3539	1583	1770	3959	0	1770	3539	1583
Flt Permitted	0.467	0.680		0.211			0.541			0.286		
Satd. Flow (perm)	792	2545	0	393	3539	1583	1008	3959	0	533	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		65				58		19				317
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		368			1713			3767			828	
Travel Time (s)		6.3			29.2			64.2			14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	652	485	173	64	503	164	195	639	63	60	352	463
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	326	984	0	64	503	164	195	702	0	60	352	463
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	1.00	1.00	1.00	1.00	1.00	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		6

Lanes, Volumes, Timings
11: S Figueroa St & W Torrance Blvd

1/3/2019

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Detector Phase	4	4		8	8	8	2	2		6	6	6	
Switch Phase													
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	21.0	21.0		21.0	21.0	21.0	
Total Split (s)	34.0	34.0		34.0	34.0	34.0	21.0	21.0		21.0	21.0	21.0	
Total Split (%)	61.8%	61.8%		61.8%	61.8%	61.8%	38.2%	38.2%		38.2%	38.2%	38.2%	
Maximum Green (s)	29.0	29.0		29.0	29.0	29.0	16.0	16.0		16.0	16.0	16.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	0	
Act Effct Green (s)	25.5	25.5		25.5	25.5	25.5	16.2	16.2		16.2	16.2	16.2	
Actuated g/C Ratio	0.49	0.49		0.49	0.49	0.49	0.31	0.31		0.31	0.31	0.31	
v/c Ratio	0.84	0.77		0.33	0.29	0.20	0.62	0.56		0.36	0.32	0.65	
Control Delay	33.2	14.4		13.2	8.0	5.4	28.5	17.4		23.1	15.7	10.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay	33.2	14.4		13.2	8.0	5.4	28.5	17.4		23.1	15.7	10.8	
LOS	C	B		B	A	A	C	B		C	B	B	
Approach Delay		19.0			7.9			19.8			13.6		
Approach LOS		B			A			B			B		
Intersection Summary													
Area Type:	Other												
Cycle Length: 55													
Actuated Cycle Length: 51.8													
Natural Cycle: 55													
Control Type: Actuated-Uncoordinated													
Maximum v/c Ratio: 0.84													
Intersection Signal Delay: 15.8							Intersection LOS: B						
Intersection Capacity Utilization 74.1%							ICU Level of Service D						
Analysis Period (min) 15													

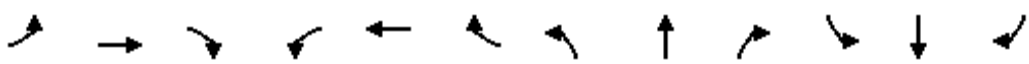
Splits and Phases: 11: S Figueroa St & W Torrance Blvd



Lanes, Volumes, Timings

12: S Main St & W Torrance Blvd/E Torrance Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		↰	↱	↰	↱		↰	↱	↱
Volume (vph)	251	23	226	10	75	35	361	591	9	12	460	251
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12	12	16	12	12	12	12
Storage Length (ft)	0		0	0		0	190		0	145		45
Storage Lanes	0		1	0		0	2		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.961			0.998				0.850
Flt Protected		0.956			0.996		0.950			0.950		
Satd. Flow (prot)	0	1781	1583	0	2021	0	3433	4003	0	1770	3539	1583
Flt Permitted		0.653			0.961		0.469			0.389		
Satd. Flow (perm)	0	1216	1583	0	1950	0	1695	4003	0	725	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			213		38			4				273
Link Speed (mph)		40			40			40				45
Link Distance (ft)		1713			375			2482				971
Travel Time (s)		29.2			6.4			42.3				14.7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	273	25	246	11	82	38	392	642	10	13	500	273
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	298	246	0	131	0	392	652	0	13	500	273
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2		6			6

Lanes, Volumes, Timings

12: S Main St & W Torrance Blvd/E Torrance Blvd

1/3/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0	21.0		21.0	21.0	21.0
Total Split (s)	22.0	22.0	22.0	22.0	22.0		23.0	23.0		23.0	23.0	23.0
Total Split (%)	48.9%	48.9%	48.9%	48.9%	48.9%		51.1%	51.1%		51.1%	51.1%	51.1%
Maximum Green (s)	17.0	17.0	17.0	17.0	17.0		18.0	18.0		18.0	18.0	18.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		Max	Max		Max	Max	Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	0
Act Effect Green (s)		14.3	14.3		14.3		18.9	18.9		18.9	18.9	18.9
Actuated g/C Ratio		0.33	0.33		0.33		0.44	0.44		0.44	0.44	0.44
v/c Ratio		0.74	0.37		0.19		0.53	0.37		0.04	0.32	0.32
Control Delay		25.5	4.4		8.0		13.2	9.6		8.8	9.5	2.8
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		25.5	4.4		8.0		13.2	9.6		8.8	9.5	2.8
LOS		C	A		A		B	A		A	A	A
Approach Delay		16.0			8.0			11.0			7.2	
Approach LOS		B			A			B			A	

Intersection Summary

Area Type: Other

Cycle Length: 45

Actuated Cycle Length: 43.2

Natural Cycle: 45

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 10.7

Intersection LOS: B

Intersection Capacity Utilization 57.3%

ICU Level of Service B

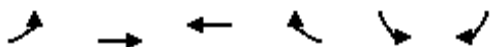
Analysis Period (min) 15

Splits and Phases: 12: S Main St & W Torrance Blvd/E Torrance Blvd

23 s	22 s
23 s	22 s

Lanes, Volumes, Timings
13: Lenardo Rd/I-405 SB Ramps

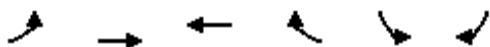
1/3/2019



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↱↱	↰	↱	↰↱	↱
Volume (vph)	0	0	0	244	918	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			0	0	0
Storage Lanes	1			1	2	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.97	1.00
Frt				0.850		
Flt Protected					0.950	
Satd. Flow (prot)	1863	3539	1863	1583	3433	1863
Flt Permitted					0.950	
Satd. Flow (perm)	1863	3539	1863	1583	3433	1863
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				1091		
Link Speed (mph)		35	40		40	
Link Distance (ft)		701	533		434	
Travel Time (s)		13.7	9.1		7.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	265	998	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	265	998	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		24	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		12	12		12	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm			Perm	Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4			8		6
Detector Phase	4	4	8	8	6	6

Lanes, Volumes, Timings 13: Lenardo Rd/I-405 SB Ramps

1/3/2019

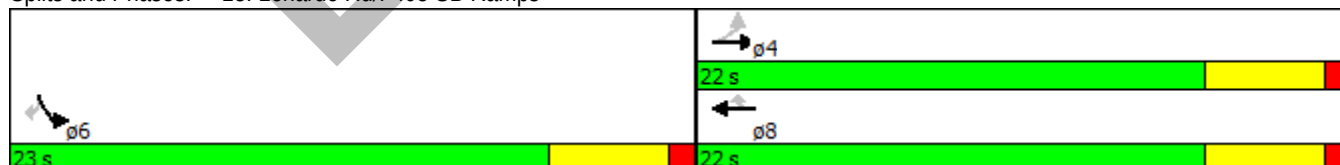


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	22.0	22.0	22.0	22.0	23.0	23.0
Total Split (%)	48.9%	48.9%	48.9%	48.9%	51.1%	51.1%
Maximum Green (s)	17.0	17.0	17.0	17.0	18.0	18.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	Max	Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effect Green (s)				5.6	21.3	
Actuated g/C Ratio				0.15	0.57	
v/c Ratio				0.23	0.51	
Control Delay				0.5	6.0	
Queue Delay				0.0	0.0	
Total Delay				0.5	6.0	
LOS				A	A	
Approach Delay					6.0	
Approach LOS					A	

Intersection Summary

Area Type:	Other
Cycle Length: 45	
Actuated Cycle Length: 37.1	
Natural Cycle: 45	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.51	
Intersection Signal Delay: 4.8	Intersection LOS: A
Intersection Capacity Utilization 30.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 13: Lenardo Rd/I-405 SB Ramps



Lanes, Volumes, Timings
14: S Avalon Blvd & I-405 SB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	456	3	459	0	0	0	0	1010	121	0	673	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		150	0		0	160		0	0		120
Storage Lanes	0		1	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850					0.984				0.850
Flt Protected	0.950											
Satd. Flow (prot)	3433	3539	1583	0	0	0	1863	3483	0	0	3539	1583
Flt Permitted	0.950											
Satd. Flow (perm)	3433	3539	1583	0	0	0	1863	3483	0	0	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			121					33				265
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		533			422			1230			386	
Travel Time (s)		9.1			7.2			24.0			7.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	496	3	499	0	0	0	0	1098	132	0	732	265
Shared Lane Traffic (%)												
Lane Group Flow (vph)	496	3	499	0	0	0	0	1230	0	0	732	265
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1				1	2			2	1
Detector Template	Left	Thru	Right				Left	Thru			Thru	Right
Leading Detector (ft)	20	100	20				20	100			100	20
Trailing Detector (ft)	0	0	0				0	0			0	0
Detector 1 Position(ft)	0	0	0				0	0			0	0
Detector 1 Size(ft)	20	6	20				20	6			6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex				Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm				Perm	NA			NA	Perm
Protected Phases		4						2			6	
Permitted Phases	4		4				2					6
Detector Phase	4	4	4				2	2			6	6

Lanes, Volumes, Timings
14: S Avalon Blvd & I-405 SB Ramps

1/3/2019

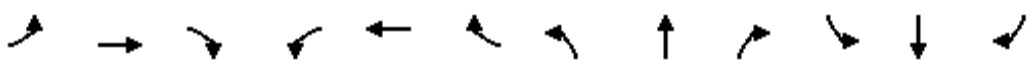
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0				4.0	4.0			4.0	4.0
Minimum Split (s)	21.0	21.0	21.0				21.0	21.0			21.0	21.0
Total Split (s)	23.0	23.0	23.0				27.0	27.0			27.0	27.0
Total Split (%)	46.0%	46.0%	46.0%				54.0%	54.0%			54.0%	54.0%
Maximum Green (s)	18.0	18.0	18.0				22.0	22.0			22.0	22.0
Yellow Time (s)	4.0	4.0	4.0				4.0	4.0			4.0	4.0
All-Red Time (s)	1.0	1.0	1.0				1.0	1.0			1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0				5.0	5.0			5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0				3.0	3.0			3.0	3.0
Recall Mode	None	None	None				Max	Max			Max	Max
Walk Time (s)	5.0	5.0	5.0				5.0	5.0			5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0				11.0	11.0			11.0	11.0
Pedestrian Calls (#/hr)	0	0	0				0	0			0	0
Act Effct Green (s)	15.9	15.9	15.9					22.1			22.1	22.1
Actuated g/C Ratio	0.33	0.33	0.33					0.46			0.46	0.46
v/c Ratio	0.44	0.00	0.82					0.76			0.45	0.30
Control Delay	13.7	10.3	24.9					15.2			10.5	2.6
Queue Delay	0.0	0.0	0.0					0.0			0.0	0.0
Total Delay	13.7	10.3	24.9					15.2			10.5	2.6
LOS	B	B	C					B			B	A
Approach Delay		19.3						15.2			8.4	
Approach LOS		B						B			A	
Intersection Summary												
Area Type:	Other											
Cycle Length: 50												
Actuated Cycle Length: 48.1												
Natural Cycle: 50												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.82												
Intersection Signal Delay: 14.4							Intersection LOS: B					
Intersection Capacity Utilization 55.4%							ICU Level of Service B					
Analysis Period (min) 15												

Splits and Phases: 14: S Avalon Blvd & I-405 SB Ramps

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Lanes, Volumes, Timings
15: S Avalon Blvd & I-405 NB Ramps

1/3/2019

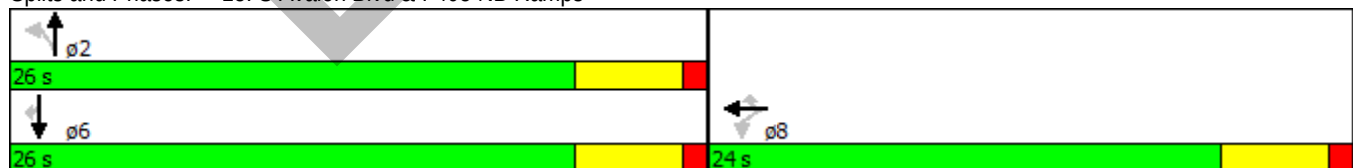
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	90	2	540	321	1158	0	0	785	222
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		0	0		0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.954		0.950					
Satd. Flow (prot)	0	0	0	1681	1688	1583	3433	3539	0	0	5085	1583
Flt Permitted				0.950	0.954		0.304					
Satd. Flow (perm)	0	0	0	1681	1688	1583	1099	3539	0	0	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						44						241
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		346			390			386			2946	
Travel Time (s)		5.9			6.6			7.5			57.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	98	2	587	349	1259	0	0	853	241
Shared Lane Traffic (%)				49%								
Lane Group Flow (vph)	0	0	0	50	50	587	349	1259	0	0	853	241
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	Perm	NA			NA	Perm
Protected Phases					8			2			6	
Permitted Phases				8		8	2					6
Detector Phase				8	8	8	2	2			6	6

Lanes, Volumes, Timings
15: S Avalon Blvd & I-405 NB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Minimum Split (s)				21.0	21.0	21.0	21.0	21.0			21.0	21.0
Total Split (s)				24.0	24.0	24.0	26.0	26.0			26.0	26.0
Total Split (%)				48.0%	48.0%	48.0%	52.0%	52.0%			52.0%	52.0%
Maximum Green (s)				19.0	19.0	19.0	21.0	21.0			21.0	21.0
Yellow Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
All-Red Time (s)				1.0	1.0	1.0	1.0	1.0			1.0	1.0
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	Max	Max			Max	Max
Walk Time (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
Flash Dont Walk (s)				11.0	11.0	11.0	11.0	11.0			11.0	11.0
Pedestrian Calls (#/hr)				0	0	0	0	0			0	0
Act Effct Green (s)				18.8	18.8	18.8	21.0	21.0			21.0	21.0
Actuated g/C Ratio				0.38	0.38	0.38	0.42	0.42			0.42	0.42
v/c Ratio				0.08	0.08	0.94	0.75	0.84			0.40	0.30
Control Delay				10.4	10.4	42.2	26.1	20.3			10.7	2.8
Queue Delay				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay				10.4	10.4	42.2	26.1	20.3			10.7	2.8
LOS				B	B	D	C	C			B	A
Approach Delay					37.6			21.5			9.0	
Approach LOS					D			C			A	
Intersection Summary												
Area Type:	Other											
Cycle Length: 50												
Actuated Cycle Length: 49.8												
Natural Cycle: 50												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.94												
Intersection Signal Delay: 20.7							Intersection LOS: C					
Intersection Capacity Utilization 73.8%							ICU Level of Service D					
Analysis Period (min) 15												

Splits and Phases: 15: S Avalon Blvd & I-405 NB Ramps



Lanes, Volumes, Timings
16: S Main St & E 213th St

1/3/2019

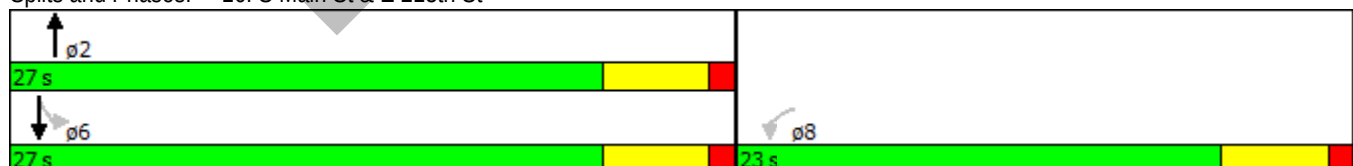
						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	292	303	670	161	119	537
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	12	12
Storage Length (ft)	0	0		0	90	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.931		0.971			
Flt Protected	0.976				0.950	
Satd. Flow (prot)	1918	0	3895	0	1770	3539
Flt Permitted	0.976				0.249	
Satd. Flow (perm)	1918	0	3895	0	464	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	117		75			
Link Speed (mph)	30		35			45
Link Distance (ft)	4544		1360			2482
Travel Time (s)	103.3		26.5			37.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	317	329	728	175	129	584
Shared Lane Traffic (%)						
Lane Group Flow (vph)	646	0	903	0	129	584
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	28		24			24
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	12		12			12
Two way Left Turn Lane						
Headway Factor	0.85	0.85	0.85	0.85	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1		2		1	2
Detector Template	Left		Thru		Left	Thru
Leading Detector (ft)	20		100		20	100
Trailing Detector (ft)	0		0		0	0
Detector 1 Position(ft)	0		0		0	0
Detector 1 Size(ft)	20		6		20	6
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0		0.0	0.0
Detector 1 Queue (s)	0.0		0.0		0.0	0.0
Detector 1 Delay (s)	0.0		0.0		0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Perm		NA		Perm	NA
Protected Phases			2			6
Permitted Phases	8				6	

Lanes, Volumes, Timings
16: S Main St & E 213th St

1/3/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8		2		6	6
Switch Phase						
Minimum Initial (s)	4.0		4.0		4.0	4.0
Minimum Split (s)	21.0		21.0		21.0	21.0
Total Split (s)	23.0		27.0		27.0	27.0
Total Split (%)	46.0%		54.0%		54.0%	54.0%
Maximum Green (s)	18.0		22.0		22.0	22.0
Yellow Time (s)	4.0		4.0		4.0	4.0
All-Red Time (s)	1.0		1.0		1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	5.0		5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		Max		Max	Max
Walk Time (s)	5.0		5.0		5.0	5.0
Flash Dont Walk (s)	11.0		11.0		11.0	11.0
Pedestrian Calls (#/hr)	0		0		0	0
Act Effct Green (s)	16.8		22.1		22.1	22.1
Actuated g/C Ratio	0.34		0.45		0.45	0.45
v/c Ratio	0.88		0.50		0.62	0.37
Control Delay	28.4		10.1		28.9	10.0
Queue Delay	0.0		0.0		0.0	0.0
Total Delay	28.4		10.1		28.9	10.0
LOS	C		B		C	A
Approach Delay	28.4		10.1			13.4
Approach LOS	C		B			B
Intersection Summary						
Area Type:	Other					
Cycle Length: 50						
Actuated Cycle Length: 48.9						
Natural Cycle: 50						
Control Type: Actuated-Uncoordinated						
Maximum v/c Ratio: 0.88						
Intersection Signal Delay: 16.4				Intersection LOS: B		
Intersection Capacity Utilization 77.5%				ICU Level of Service D		
Analysis Period (min) 15						

Splits and Phases: 16: S Main St & E 213th St



Lanes, Volumes, Timings
17: S Avalon Blvd & E 213th St

1/3/2019

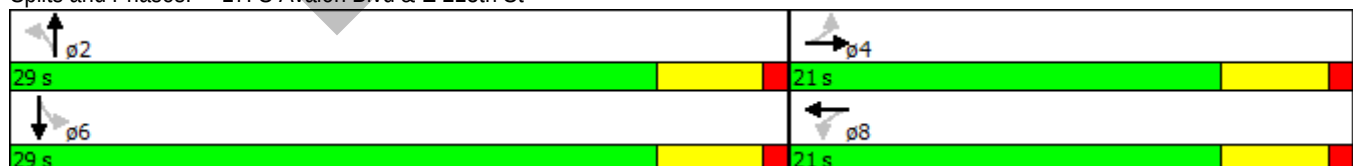
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	237	201	85	123	236	66	105	821	135	57	871	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	16	12	16	16	12	16	16	12	16	16
Storage Length (ft)	100		0	100		0	70		0	120		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.955			0.967			0.979			0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	2016	0	1770	3879	0	1770	5642	0	1770	5619	0
Flt Permitted	0.553			0.490			0.214			0.246		
Satd. Flow (perm)	1030	2016	0	913	3879	0	399	5642	0	458	5619	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		45			72			87			114	
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		4544			967			1397			1230	
Travel Time (s)		103.3			22.0			27.2			24.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	258	218	92	134	257	72	114	892	147	62	947	188
Shared Lane Traffic (%)												
Lane Group Flow (vph)	258	310	0	134	329	0	114	1039	0	62	1135	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	0.85	1.00	0.85	0.85	1.00	0.85	0.85	1.00	0.85	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lanes, Volumes, Timings
17: S Avalon Blvd & E 213th St

1/3/2019

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Detector Phase	4	4		8	8		2	2		6	6		
Switch Phase													
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0		
Total Split (s)	21.0	21.0		21.0	21.0		29.0	29.0		29.0	29.0		
Total Split (%)	42.0%	42.0%		42.0%	42.0%		58.0%	58.0%		58.0%	58.0%		
Maximum Green (s)	16.0	16.0		16.0	16.0		24.0	24.0		24.0	24.0		
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0		
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0		
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		
Recall Mode	None	None		None	None		Max	Max		Max	Max		
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0		
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0		
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0		
Act Effct Green (s)	14.7	14.7		14.7	14.7		24.0	24.0		24.0	24.0		
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.49	0.49		0.49	0.49		
v/c Ratio	0.83	0.48		0.49	0.27		0.58	0.37		0.28	0.40		
Control Delay	41.7	14.6		20.8	10.5		26.4	7.7		11.9	7.7		
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Total Delay	41.7	14.6		20.8	10.5		26.4	7.7		11.9	7.7		
LOS	D	B		C	B		C	A		B	A		
Approach Delay		26.9			13.4			9.5			7.9		
Approach LOS		C			B			A			A		
Intersection Summary													
Area Type:	Other												
Cycle Length: 50													
Actuated Cycle Length: 48.8													
Natural Cycle: 50													
Control Type: Actuated-Uncoordinated													
Maximum v/c Ratio: 0.83													
Intersection Signal Delay: 12.4							Intersection LOS: B						
Intersection Capacity Utilization 65.7%							ICU Level of Service C						
Analysis Period (min) 15													

Splits and Phases: 17: S Avalon Blvd & E 213th St



Lanes, Volumes, Timings
18: S Figueroa St & W Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	144	324	435	37	426	46	344	517	144	44	367	309
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	213		75	152		0	230		0	240		0
Storage Lanes	1		0	1		0	2		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	0.97	0.95	0.95	0.97	0.95	0.95
Frt			0.850		0.985			0.967			0.931	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3486	0	3433	3422	0	3433	3295	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3486	0	3433	3422	0	3433	3295	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			346		17			56			243	
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		1243			2441			713			3767	
Travel Time (s)		24.2			47.6			12.2			64.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	157	352	473	40	463	50	374	562	157	48	399	336
Shared Lane Traffic (%)												
Lane Group Flow (vph)	157	352	473	40	513	0	374	719	0	48	735	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Detector Phase	7	4	4	3	8		5	2		1	6	

Lanes, Volumes, Timings
18: S Figueroa St & W Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	21.0	21.0	9.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	11.0	23.0	23.0	9.0	21.0		12.0	24.0		9.0	21.0	
Total Split (%)	16.9%	35.4%	35.4%	13.8%	32.3%		18.5%	36.9%		13.8%	32.3%	
Maximum Green (s)	6.0	18.0	18.0	4.0	16.0		7.0	19.0		4.0	16.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)		5.0	5.0		5.0			5.0			5.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effect Green (s)	6.0	21.3	21.3	4.0	13.8		7.0	22.8		4.0	16.0	
Actuated g/C Ratio	0.10	0.34	0.34	0.06	0.22		0.11	0.36		0.06	0.25	
v/c Ratio	0.93	0.29	0.62	0.36	0.66		0.98	0.56		0.22	0.72	
Control Delay	87.8	17.1	9.8	38.2	26.0		73.3	18.4		31.4	19.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	87.8	17.1	9.8	38.2	26.0		73.3	18.4		31.4	19.1	
LOS	F	B	A	D	C		E	B		C	B	
Approach Delay		24.9			26.9			37.2			19.8	
Approach LOS		C			C			D			B	

Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 62.9

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 28.0

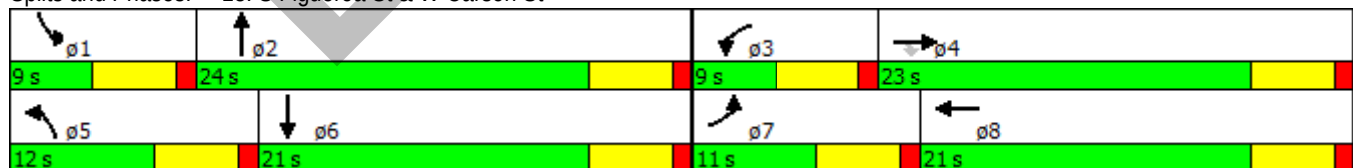
Intersection LOS: C

Intersection Capacity Utilization 67.8%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 18: S Figueroa St & W Carson St



Lanes, Volumes, Timings
19: S Main St & W Carson St/E Carson St

1/3/2019

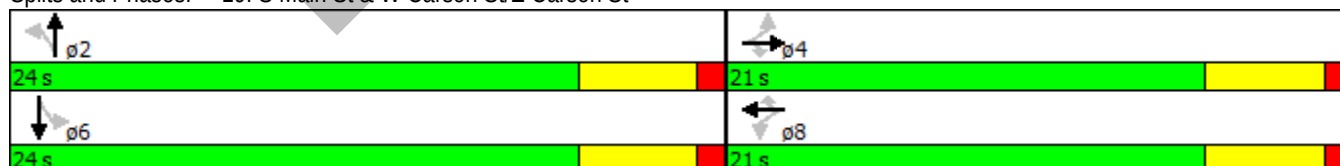
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			  			  	
Volume (vph)	82	324	99	50	314	56	131	727	114	53	524	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	16	12	12	16
Storage Length (ft)	210		70	220		70	115		0	175		500
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt			0.850			0.850		0.980			0.981	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	4984	0	1770	4989	0
Flt Permitted	0.547			0.541			0.392			0.300		
Satd. Flow (perm)	1019	3539	1583	1008	3539	1583	730	4984	0	559	4989	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			108			61		81			74	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		2441			4293			978			1360	
Travel Time (s)		47.6			83.6			19.1			26.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	89	352	108	54	341	61	142	790	124	58	570	83
Shared Lane Traffic (%)												
Lane Group Flow (vph)	89	352	108	54	341	61	142	914	0	58	653	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.85	1.00	1.00	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		

Lanes, Volumes, Timings
19: S Main St & W Carson St/E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0		21.0	21.0	
Total Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	24.0	24.0		24.0	24.0	
Total Split (%)	46.7%	46.7%	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%		53.3%	53.3%	
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0	16.0	19.0	19.0		19.0	19.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	Max	Max		Max	Max	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	
Act Effct Green (s)	10.4	10.4	10.4	10.4	10.4	10.4	19.1	19.1		19.1	19.1	
Actuated g/C Ratio	0.26	0.26	0.26	0.26	0.26	0.26	0.48	0.48		0.48	0.48	
v/c Ratio	0.33	0.38	0.22	0.20	0.37	0.13	0.40	0.37		0.21	0.27	
Control Delay	15.0	12.9	4.2	12.8	12.7	4.5	12.4	6.9		9.9	6.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	15.0	12.9	4.2	12.8	12.7	4.5	12.4	6.9		9.9	6.3	
LOS	B	B	A	B	B	A	B	A		A	A	
Approach Delay		11.5			11.6			7.7			6.6	
Approach LOS		B			B			A			A	
Intersection Summary												
Area Type:	Other											
Cycle Length: 45												
Actuated Cycle Length: 39.6												
Natural Cycle: 45												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.40												
Intersection Signal Delay: 8.8							Intersection LOS: A					
Intersection Capacity Utilization 49.8%							ICU Level of Service A					
Analysis Period (min) 15												

Splits and Phases: 19: S Main St & W Carson St/E Carson St



Lanes, Volumes, Timings
20: S Avalon Blvd & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	115	457	65	383	318	96	60	727	503	134	733	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	16	12	12	16	12	12	16
Storage Length (ft)	225		0	215		0	140		0	150		0
Storage Lanes	2		0	2		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	0.95	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.981			0.965			0.939			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3472	0	3433	3415	0	1770	4775	0	1770	5034	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3472	0	3433	3415	0	1770	4775	0	1770	5034	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			56			244			16	
Link Speed (mph)		35			40			35			35	
Link Distance (ft)		4293			2121			702			1397	
Travel Time (s)		83.6			36.2			13.7			27.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	125	497	71	416	346	104	65	790	547	146	797	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	125	568	0	416	450	0	65	1337	0	146	856	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												

Lanes, Volumes, Timings
20: S Avalon Blvd & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	21.0		9.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	10.0	21.0		14.0	25.0		11.0	24.0		11.0	24.0	
Total Split (%)	14.3%	30.0%		20.0%	35.7%		15.7%	34.3%		15.7%	34.3%	
Maximum Green (s)	5.0	16.0		9.0	20.0		6.0	19.0		6.0	19.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		5.0			5.0			5.0			5.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	5.0	14.7		9.0	20.8		5.9	19.0		6.0	23.5	
Actuated g/C Ratio	0.07	0.21		0.13	0.30		0.09	0.28		0.09	0.34	
v/c Ratio	0.50	0.75		0.92	0.42		0.43	0.89		0.95	0.49	
Control Delay	38.5	31.3		60.0	18.8		39.6	29.1		97.0	20.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	38.5	31.3		60.0	18.8		39.6	29.1		97.0	20.2	
LOS	D	C		E	B		D	C		F	C	
Approach Delay		32.6			38.6			29.6			31.4	
Approach LOS		C			D			C			C	
Intersection Summary												
Area Type:	Other											
Cycle Length: 70												
Actuated Cycle Length: 68.7												
Natural Cycle: 70												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.95												
Intersection Signal Delay: 32.5	Intersection LOS: C											
Intersection Capacity Utilization 75.0%	ICU Level of Service D											
Analysis Period (min) 15												

Splits and Phases: 20: S Avalon Blvd & E Carson St

 ø1	 ø2	 ø3	 ø4
11 s	24 s	14 s	21 s
 ø5	 ø6	 ø7	 ø8
11 s	24 s	10 s	25 s

Lanes, Volumes, Timings
21: I-405 SB Ramps & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	570	610	108	1035	0	95	0	216	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		180	0		0	150		0	0		0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1593	3185	1425	1593	4577	0	1593	0	1425	0	0	1676
Flt Permitted	0.235			0.417			0.950					
Satd. Flow (perm)	394	3185	1425	699	4577	0	1593	0	1425	0	0	1676
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			663						201			
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		2121			469			428			162	
Travel Time (s)		36.2			8.0			7.3			2.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	620	663	117	1125	0	103	0	235	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	8	620	663	117	1125	0	103	0	235	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1		1			1
Detector Template	Left	Thru	Right	Left	Thru		Left		Right			Right
Leading Detector (ft)	20	100	20	20	100		20		20			20
Trailing Detector (ft)	0	0	0	0	0		0		0			0
Detector 1 Position(ft)	0	0	0	0	0		0		0			0
Detector 1 Size(ft)	20	6	20	20	6		20		20			20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex			Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			0.0
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA	Perm	Perm	NA		Perm		Perm			Perm
Protected Phases		4			8							
Permitted Phases	4		4	8			2		2			6
Detector Phase	4	4	4	8	8		2		2			6

Lanes, Volumes, Timings
21: I-405 SB Ramps & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0		4.0			4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0		21.0			21.0
Total Split (s)	29.0	29.0	29.0	29.0	29.0		21.0		21.0			21.0
Total Split (%)	58.0%	58.0%	58.0%	58.0%	58.0%		42.0%		42.0%			42.0%
Maximum Green (s)	24.0	24.0	24.0	24.0	24.0		16.0		16.0			16.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0		4.0			4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0		1.0			1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0		5.0			5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0		3.0			3.0
Recall Mode	None	None	None	None	None		Min		Min			Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0		5.0			5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0		11.0			11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0		0			0
Act Effect Green (s)	17.6	17.6	17.6	17.6	17.6		8.2		8.2			
Actuated g/C Ratio	0.49	0.49	0.49	0.49	0.49		0.23		0.23			
v/c Ratio	0.04	0.40	0.64	0.34	0.50		0.29		0.49			
Control Delay	5.9	6.9	4.0	9.4	7.2		15.2		7.9			
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0		0.0			
Total Delay	5.9	6.9	4.0	9.4	7.2		15.2		7.9			
LOS	A	A	A	A	A		B		A			
Approach Delay		5.4			7.4							
Approach LOS		A			A							
Intersection Summary												
Area Type:	CBD											
Cycle Length: 50												
Actuated Cycle Length: 36.2												
Natural Cycle: 50												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.64												
Intersection Signal Delay: 6.8							Intersection LOS: A					
Intersection Capacity Utilization 56.9%							ICU Level of Service B					
Analysis Period (min) 15												

Splits and Phases: 21: I-405 SB Ramps & E Carson St

	
21 s	29 s
	
21 s	29 s

Lanes, Volumes, Timings

22: Recreation Rd/I-405 NB Ramps & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	83	658	39	14	751	245	7	4	4	21	15	422
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	12	12	12	12	12	12	12
Storage Length (ft)	70		0	100		180	0		0	0		0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992				0.850			0.850			0.850
Flt Protected	0.950			0.950				0.968			0.971	
Satd. Flow (prot)	1770	3511	0	1770	3539	1583	0	1803	1583	0	1809	1583
Flt Permitted	0.261			0.293				0.898			0.888	
Satd. Flow (perm)	486	3511	0	546	3539	1583	0	1673	1583	0	1654	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15				266			48			61
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		469			2039			158			364	
Travel Time (s)		8.0			34.8			2.7			6.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	90	715	42	15	816	266	8	4	4	23	16	459
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	757	0	15	816	266	0	12	4	0	39	459
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2		2	6		6

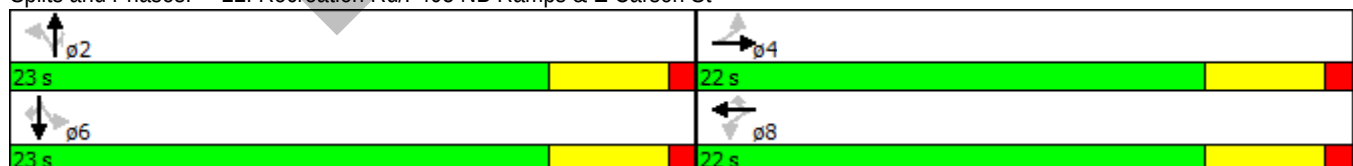
Lanes, Volumes, Timings

22: Recreation Rd/I-405 NB Ramps & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	22.0	22.0		22.0	22.0	22.0	23.0	23.0	23.0	23.0	23.0	23.0
Total Split (%)	48.9%	48.9%		48.9%	48.9%	48.9%	51.1%	51.1%	51.1%	51.1%	51.1%	51.1%
Maximum Green (s)	17.0	17.0		17.0	17.0	17.0	18.0	18.0	18.0	18.0	18.0	18.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max	Max	Max	Max	Max
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0	0	0	0
Act Effct Green (s)	15.3	15.3		15.3	15.3	15.3		18.1	18.1		18.1	18.1
Actuated g/C Ratio	0.35	0.35		0.35	0.35	0.35		0.42	0.42		0.42	0.42
v/c Ratio	0.53	0.61		0.08	0.65	0.36		0.02	0.01		0.06	0.66
Control Delay	25.1	13.6		10.3	14.6	3.4		8.4	0.0		8.6	15.5
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	25.1	13.6		10.3	14.6	3.4		8.4	0.0		8.6	15.5
LOS	C	B		B	B	A		A	A		A	B
Approach Delay		14.8			11.8			6.3			15.0	
Approach LOS		B			B			A			B	
Intersection Summary												
Area Type:	Other											
Cycle Length: 45												
Actuated Cycle Length: 43.4												
Natural Cycle: 45												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.66												
Intersection Signal Delay: 13.4							Intersection LOS: B					
Intersection Capacity Utilization 62.7%							ICU Level of Service B					
Analysis Period (min) 15												

Splits and Phases: 22: Recreation Rd/I-405 NB Ramps & E Carson St



Lanes, Volumes, Timings
1: S Figueroa St & I-405 SB Ramps

1/3/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	0	0	738	115	592	1175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	220	
Storage Lanes	0	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt			0.980			
Flt Protected					0.950	
Satd. Flow (prot)	0	0	3468	0	1770	3539
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	3468	0	1770	3539
Link Speed (mph)	40		40			40
Link Distance (ft)	607		2451			246
Travel Time (s)	10.3		41.8			4.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	802	125	643	1277
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	927	0	643	1277
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	12		12			12
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Yield		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	63.5%			ICU Level of Service B		
Analysis Period (min)	15					

Lanes, Volumes, Timings
2: S Figueroa St & I-405 NB Ramps

1/3/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	77	131	747	0	0	1675
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1770	1583	3539	0	0	3539
Flt Permitted	0.950					
Satd. Flow (perm)	1770	1583	3539	0	0	3539
Link Speed (mph)	40		40			40
Link Distance (ft)	724		246			1243
Travel Time (s)	12.3		4.2			21.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	84	142	812	0	0	1821
Shared Lane Traffic (%)						
Lane Group Flow (vph)	84	142	812	0	0	1821
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	12		12			12
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	63.5%			ICU Level of Service B		
Analysis Period (min)	15					

Lanes, Volumes, Timings

3: S Main St & I-405 SB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	636	45	0	0	0	0	598	120	226	1072	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	250		0
Storage Lanes	1		0	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.990						0.975				
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	1844	0	0	0	0	0	3451	0	1770	3539	0
Flt Permitted	0.950									0.950		
Satd. Flow (perm)	1770	1844	0	0	0	0	0	3451	0	1770	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5						28				
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		607			169			2341			290	
Travel Time (s)		10.3			2.9			35.5			4.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	691	49	0	0	0	0	650	130	246	1165	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	18	740	0	0	0	0	0	780	0	246	1165	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2						2		1	2	
Detector Template	Left	Thru						Thru		Left	Thru	
Leading Detector (ft)	20	100						100		20	100	
Trailing Detector (ft)	0	0						0		0	0	
Detector 1 Position(ft)	0	0						0		0	0	
Detector 1 Size(ft)	20	6						6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex						Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0						0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0						0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0						0.0		0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Prot	NA						NA		Prot	NA	
Protected Phases	4							2		1	6	
Permitted Phases		4										
Detector Phase	4	4						2		1	6	

Lanes, Volumes, Timings 3: S Main St & I-405 SB Ramps

1/3/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0						4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0						21.0		9.0	21.0	
Total Split (s)	38.0	38.0						25.0		17.0	42.0	
Total Split (%)	47.5%	47.5%						31.3%		21.3%	52.5%	
Maximum Green (s)	33.0	33.0						20.0		12.0	37.0	
Yellow Time (s)	4.0	4.0						4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0						1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0						0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0						5.0		5.0	5.0	
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Recall Mode	None	None						Max		None	Max	
Walk Time (s)	5.0	5.0						5.0			5.0	
Flash Dont Walk (s)	11.0	11.0						11.0			11.0	
Pedestrian Calls (#/hr)	0	0						0			0	
Act Effect Green (s)	32.9	32.9						20.0		12.0	37.0	
Actuated g/C Ratio	0.41	0.41						0.25		0.15	0.46	
v/c Ratio	0.02	0.97						0.88		0.93	0.71	
Control Delay	14.2	51.4						41.2		75.8	20.2	
Queue Delay	0.0	0.0						0.0		0.0	49.3	
Total Delay	14.2	51.4						41.2		75.8	69.5	
LOS	B	D						D		E	E	
Approach Delay		50.5						41.2			70.6	
Approach LOS		D						D			E	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 79.9
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 57.7
 Intersection Capacity Utilization 81.6%
 Analysis Period (min) 15

Intersection LOS: E
 ICU Level of Service D

Splits and Phases: 3: S Main St & I-405 SB Ramps

17 s	25 s	38 s
42 s		

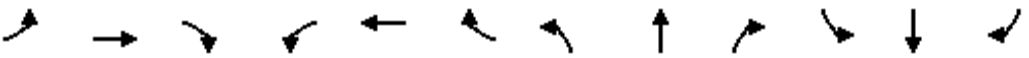
Lanes, Volumes, Timings
4: S Main St & I-405 NB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔↔		↗	↕↕			↕↕	
Volume (vph)	0	0	0	59	120	235	24	605	0	0	1223	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt					0.915						0.993	
Flt Protected					0.993		0.950					
Satd. Flow (prot)	0	0	0	0	3216	0	1770	3539	0	0	3514	0
Flt Permitted					0.993		0.166					
Satd. Flow (perm)	0	0	0	0	3216	0	309	3539	0	0	3514	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					181						13	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		724			336			290			724	
Travel Time (s)		12.3			5.7			4.4			11.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	64	130	255	26	658	0	0	1329	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	449	0	26	658	0	0	1394	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	2		1	2			2	
Detector Template				Left	Thru		Left	Thru			Thru	
Leading Detector (ft)				20	100		20	100			100	
Trailing Detector (ft)				0	0		0	0			0	
Detector 1 Position(ft)				0	0		0	0			0	
Detector 1 Size(ft)				20	6		20	6			6	
Detector 1 Type				Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0		0.0	0.0			0.0	
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Detector Phase				8	8		2	2			6	
Switch Phase												
Minimum Initial (s)				4.0	4.0		4.0	4.0			4.0	
Minimum Split (s)				21.0	21.0		21.0	21.0			21.0	

Lanes, Volumes, Timings
4: S Main St & I-405 NB Ramps

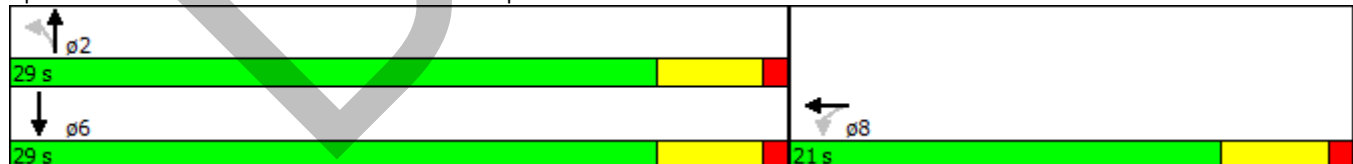
1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)				21.0	21.0		29.0	29.0			29.0	
Total Split (%)				42.0%	42.0%		58.0%	58.0%			58.0%	
Maximum Green (s)				16.0	16.0		24.0	24.0			24.0	
Yellow Time (s)				4.0	4.0		4.0	4.0			4.0	
All-Red Time (s)				1.0	1.0		1.0	1.0			1.0	
Lost Time Adjust (s)					0.0		0.0	0.0			0.0	
Total Lost Time (s)					5.0		5.0	5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0	3.0			3.0	
Recall Mode				None	None		Max	Max			Max	
Walk Time (s)				5.0	5.0		5.0	5.0			5.0	
Flash Dont Walk (s)				11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)				0	0		0	0			0	
Act Effect Green (s)					9.4		24.1	24.1			24.1	
Actuated g/C Ratio					0.22		0.55	0.55			0.55	
v/c Ratio					0.54		0.15	0.34			0.71	
Control Delay					11.1		8.7	6.4			10.5	
Queue Delay					0.0		0.0	0.0			0.0	
Total Delay					11.1		8.7	6.4			10.5	
LOS					B		A	A			B	
Approach Delay					11.1			6.5			10.5	
Approach LOS					B			A			B	

Intersection Summary

Area Type:	Other
Cycle Length: 50	
Actuated Cycle Length: 43.5	
Natural Cycle: 50	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 9.5	Intersection LOS: A
Intersection Capacity Utilization 81.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: S Main St & I-405 NB Ramps



Lanes, Volumes, Timings
5: S Figueroa St & W Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Volume (vph)	58	842	164	201	665	117	53	442	355	195	576	226
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	60		0	240		240	240		0	245		245
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.976				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4963	0	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	4963	0	1770	3539	1583	1770	3539	1583	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		53				187			199			246
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		519			1251			791			2451	
Travel Time (s)		7.9			19.0			13.5			41.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	63	915	178	218	723	127	58	480	386	212	626	246
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	1093	0	218	723	127	58	480	386	212	626	246
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6

Lanes, Volumes, Timings
5: S Figueroa St & W Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	21.0		9.0	21.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	9.0	21.0		14.0	26.0	26.0	11.0	21.0	21.0	14.0	24.0	24.0
Total Split (%)	12.9%	30.0%		20.0%	37.1%	37.1%	15.7%	30.0%	30.0%	20.0%	34.3%	34.3%
Maximum Green (s)	4.0	16.0		9.0	21.0	21.0	6.0	16.0	16.0	9.0	19.0	19.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)		5.0			5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0			11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0	0		0	0		0	0
Act Effect Green (s)	4.0	16.0		9.0	22.8	22.8	5.9	16.0	16.0	9.0	23.4	23.4
Actuated g/C Ratio	0.06	0.23		0.13	0.33	0.33	0.08	0.23	0.23	0.13	0.33	0.33
v/c Ratio	0.62	0.93		0.96	0.63	0.20	0.39	0.59	0.75	0.93	0.53	0.36
Control Delay	61.2	40.7		85.1	23.6	1.9	38.4	27.6	22.9	79.2	22.2	4.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.2	40.7		85.1	23.6	1.9	38.4	27.6	22.9	79.2	22.2	4.8
LOS	E	D		F	C	A	D	C	C	E	C	A
Approach Delay		41.8			33.6			26.3			29.4	
Approach LOS		D			C			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 33.2

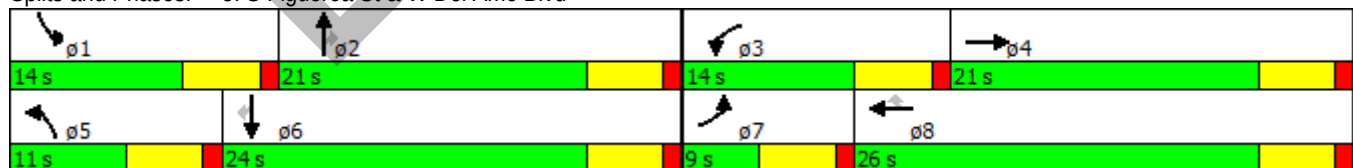
Intersection LOS: C

Intersection Capacity Utilization 70.7%

ICU Level of Service C

Analysis Period (min) 15

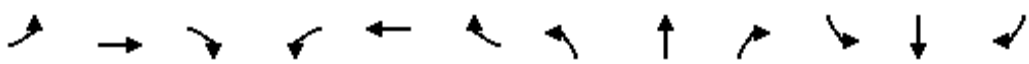
Splits and Phases: 5: S Figueroa St & W Del Amo Blvd



Lanes, Volumes, Timings

6: S Main St & W Del Amo Blvd/E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	164	1097	116	242	789	60	42	404	295	128	753	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		0	195		0	150		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.986			0.989			0.937			0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5014	0	1770	5029	0	1770	3316	0	1770	3451	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	5014	0	1770	5029	0	1770	3316	0	1770	3451	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			13			195			27	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1251			1668			534			2341	
Travel Time (s)		19.0			25.3			8.1			35.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	178	1192	126	263	858	65	46	439	321	139	818	164
Shared Lane Traffic (%)												
Lane Group Flow (vph)	178	1318	0	263	923	0	46	760	0	139	982	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Detector Phase	7	4		3	8		5	2		1	6	

Lanes, Volumes, Timings

6: S Main St & W Del Amo Blvd/E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	21.0		9.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	20.0	28.0		20.0	28.0		9.0	27.0		15.0	33.0	
Total Split (%)	22.2%	31.1%		22.2%	31.1%		10.0%	30.0%		16.7%	36.7%	
Maximum Green (s)	15.0	23.0		15.0	23.0		4.0	22.0		10.0	28.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		5.0			5.0			5.0			5.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	13.0	23.0		14.8	24.8		4.0	22.0		9.6	29.4	
Actuated g/C Ratio	0.15	0.26		0.17	0.28		0.04	0.25		0.11	0.33	
v/c Ratio	0.69	1.01		0.90	0.66		0.58	0.79		0.74	0.85	
Control Delay	50.6	61.4		70.6	31.3		72.3	30.3		62.4	36.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	50.6	61.4		70.6	31.3		72.3	30.3		62.4	36.6	
LOS	D	E		E	C		E	C		E	D	
Approach Delay		60.1			40.0			32.7			39.8	
Approach LOS		E			D			C			D	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 89.4

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 45.2

Intersection LOS: D

Intersection Capacity Utilization 82.8%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: S Main St & W Del Amo Blvd/E Del Amo Blvd

 p1	 p2	 p3	 p4
15 s	27 s	20 s	28 s
 p5	 p6	 p7	 p8
9 s	33 s	20 s	28 s

Lanes, Volumes, Timings
7: Stamps Dr & E Del Amo Blvd

1/3/2019

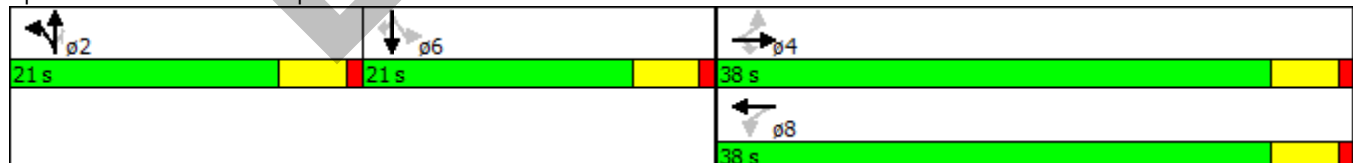
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1434	0	0	1083	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	155		0	0		0	0		0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Frt												
Flt Protected												
Satd. Flow (prot)	1863	3539	1863	1863	3539	0	1770	1770	1863	1863	1770	1770
Flt Permitted												
Satd. Flow (perm)	1863	3539	1863	1863	3539	0	1770	1770	1863	1863	1770	1770
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			50	
Link Distance (ft)		1668			3009			694			308	
Travel Time (s)		25.3			45.6			18.9			4.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1559	0	0	1177	0	0	0	0	0	0	0
Shared Lane Traffic (%)							0%					0%
Lane Group Flow (vph)	0	1559	0	0	1177	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Split		Perm	Perm		Perm
Protected Phases		4			8		2	2			6	
Permitted Phases	4		4	8					2	6		6
Detector Phase	4	4	4	8	8		2	2	2	6	6	6

Lanes, Volumes, Timings
7: Stamps Dr & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	38.0	38.0	38.0	38.0	38.0		21.0	21.0	21.0	21.0	21.0	21.0
Total Split (%)	47.5%	47.5%	47.5%	47.5%	47.5%		26.3%	26.3%	26.3%	26.3%	26.3%	26.3%
Maximum Green (s)	33.0	33.0	33.0	33.0	33.0		16.0	16.0	16.0	16.0	16.0	16.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		Max	Max	Max	Max	Max	Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0	0	0	0	0
Act Effect Green (s)		33.0			33.0							
Actuated g/C Ratio		0.41			0.41							
v/c Ratio		1.07			0.81							
Control Delay		69.2			26.1							
Queue Delay		0.0			0.0							
Total Delay		69.2			26.1							
LOS		E			C							
Approach Delay		69.2			26.1							
Approach LOS		E			C							
Intersection Summary												
Area Type:	Other											
Cycle Length: 80												
Actuated Cycle Length: 80												
Natural Cycle: 80												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 1.07												
Intersection Signal Delay: 50.6							Intersection LOS: D					
Intersection Capacity Utilization 43.8%							ICU Level of Service A					
Analysis Period (min) 15												

Splits and Phases: 7: Stamps Dr & E Del Amo Blvd



Lanes, Volumes, Timings
8: S Avalon Blvd & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	203	907	237	253	638	143	179	941	204	337	885	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		160	195		195	180		310	100		0
Storage Lanes	1		0	0		1	1		1	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	0.97	0.91	0.91
Frt			0.850			0.850			0.850		0.966	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	3433	4912	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	5085	1583	3433	4912	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			258			155			222		78	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		3009			3520			2946			3936	
Travel Time (s)		45.6			53.3			57.4			76.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	221	986	258	275	693	155	195	1023	222	366	962	283
Shared Lane Traffic (%)												
Lane Group Flow (vph)	221	986	258	275	693	155	195	1023	222	366	1245	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	

Lanes, Volumes, Timings
8: S Avalon Blvd & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	21.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	20.0	29.0	29.0	19.0	28.0	28.0	15.0	27.0	27.0	15.0	27.0	27.0
Total Split (%)	22.2%	32.2%	32.2%	21.1%	31.1%	31.1%	16.7%	30.0%	30.0%	16.7%	30.0%	30.0%
Maximum Green (s)	15.0	24.0	24.0	14.0	23.0	23.0	10.0	22.0	22.0	10.0	22.0	22.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (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
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effect Green (s)	14.1	24.0	24.0	14.0	23.9	23.9	10.0	22.0	22.0	10.0	22.0	22.0
Actuated g/C Ratio	0.16	0.27	0.27	0.16	0.27	0.27	0.11	0.24	0.24	0.11	0.24	0.24
v/c Ratio	0.80	1.05	0.42	1.00	0.74	0.29	0.99	0.82	0.40	0.96	0.99	0.99
Control Delay	58.3	75.5	5.9	94.7	36.0	6.2	105.8	38.8	6.4	78.8	55.7	55.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.3	75.5	5.9	94.7	36.0	6.2	105.8	38.8	6.4	78.8	55.7	55.7
LOS	E	E	A	F	D	A	F	D	A	E	E	E
Approach Delay		60.7			46.3			42.9			60.9	
Approach LOS		E			D			D			E	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 53.3

Intersection LOS: D

Intersection Capacity Utilization 88.6%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 8: S Avalon Blvd & E Del Amo Blvd

			
15 s	27 s	19 s	29 s
			
15 s	27 s	20 s	28 s

Lanes, Volumes, Timings
9: S Figueroa St & I-110 NB Ramps

1/3/2019

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	WT		WT	TT	TT	RT
Volume (vph)	350	189	627	453	742	217
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	235			250
Storage Lanes	2	0	2			1
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	0.95	0.97	0.95	0.95	1.00
Frt	0.947					0.850
Flt Protected	0.969		0.950			
Satd. Flow (prot)	3316	0	3433	3539	3539	1583
Flt Permitted	0.969		0.329			
Satd. Flow (perm)	3316	0	1189	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	129					236
Link Speed (mph)	40			40	40	
Link Distance (ft)	170			828	791	
Travel Time (s)	2.9			14.1	13.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	380	205	682	492	807	236
Shared Lane Traffic (%)						
Lane Group Flow (vph)	585	0	682	492	807	236
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	12			12	12	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1		1	2	2	1
Detector Template	Left		Left	Thru	Thru	Right
Leading Detector (ft)	20		20	100	100	20
Trailing Detector (ft)	0		0	0	0	0
Detector 1 Position(ft)	0		0	0	0	0
Detector 1 Size(ft)	20		20	6	6	20
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Detector Phase	4		2	2	6	6

Lanes, Volumes, Timings
9: S Figueroa St & I-110 NB Ramps

1/3/2019



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	21.0		21.0	21.0	21.0	21.0
Total Split (s)	21.0		54.0	54.0	54.0	54.0
Total Split (%)	28.0%		72.0%	72.0%	72.0%	72.0%
Maximum Green (s)	16.0		49.0	49.0	49.0	49.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		Max	Max	Max	Max
Walk Time (s)	5.0		5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effect Green (s)	14.3		49.0	49.0	49.0	49.0
Actuated g/C Ratio	0.20		0.67	0.67	0.67	0.67
v/c Ratio	0.78		0.86	0.21	0.34	0.21
Control Delay	29.7		24.0	5.2	5.9	1.2
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	29.7		24.0	5.2	5.9	1.2
LOS	C		C	A	A	A
Approach Delay	29.7			16.1	4.9	
Approach LOS	C			B	A	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 73.3
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 14.8
 Intersection Capacity Utilization 66.8%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 9: S Figueroa St & I-110 NB Ramps

 54 s	 21 s
 54 s	

Lanes, Volumes, Timings
10: S Main St & Lenardo Rd

1/3/2019

	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↑↑		↘	↑↑
Volume (vph)	0	0	745	0	0	1104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	145	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt						
Flt Protected						
Satd. Flow (prot)	1863	1863	3539	0	1863	3539
Flt Permitted						
Satd. Flow (perm)	1863	1863	3539	0	1863	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)						
Link Speed (mph)	25		45			45
Link Distance (ft)	479		971			534
Travel Time (s)	13.1		14.7			8.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	810	0	0	1200
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	810	0	0	1200
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	12		12			12
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (ft)	20	20	100		20	100
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	20	6		20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6

Lanes, Volumes, Timings
10: S Main St & Lenardo Rd

1/3/2019

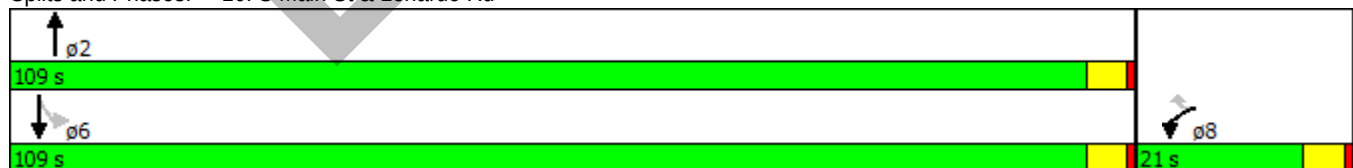
	WBL	WBR	NBT	NBR	SBL	SBT
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	21.0	21.0	21.0		21.0	21.0
Total Split (s)	21.0	21.0	109.0		109.0	109.0
Total Split (%)	16.2%	16.2%	83.8%		83.8%	83.8%
Maximum Green (s)	16.0	16.0	104.0		104.0	104.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		Max	Max
Walk Time (s)	5.0	5.0	5.0		5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effect Green (s)			120.0			120.0
Actuated g/C Ratio			1.00			1.00
v/c Ratio			0.23			0.34
Control Delay			0.2			0.3
Queue Delay			0.0			0.0
Total Delay			0.2			0.3
LOS			A			A
Approach Delay			0.2			0.3
Approach LOS			A			A

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 120
 Natural Cycle: 45
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.34
 Intersection Signal Delay: 0.2
 Intersection Capacity Utilization 34.7%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 10: S Main St & Lenardo Rd



Lanes, Volumes, Timings
11: S Figueroa St & W Torrance Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	684	158	48	369	161	85	330	50	115	439	370
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12	12	16	12	12	12	12
Storage Length (ft)	180		0	115		0	255		0	185		185
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.91	0.91	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.978				0.850		0.980				0.850
Flt Protected	0.950	0.989		0.950			0.950			0.950		
Satd. Flow (prot)	1610	3716	0	1770	3539	1583	1770	3931	0	1770	3539	1583
Flt Permitted	0.516	0.754		0.149			0.437			0.495		
Satd. Flow (perm)	875	2833	0	278	3539	1583	814	3931	0	922	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		48				175		28				402
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		368			1713			3767			828	
Travel Time (s)		6.3			29.2			64.2			14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	652	743	172	52	401	175	92	359	54	125	477	402
Shared Lane Traffic (%)	41%											
Lane Group Flow (vph)	385	1182	0	52	401	175	92	413	0	125	477	402
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	1.00	1.00	1.00	1.00	1.00	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		6

Lanes, Volumes, Timings
11: S Figueroa St & W Torrance Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	21.0	21.0		21.0	21.0	21.0
Total Split (s)	38.0	38.0		38.0	38.0	38.0	22.0	22.0		22.0	22.0	22.0
Total Split (%)	63.3%	63.3%		63.3%	63.3%	63.3%	36.7%	36.7%		36.7%	36.7%	36.7%
Maximum Green (s)	33.0	33.0		33.0	33.0	33.0	17.0	17.0		17.0	17.0	17.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	Max
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	0
Act Effct Green (s)	30.1	30.1		30.1	30.1	30.1	17.1	17.1		17.1	17.1	17.1
Actuated g/C Ratio	0.53	0.53		0.53	0.53	0.53	0.30	0.30		0.30	0.30	0.30
v/c Ratio	0.84	0.78		0.36	0.22	0.19	0.38	0.35		0.45	0.45	0.53
Control Delay	30.9	14.8		16.0	7.4	1.9	22.9	16.4		24.3	18.8	5.2
Queue Delay	0.0	0.4		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	30.9	15.1		16.0	7.4	1.9	22.9	16.4		24.3	18.8	5.2
LOS	C	B		B	A	A	C	B		C	B	A
Approach Delay		19.0			6.6			17.6			14.0	
Approach LOS		B			A			B			B	
Intersection Summary												
Area Type:	Other											
Cycle Length: 60												
Actuated Cycle Length: 57.3												
Natural Cycle: 60												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.84												
Intersection Signal Delay: 15.3							Intersection LOS: B					
Intersection Capacity Utilization 71.5%							ICU Level of Service C					
Analysis Period (min) 15												

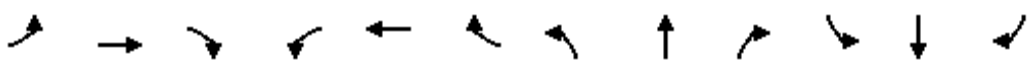
Splits and Phases: 11: S Figueroa St & W Torrance Blvd



Lanes, Volumes, Timings

12: S Main St & W Torrance Blvd/E Torrance Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	286	70	500	11	43	25	276	438	9	45	759	293
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12	12	16	12	12	12	12
Storage Length (ft)	0		0	0		0	190		0	145		45
Storage Lanes	0		1	0		0	2		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.958			0.997				0.850
Flt Protected		0.961			0.993		0.950			0.950		
Satd. Flow (prot)	0	1790	1583	0	2008	0	3433	3999	0	1770	3539	1583
Flt Permitted		0.710			0.933		0.280			0.475		
Satd. Flow (perm)	0	1323	1583	0	1887	0	1012	3999	0	885	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			80		27			5				255
Link Speed (mph)		40			40			40			45	
Link Distance (ft)		1713			375			2482			971	
Travel Time (s)		29.2			6.4			42.3			14.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	311	76	543	12	47	27	300	476	10	49	825	318
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	387	543	0	86	0	300	486	0	49	825	318
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2		6			6

Lanes, Volumes, Timings

12: S Main St & W Torrance Blvd/E Torrance Blvd

1/3/2019

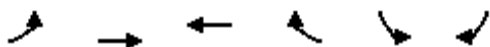
													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Detector Phase	4	4	4	8	8		2	2		6	6	6	
Switch Phase													
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0	
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0	21.0		21.0	21.0	21.0	
Total Split (s)	24.0	24.0	24.0	24.0	24.0		26.0	26.0		26.0	26.0	26.0	
Total Split (%)	48.0%	48.0%	48.0%	48.0%	48.0%		52.0%	52.0%		52.0%	52.0%	52.0%	
Maximum Green (s)	19.0	19.0	19.0	19.0	19.0		21.0	21.0		21.0	21.0	21.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0		5.0	5.0	5.0	
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		Max	Max		Max	Max	Max	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	0	
Act Effct Green (s)		17.6	17.6		17.6		21.0	21.0		21.0	21.0	21.0	
Actuated g/C Ratio		0.36	0.36		0.36		0.43	0.43		0.43	0.43	0.43	
v/c Ratio		0.81	0.87		0.12		0.69	0.28		0.13	0.54	0.38	
Control Delay		30.3	30.0		8.1		23.0	9.8		10.1	12.3	4.2	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0	
Total Delay		30.3	30.0		8.1		23.0	9.8		10.1	12.3	4.2	
LOS		C	C		A		C	A		B	B	A	
Approach Delay		30.1			8.1			14.8			10.0		
Approach LOS		C			A			B			B		
Intersection Summary													
Area Type:	Other												
Cycle Length: 50													
Actuated Cycle Length: 48.7													
Natural Cycle: 50													
Control Type: Actuated-Uncoordinated													
Maximum v/c Ratio: 0.87													
Intersection Signal Delay: 17.5							Intersection LOS: B						
Intersection Capacity Utilization 68.8%							ICU Level of Service C						
Analysis Period (min) 15													

Splits and Phases: 12: S Main St & W Torrance Blvd/E Torrance Blvd

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Lanes, Volumes, Timings
13: Lenardo Rd/I-405 SB Ramps

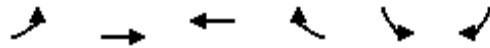
1/3/2019



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	0	0	0	382	563	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			0	0	0
Storage Lanes	1			1	2	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.97	1.00
Frt				0.850		
Flt Protected					0.950	
Satd. Flow (prot)	1863	3539	1863	1583	3433	1863
Flt Permitted					0.950	
Satd. Flow (perm)	1863	3539	1863	1583	3433	1863
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				1091		
Link Speed (mph)		35	40		40	
Link Distance (ft)		701	533		434	
Travel Time (s)		13.7	9.1		7.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	415	612	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	415	612	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		24	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		12	12		12	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm			Perm	Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4			8		6
Detector Phase	4	4	8	8	6	6

Lanes, Volumes, Timings
13: Lenardo Rd/I-405 SB Ramps

1/3/2019



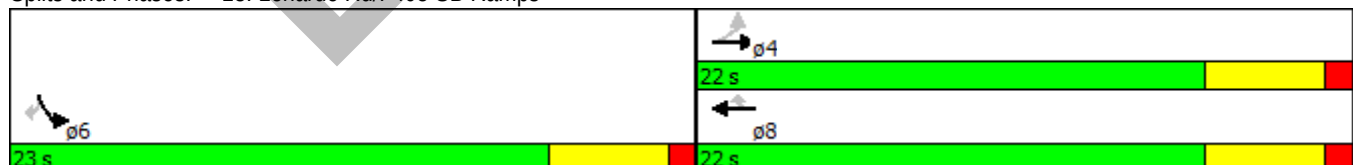
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	22.0	22.0	22.0	22.0	23.0	23.0
Total Split (%)	48.9%	48.9%	48.9%	48.9%	51.1%	51.1%
Maximum Green (s)	17.0	17.0	17.0	17.0	18.0	18.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	Max	Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effect Green (s)				5.5	18.7	
Actuated g/C Ratio				0.16	0.55	
v/c Ratio				0.35	0.33	
Control Delay				0.8	4.9	
Queue Delay				0.0	0.0	
Total Delay				0.8	4.9	
LOS				A	A	
Approach Delay					4.9	
Approach LOS					A	

Intersection Summary

Area Type: Other
Cycle Length: 45
Actuated Cycle Length: 34.2
Natural Cycle: 45
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.35
Intersection Signal Delay: 3.3
Intersection Capacity Utilization 27.8%
Analysis Period (min) 15

Intersection LOS: A
ICU Level of Service A

Splits and Phases: 13: Lenardo Rd/I-405 SB Ramps



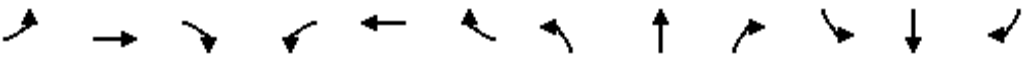
Lanes, Volumes, Timings
14: S Avalon Blvd & I-405 SB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	171	128	264	0	0	0	0	1145	189	0	932	382
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		150	0		0	160		0	0		120
Storage Lanes	0		1	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850					0.979				0.850
Flt Protected	0.950											
Satd. Flow (prot)	3433	3539	1583	0	0	0	1863	3465	0	0	3539	1583
Flt Permitted	0.950											
Satd. Flow (perm)	3433	3539	1583	0	0	0	1863	3465	0	0	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			85					51				415
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		533			422			1230			386	
Travel Time (s)		9.1			7.2			24.0			7.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	186	139	287	0	0	0	0	1245	205	0	1013	415
Shared Lane Traffic (%)												
Lane Group Flow (vph)	186	139	287	0	0	0	0	1450	0	0	1013	415
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1				1	2			2	1
Detector Template	Left	Thru	Right				Left	Thru			Thru	Right
Leading Detector (ft)	20	100	20				20	100			100	20
Trailing Detector (ft)	0	0	0				0	0			0	0
Detector 1 Position(ft)	0	0	0				0	0			0	0
Detector 1 Size(ft)	20	6	20				20	6			6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex				Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm				Perm	NA			NA	Perm
Protected Phases		4						2			6	
Permitted Phases	4		4				2					6
Detector Phase	4	4	4				2	2			6	6

Lanes, Volumes, Timings
14: S Avalon Blvd & I-405 SB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0				4.0	4.0			4.0	4.0
Minimum Split (s)	21.0	21.0	21.0				21.0	21.0			21.0	21.0
Total Split (s)	21.0	21.0	21.0				34.0	34.0			34.0	34.0
Total Split (%)	38.2%	38.2%	38.2%				61.8%	61.8%			61.8%	61.8%
Maximum Green (s)	16.0	16.0	16.0				29.0	29.0			29.0	29.0
Yellow Time (s)	4.0	4.0	4.0				4.0	4.0			4.0	4.0
All-Red Time (s)	1.0	1.0	1.0				1.0	1.0			1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0				5.0	5.0			5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0				3.0	3.0			3.0	3.0
Recall Mode	None	None	None				Max	Max			Max	Max
Walk Time (s)	5.0	5.0	5.0				5.0	5.0			5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0				11.0	11.0			11.0	11.0
Pedestrian Calls (#/hr)	0	0	0				0	0			0	0
Act Effect Green (s)	12.0	12.0	12.0					29.9			29.9	29.9
Actuated g/C Ratio	0.23	0.23	0.23					0.58			0.58	0.58
v/c Ratio	0.24	0.17	0.67					0.72			0.50	0.38
Control Delay	16.2	15.5	20.3					11.1			8.3	2.1
Queue Delay	0.0	0.0	0.0					0.0			0.0	0.0
Total Delay	16.2	15.5	20.3					11.1			8.3	2.1
LOS	B	B	C					B			A	A
Approach Delay		18.0						11.1			6.5	
Approach LOS		B						B			A	

Intersection Summary

Area Type: Other
 Cycle Length: 55
 Actuated Cycle Length: 51.9
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.72
 Intersection Signal Delay: 10.4
 Intersection Capacity Utilization 50.9%
 Analysis Period (min) 15

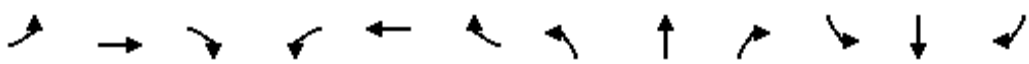
Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 14: S Avalon Blvd & I-405 SB Ramps

 p2 34 s	 p4 21 s
 p6 34 s	

Lanes, Volumes, Timings
15: S Avalon Blvd & I-405 NB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	91	0	385	374	932	0	0	1226	506
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		0	0		0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.950		0.950					
Satd. Flow (prot)	0	0	0	1681	1681	1583	3433	3539	0	0	5085	1583
Flt Permitted				0.950	0.950		0.178					
Satd. Flow (perm)	0	0	0	1681	1681	1583	643	3539	0	0	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						163						550
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		346			390			386			2946	
Travel Time (s)		5.9			6.6			7.5			57.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	99	0	418	407	1013	0	0	1333	550
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	49	50	418	407	1013	0	0	1333	550
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	Perm	NA			NA	Perm
Protected Phases					8			2			6	
Permitted Phases				8		8	2					6
Detector Phase				8	8	8	2	2			6	6

Lanes, Volumes, Timings
15: S Avalon Blvd & I-405 NB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Minimum Split (s)				21.0	21.0	21.0	21.0	21.0			21.0	21.0
Total Split (s)				22.0	22.0	22.0	68.0	68.0			68.0	68.0
Total Split (%)				24.4%	24.4%	24.4%	75.6%	75.6%			75.6%	75.6%
Maximum Green (s)				17.0	17.0	17.0	63.0	63.0			63.0	63.0
Yellow Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
All-Red Time (s)				1.0	1.0	1.0	1.0	1.0			1.0	1.0
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	Max	Max			Max	Max
Walk Time (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
Flash Dont Walk (s)				11.0	11.0	11.0	11.0	11.0			11.0	11.0
Pedestrian Calls (#/hr)				0	0	0	0	0			0	0
Act Effect Green (s)				17.0	17.0	17.0	63.0	63.0			63.0	63.0
Actuated g/C Ratio				0.19	0.19	0.19	0.70	0.70			0.70	0.70
v/c Ratio				0.15	0.16	0.97	0.90	0.41			0.37	0.43
Control Delay				32.0	32.1	60.6	38.9	6.3			5.8	1.5
Queue Delay				0.0	0.0	0.0	0.0	0.8			0.0	0.0
Total Delay				32.0	32.1	60.6	38.9	7.0			5.8	1.5
LOS				C	C	E	D	A			A	A
Approach Delay					55.1			16.2			4.6	
Approach LOS					E			B			A	
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 90												
Natural Cycle: 90												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.97												
Intersection Signal Delay: 15.7							Intersection LOS: B					
Intersection Capacity Utilization 57.9%							ICU Level of Service B					
Analysis Period (min) 15												

Splits and Phases: 15: S Avalon Blvd & I-405 NB Ramps



Lanes, Volumes, Timings
16: S Main St & E 213th St

1/3/2019

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	228	165	496	263	360	877
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	12	12
Storage Length (ft)	0	0		0	90	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.943		0.948			
Flt Protected	0.972				0.950	
Satd. Flow (prot)	1935	0	3803	0	1770	3539
Flt Permitted	0.972				0.318	
Satd. Flow (perm)	1935	0	3803	0	592	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	44		268			
Link Speed (mph)	30		35			45
Link Distance (ft)	4544		1360			2482
Travel Time (s)	103.3		26.5			37.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	248	179	539	286	391	953
Shared Lane Traffic (%)						
Lane Group Flow (vph)	427	0	825	0	391	953
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	28		24			24
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	12		12			12
Two way Left Turn Lane						
Headway Factor	0.85	0.85	0.85	0.85	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1		2		1	2
Detector Template	Left		Thru		Left	Thru
Leading Detector (ft)	20		100		20	100
Trailing Detector (ft)	0		0		0	0
Detector 1 Position(ft)	0		0		0	0
Detector 1 Size(ft)	20		6		20	6
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0		0.0	0.0
Detector 1 Queue (s)	0.0		0.0		0.0	0.0
Detector 1 Delay (s)	0.0		0.0		0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Perm		NA		Perm	NA
Protected Phases			2			6
Permitted Phases	8				6	

Lanes, Volumes, Timings
16: S Main St & E 213th St

1/3/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8		2		6	6
Switch Phase						
Minimum Initial (s)	4.0		4.0		4.0	4.0
Minimum Split (s)	21.0		21.0		21.0	21.0
Total Split (s)	21.0		54.0		54.0	54.0
Total Split (%)	28.0%		72.0%		72.0%	72.0%
Maximum Green (s)	16.0		49.0		49.0	49.0
Yellow Time (s)	4.0		4.0		4.0	4.0
All-Red Time (s)	1.0		1.0		1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	5.0		5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		Max		Max	Max
Walk Time (s)	5.0		5.0		5.0	5.0
Flash Dont Walk (s)	11.0		11.0		11.0	11.0
Pedestrian Calls (#/hr)	0		0		0	0
Act Effect Green (s)	16.0		49.0		49.0	49.0
Actuated g/C Ratio	0.21		0.65		0.65	0.65
v/c Ratio	0.96		0.32		1.01	0.41
Control Delay	61.6		4.0		67.0	6.8
Queue Delay	0.0		0.0		0.0	0.0
Total Delay	61.6		4.0		67.0	6.8
LOS	E		A		E	A
Approach Delay	61.6		4.0			24.3
Approach LOS	E		A			C
Intersection Summary						
Area Type:	Other					
Cycle Length: 75						
Actuated Cycle Length: 75						
Natural Cycle: 75						
Control Type: Actuated-Uncoordinated						
Maximum v/c Ratio: 1.01						
Intersection Signal Delay: 24.0				Intersection LOS: C		
Intersection Capacity Utilization 77.3%				ICU Level of Service D		
Analysis Period (min) 15						

Splits and Phases: 16: S Main St & E 213th St



Lanes, Volumes, Timings
17: S Avalon Blvd & E 213th St

1/3/2019

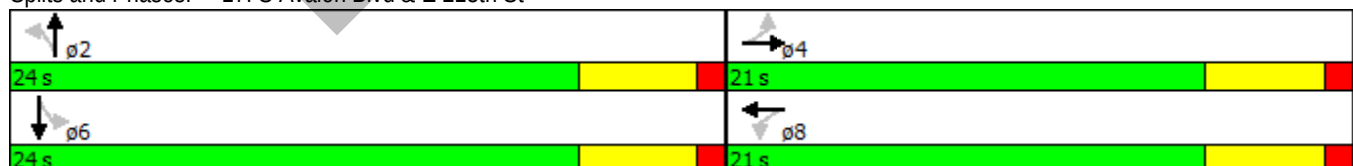
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	255	295	110	122	205	72	144	983	126	90	900	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	16	12	16	16	12	16	16	12	16	16
Storage Length (ft)	100		0	100		0	70		0	120		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.959			0.961			0.983			0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	2025	0	1770	3855	0	1770	5665	0	1770	5619	0
Flt Permitted	0.568			0.349			0.209			0.209		
Satd. Flow (perm)	1058	2025	0	650	3855	0	389	5665	0	389	5619	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		46			36			62			119	
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		4544			967			1397			1230	
Travel Time (s)		103.3			22.0			27.2			24.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	277	321	120	133	223	78	157	1068	137	98	978	199
Shared Lane Traffic (%)												
Lane Group Flow (vph)	277	441	0	133	301	0	157	1205	0	98	1177	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	0.85	1.00	0.85	0.85	1.00	0.85	0.85	1.00	0.85	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lanes, Volumes, Timings
17: S Avalon Blvd & E 213th St

1/3/2019

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Detector Phase	4	4		8	8		2	2		6	6		
Switch Phase													
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0		
Total Split (s)	21.0	21.0		21.0	21.0		24.0	24.0		24.0	24.0		
Total Split (%)	46.7%	46.7%		46.7%	46.7%		53.3%	53.3%		53.3%	53.3%		
Maximum Green (s)	16.0	16.0		16.0	16.0		19.0	19.0		19.0	19.0		
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0		
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0		
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		
Recall Mode	None	None		None	None		Max	Max		Max	Max		
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0		
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0		
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0		
Act Effct Green (s)	14.4	14.4		14.4	14.4		19.1	19.1		19.1	19.1		
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.44	0.44		0.44	0.44		
v/c Ratio	0.79	0.63		0.62	0.23		0.92	0.48		0.58	0.46		
Control Delay	33.3	15.5		28.2	9.5		74.9	9.3		29.5	8.7		
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Total Delay	33.3	15.5		28.2	9.5		74.9	9.3		29.5	8.7		
LOS	C	B		C	A		E	A		C	A		
Approach Delay		22.4			15.3			16.9			10.3		
Approach LOS		C			B			B			B		
Intersection Summary													
Area Type:	Other												
Cycle Length: 45													
Actuated Cycle Length: 43.5													
Natural Cycle: 45													
Control Type: Actuated-Uncoordinated													
Maximum v/c Ratio: 0.92													
Intersection Signal Delay: 15.5							Intersection LOS: B						
Intersection Capacity Utilization 75.1%							ICU Level of Service D						
Analysis Period (min) 15													

Splits and Phases: 17: S Avalon Blvd & E 213th St



Lanes, Volumes, Timings
18: S Figueroa St & W Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	127	541	500	58	395	33	229	342	117	88	432	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	213		75	152		0	230		0	240		0
Storage Lanes	1		0	1		0	2		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	0.97	0.95	0.95	0.97	0.95	0.95
Frt			0.850		0.988			0.962			0.958	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3497	0	3433	3405	0	3433	3391	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3497	0	3433	3405	0	3433	3391	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			306		14			76			92	
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		1243			2441			713			3767	
Travel Time (s)		24.2			47.6			12.2			64.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	138	588	543	63	429	36	249	372	127	96	470	182
Shared Lane Traffic (%)												
Lane Group Flow (vph)	138	588	543	63	465	0	249	499	0	96	652	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Detector Phase	7	4	4	3	8		5	2		1	6	

Carson IDIF 12:00 pm 9/5/2018 Existing PM without Project
W.G. Zimmerman Engineering, Inc.

Synchro 8 Report
Page 33

Lanes, Volumes, Timings
18: S Figueroa St & W Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	21.0	21.0	9.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	9.0	21.0	21.0	9.0	21.0		9.0	21.0		9.0	21.0	
Total Split (%)	15.0%	35.0%	35.0%	15.0%	35.0%		15.0%	35.0%		15.0%	35.0%	
Maximum Green (s)	4.0	16.0	16.0	4.0	16.0		4.0	16.0		4.0	16.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)		5.0	5.0		5.0			5.0			5.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effect Green (s)	4.0	17.2	17.2	4.0	13.4		4.0	18.0		4.0	16.0	
Actuated g/C Ratio	0.07	0.30	0.30	0.07	0.23		0.07	0.31		0.07	0.28	
v/c Ratio	1.12	0.55	0.79	0.51	0.56		1.04	0.45		0.40	0.64	
Control Delay	151.0	20.3	19.6	44.0	21.5		103.0	16.2		31.9	19.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	151.0	20.3	19.6	44.0	21.5		103.0	16.2		31.9	19.5	
LOS	F	C	B	D	C		F	B		C	B	
Approach Delay		34.2			24.2			45.1			21.1	
Approach LOS		C			C			D			C	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 57.5

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.12

Intersection Signal Delay: 32.1

Intersection LOS: C

Intersection Capacity Utilization 64.1%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 18: S Figueroa St & W Carson St

 ϕ1	 ϕ2	 ϕ3	 ϕ4
9 s	21 s	9 s	21 s
 ϕ5	 ϕ6	 ϕ7	 ϕ8
9 s	21 s	9 s	21 s

Lanes, Volumes, Timings
19: S Main St & W Carson St/E Carson St

1/3/2019

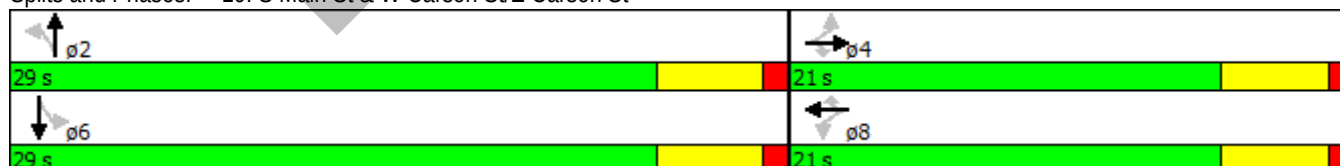
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	114	482	42	101	324	51	156	530	97	159	770	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	16	12	12	16
Storage Length (ft)	210		70	220		70	115		0	175		500
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt			0.850			0.850		0.977			0.982	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	4968	0	1770	4994	0
Flt Permitted	0.541			0.417			0.281			0.381		
Satd. Flow (perm)	1008	3539	1583	777	3539	1583	523	4968	0	710	4994	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			46			55		101			70	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		2441			4293			978			1360	
Travel Time (s)		47.6			83.6			19.1			26.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	124	524	46	110	352	55	170	576	105	173	837	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	124	524	46	110	352	55	170	681	0	173	954	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.85	1.00	1.00	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		

Lanes, Volumes, Timings
19: S Main St & W Carson St/E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0		21.0	21.0	
Total Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	29.0	29.0		29.0	29.0	
Total Split (%)	42.0%	42.0%	42.0%	42.0%	42.0%	42.0%	58.0%	58.0%		58.0%	58.0%	
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0	16.0	24.0	24.0		24.0	24.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	Max	Max		Max	Max	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	
Act Effct Green (s)	13.0	13.0	13.0	13.0	13.0	13.0	24.1	24.1		24.1	24.1	
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.28	0.28	0.51	0.51		0.51	0.51	
v/c Ratio	0.45	0.54	0.10	0.51	0.36	0.12	0.64	0.26		0.48	0.37	
Control Delay	19.5	16.5	5.3	23.6	14.6	5.1	25.3	6.2		14.2	7.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	19.5	16.5	5.3	23.6	14.6	5.1	25.3	6.2		14.2	7.3	
LOS	B	B	A	C	B	A	C	A		B	A	
Approach Delay		16.3			15.5			10.0			8.4	
Approach LOS		B			B			B			A	
Intersection Summary												
Area Type:	Other											
Cycle Length: 50												
Actuated Cycle Length: 47.1												
Natural Cycle: 50												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.64												
Intersection Signal Delay: 11.7							Intersection LOS: B					
Intersection Capacity Utilization 61.5%							ICU Level of Service B					
Analysis Period (min) 15												

Splits and Phases: 19: S Main St & W Carson St/E Carson St



Lanes, Volumes, Timings
20: S Avalon Blvd & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	166	621	71	380	356	101	75	754	464	227	780	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	16	12	12	16	12	12	16
Storage Length (ft)	225		0	215		0	140		0	150		0
Storage Lanes	2		0	2		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	0.95	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.985			0.967			0.943			0.983	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3486	0	3433	3422	0	1770	4795	0	1770	4999	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3486	0	3433	3422	0	1770	4795	0	1770	4999	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			38			173			26	
Link Speed (mph)		35			40			35			35	
Link Distance (ft)		4293			2121			702			1397	
Travel Time (s)		83.6			36.2			13.7			27.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	180	675	77	413	387	110	82	820	504	247	848	105
Shared Lane Traffic (%)												
Lane Group Flow (vph)	180	752	0	413	497	0	82	1324	0	247	953	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												

Lanes, Volumes, Timings
20: S Avalon Blvd & E Carson St

1/3/2019

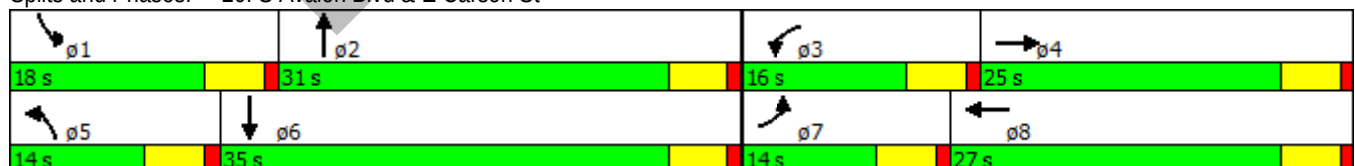
																								
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2		1	6		7	4		3	8		5	2		1	6	
Switch Phase																								
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	21.0		9.0	21.0		9.0	21.0		9.0	21.0		9.0	21.0		9.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	14.0	25.0		16.0	27.0		14.0	31.0		18.0	35.0		14.0	25.0		16.0	27.0		14.0	31.0		18.0	35.0	
Total Split (%)	15.6%	27.8%		17.8%	30.0%		15.6%	34.4%		20.0%	38.9%		15.6%	27.8%		17.8%	30.0%		15.6%	34.4%		20.0%	38.9%	
Maximum Green (s)	9.0	20.0		11.0	22.0		9.0	26.0		13.0	30.0		9.0	20.0		11.0	22.0		9.0	26.0		13.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (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		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max		None	None		None	None		None	Max		None	Max	
Walk Time (s)		5.0			5.0			5.0			5.0			5.0			5.0			5.0			5.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0			11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0			0			0			0			0	
Act Effect Green (s)	8.6	20.0		11.0	22.4		8.2	26.0		13.0	33.0		8.6	20.0		11.0	22.4		8.2	26.0		13.0	33.0	
Actuated g/C Ratio	0.10	0.22		0.12	0.25		0.09	0.29		0.14	0.37		0.10	0.22		0.12	0.25		0.09	0.29		0.14	0.37	
v/c Ratio	0.55	0.96		0.99	0.57		0.51	0.88		0.97	0.52		0.55	0.96		0.99	0.57		0.51	0.88		0.97	0.52	
Control Delay	45.4	58.9		81.8	30.3		50.2	34.5		89.6	23.7		45.4	58.9		81.8	30.3		50.2	34.5		89.6	23.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	45.4	58.9		81.8	30.3		50.2	34.5		89.6	23.7		45.4	58.9		81.8	30.3		50.2	34.5		89.6	23.7	
LOS	D	E		F	C		D	C		F	C		D	E		F	C		D	C		F	C	
Approach Delay		56.3			53.6			35.4			37.2			56.3			53.6			35.4			37.2	
Approach LOS		E			D			D			D			E			D			D			D	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay: 44.0
 Intersection Capacity Utilization 84.5%
 Analysis Period (min) 15

Intersection LOS: D
 ICU Level of Service E

Splits and Phases: 20: S Avalon Blvd & E Carson St



Lanes, Volumes, Timings
21: I-405 SB Ramps & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			  							
Volume (vph)	15	1021	786	106	954	0	31	0	55	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		180	0		0	150		0	0		0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1593	3185	1425	1593	4577	0	1593	0	1425	0	0	1676
Flt Permitted	0.264			0.230			0.950					
Satd. Flow (perm)	443	3185	1425	386	4577	0	1593	0	1425	0	0	1676
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			854						60			
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		2121			469			428			162	
Travel Time (s)		36.2			8.0			7.3			2.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	1110	854	115	1037	0	34	0	60	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	1110	854	115	1037	0	34	0	60	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1		1			1
Detector Template	Left	Thru	Right	Left	Thru		Left		Right			Right
Leading Detector (ft)	20	100	20	20	100		20		20			20
Trailing Detector (ft)	0	0	0	0	0		0		0			0
Detector 1 Position(ft)	0	0	0	0	0		0		0			0
Detector 1 Size(ft)	20	6	20	20	6		20		20			20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex			Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			0.0
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA	Perm	Perm	NA		Perm		Perm			Perm
Protected Phases		4			8							
Permitted Phases	4		4	8			2		2			6
Detector Phase	4	4	4	8	8		2		2			6

Carson IDIF 12:00 pm 9/5/2018 Existing PM without Project
W.G. Zimmerman Engineering, Inc.

Synchro 8 Report
Page 39

Lanes, Volumes, Timings
21: I-405 SB Ramps & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0		4.0			4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0		21.0			21.0
Total Split (s)	39.0	39.0	39.0	39.0	39.0		21.0		21.0			21.0
Total Split (%)	65.0%	65.0%	65.0%	65.0%	65.0%		35.0%		35.0%			35.0%
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		16.0		16.0			16.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0		4.0			4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0		1.0			1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0		5.0			5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0		3.0			3.0
Recall Mode	None	None	None	None	None		Min		Min			Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0		5.0			5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0		11.0			11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0		0			0
Act Effect Green (s)	28.7	28.7	28.7	28.7	28.7		6.7		6.7			
Actuated g/C Ratio	0.63	0.63	0.63	0.63	0.63		0.15		0.15			
v/c Ratio	0.06	0.55	0.70	0.48	0.36		0.15		0.23			
Control Delay	3.8	5.9	4.1	12.3	4.3		20.8		9.2			
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0		0.0			
Total Delay	3.8	5.9	4.1	12.3	4.3		20.8		9.2			
LOS	A	A	A	B	A		C		A			
Approach Delay		5.1			5.1							
Approach LOS		A			A							
Intersection Summary												
Area Type:	CBD											
Cycle Length: 60												
Actuated Cycle Length: 45.7												
Natural Cycle: 60												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.70												
Intersection Signal Delay: 5.4							Intersection LOS: A					
Intersection Capacity Utilization 68.9%							ICU Level of Service C					
Analysis Period (min) 15												

Splits and Phases: 21: I-405 SB Ramps & E Carson St

 p2	 p4
21 s	39 s
 p6	 p8
21 s	39 s

Lanes, Volumes, Timings

22: Recreation Rd/I-405 NB Ramps & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	118	932	35	23	652	379	35	20	20	38	8	398
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	12	12	12	12	12	12	12
Storage Length (ft)	70		0	100		180	0		0	0		0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995				0.850			0.850			0.850
Flt Protected	0.950			0.950				0.969			0.961	
Satd. Flow (prot)	1770	3522	0	1770	3539	1583	0	1805	1583	0	1790	1583
Flt Permitted	0.330			0.208				0.846			0.804	
Satd. Flow (perm)	615	3522	0	387	3539	1583	0	1576	1583	0	1498	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9				412			44			117
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		469			2039			158			364	
Travel Time (s)		8.0			34.8			2.7			6.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	128	1013	38	25	709	412	38	22	22	41	9	433
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	1051	0	25	709	412	0	60	22	0	50	433
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2		2	6		6

Lanes, Volumes, Timings

22: Recreation Rd/I-405 NB Ramps & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	26.0	26.0		26.0	26.0	26.0	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (%)	52.0%	52.0%		52.0%	52.0%	52.0%	48.0%	48.0%	48.0%	48.0%	48.0%	48.0%
Maximum Green (s)	21.0	21.0		21.0	21.0	21.0	19.0	19.0	19.0	19.0	19.0	19.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max	Max	Max	Max	Max
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0	0	0	0
Act Effct Green (s)	19.2	19.2		19.2	19.2	19.2		19.1	19.1		19.1	19.1
Actuated g/C Ratio	0.40	0.40		0.40	0.40	0.40		0.40	0.40		0.40	0.40
v/c Ratio	0.52	0.75		0.16	0.50	0.47		0.10	0.03		0.08	0.62
Control Delay	20.1	16.2		12.3	12.3	3.3		10.5	2.1		10.5	13.7
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	20.1	16.2		12.3	12.3	3.3		10.5	2.1		10.5	13.7
LOS	C	B		B	B	A		B	A		B	B
Approach Delay		16.6			9.1			8.3			13.3	
Approach LOS		B			A			A			B	
Intersection Summary												
Area Type:	Other											
Cycle Length: 50												
Actuated Cycle Length: 48.3												
Natural Cycle: 50												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.75												
Intersection Signal Delay: 12.8							Intersection LOS: B					
Intersection Capacity Utilization 58.5%							ICU Level of Service B					
Analysis Period (min) 15												

Splits and Phases: 22: Recreation Rd/I-405 NB Ramps & E Carson St

 24 s	 26 s
 24 s	 26 s

DRAFT

Existing + Development

Lanes, Volumes, Timings
1: S Figueroa St & I-405 SB Ramps

1/3/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	0	0	853	63	83	875
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	220	
Storage Lanes	0	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt			0.990			
Flt Protected					0.950	
Satd. Flow (prot)	0	0	3504	0	1770	3539
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	3504	0	1770	3539
Link Speed (mph)	40		40			40
Link Distance (ft)	607		2451			246
Travel Time (s)	10.3		41.8			4.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	927	68	90	951
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	995	0	90	951
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	12		12			12
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Yield		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	50.0%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
2: S Figueroa St & I-405 NB Ramps

1/3/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	197	292	913	0	0	706
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1770	1583	3539	0	0	3539
Flt Permitted	0.950					
Satd. Flow (perm)	1770	1583	3539	0	0	3539
Link Speed (mph)	40		40			40
Link Distance (ft)	724		246			1243
Travel Time (s)	12.3		4.2			21.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	214	317	992	0	0	767
Shared Lane Traffic (%)						
Lane Group Flow (vph)	214	317	992	0	0	767
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	12		12			12
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	50.0%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings

3: S Main St & I-405 SB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	96	11	0	0	0	0	749	81	89	755	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	250		0
Storage Lanes	1		0	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.984						0.985				
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	1833	0	0	0	0	0	3486	0	1770	3539	0
Flt Permitted	0.950									0.950		
Satd. Flow (perm)	1770	1833	0	0	0	0	0	3486	0	1770	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11						23				
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		607			169			2341			290	
Travel Time (s)		10.3			2.9			35.5			4.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	104	12	0	0	0	0	814	88	97	821	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	116	0	0	0	0	0	902	0	97	821	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2						2		1	2	
Detector Template	Left	Thru						Thru		Left	Thru	
Leading Detector (ft)	20	100						100		20	100	
Trailing Detector (ft)	0	0						0		0	0	
Detector 1 Position(ft)	0	0						0		0	0	
Detector 1 Size(ft)	20	6						6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex						Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0						0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0						0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0						0.0		0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Prot	NA						NA		Prot	NA	
Protected Phases	4							2		1	6	
Permitted Phases		4										
Detector Phase	4	4						2		1	6	

Lanes, Volumes, Timings 3: S Main St & I-405 SB Ramps

1/3/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0						4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0						21.0		9.0	21.0	
Total Split (s)	21.0	21.0						24.0		10.0	34.0	
Total Split (%)	38.2%	38.2%						43.6%		18.2%	61.8%	
Maximum Green (s)	16.0	16.0						19.0		5.0	29.0	
Yellow Time (s)	4.0	4.0						4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0						1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0						0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0						5.0		5.0	5.0	
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Recall Mode	None	None						Max		None	Max	
Walk Time (s)	5.0	5.0						5.0			5.0	
Flash Dont Walk (s)	11.0	11.0						11.0			11.0	
Pedestrian Calls (#/hr)	0	0						0			0	
Act Effect Green (s)	8.1	8.1						25.4		5.0	33.4	
Actuated g/C Ratio	0.17	0.17						0.52		0.10	0.69	
v/c Ratio	0.09	0.37						0.49		0.53	0.34	
Control Delay	16.8	19.3						11.5		34.1	4.9	
Queue Delay	0.0	0.0						0.0		0.0	0.2	
Total Delay	16.8	19.3						11.5		34.1	5.1	
LOS	B	B						B		C	A	
Approach Delay		18.8						11.5			8.1	
Approach LOS		B						B			A	

Intersection Summary

Area Type: Other

Cycle Length: 55

Actuated Cycle Length: 48.5

Natural Cycle: 55

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.53

Intersection Signal Delay: 10.4

Intersection LOS: B

Intersection Capacity Utilization 59.3%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: S Main St & I-405 SB Ramps

10 s	24 s	21 s
34 s		

Lanes, Volumes, Timings
4: S Main St & I-405 NB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕↕		↕	↕↕			↕↕	
Volume (vph)	0	0	0	87	377	194	29	746	0	0	782	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt					0.956						0.986	
Flt Protected					0.993		0.950					
Satd. Flow (prot)	0	0	0	0	3360	0	1770	3539	0	0	3490	0
Flt Permitted					0.993		0.243					
Satd. Flow (perm)	0	0	0	0	3360	0	453	3539	0	0	3490	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					85						31	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		724			336			290			724	
Travel Time (s)		12.3			5.7			4.4			11.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	95	410		211	32	811	0	0	850
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	716	0	32	811	0	0	940	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	2		1	2			2	
Detector Template				Left	Thru		Left	Thru			Thru	
Leading Detector (ft)				20	100		20	100			100	
Trailing Detector (ft)				0	0		0	0			0	
Detector 1 Position(ft)				0	0		0	0			0	
Detector 1 Size(ft)				20	6		20	6			6	
Detector 1 Type				Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0		0.0	0.0			0.0	
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Detector Phase				8	8		2	2			6	
Switch Phase												
Minimum Initial (s)				4.0	4.0		4.0	4.0			4.0	
Minimum Split (s)				21.0	21.0		21.0	21.0			21.0	

Lanes, Volumes, Timings
4: S Main St & I-405 NB Ramps

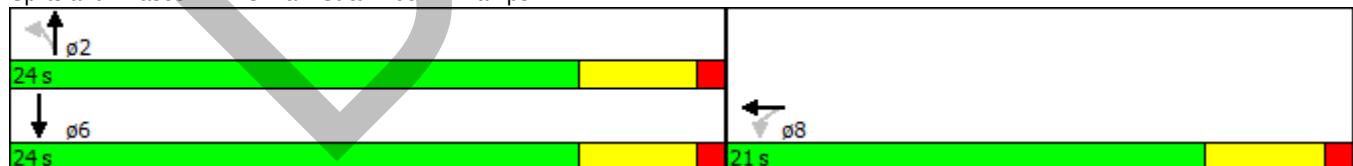
1/3/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)				21.0	21.0		24.0	24.0			24.0	
Total Split (%)				46.7%	46.7%		53.3%	53.3%			53.3%	
Maximum Green (s)				16.0	16.0		19.0	19.0			19.0	
Yellow Time (s)				4.0	4.0		4.0	4.0			4.0	
All-Red Time (s)				1.0	1.0		1.0	1.0			1.0	
Lost Time Adjust (s)					0.0		0.0	0.0			0.0	
Total Lost Time (s)					5.0		5.0	5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0	3.0			3.0	
Recall Mode				None	None		Max	Max			Max	
Walk Time (s)				5.0	5.0		5.0	5.0			5.0	
Flash Dont Walk (s)				11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)				0	0		0	0			0	
Act Effect Green (s)					13.3		19.1	19.1			19.1	
Actuated g/C Ratio					0.31		0.45	0.45			0.45	
v/c Ratio					0.64		0.16	0.51			0.59	
Control Delay					13.8		10.4	10.3			10.9	
Queue Delay					0.0		0.0	0.1			0.0	
Total Delay					13.8		10.4	10.4			10.9	
LOS					B		B	B			B	
Approach Delay					13.8			10.4			10.9	
Approach LOS					B			B			B	

Intersection Summary

Area Type:	Other
Cycle Length:	45
Actuated Cycle Length:	42.4
Natural Cycle:	45
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.64
Intersection Signal Delay:	11.6
Intersection Capacity Utilization	59.3%
Analysis Period (min)	15
Intersection LOS:	B
ICU Level of Service	B

Splits and Phases: 4: S Main St & I-405 NB Ramps



Lanes, Volumes, Timings
5: S Figueroa St & W Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	150	691	98	275	1162	166	196	725	490	57	379	437
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	60		0	240		240	240		0	245		245
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.981				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4989	0	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	4989	0	1770	3539	1583	1770	3539	1583	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		28				206			400			267
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		519			1251			791			2451	
Travel Time (s)		7.9			19.0			13.5			41.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	751	107	299	1263	180	213	788	533	62	412	475
Shared Lane Traffic (%)												
Lane Group Flow (vph)	163	858	0	299	1263	180	213	788	533	62	412	475
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6

Lanes, Volumes, Timings
5: S Figueroa St & W Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	21.0		9.0	21.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	14.0	28.0		24.0	38.0	38.0	16.0	29.0	29.0	9.0	22.0	22.0
Total Split (%)	15.6%	31.1%		26.7%	42.2%	42.2%	17.8%	32.2%	32.2%	10.0%	24.4%	24.4%
Maximum Green (s)	9.0	23.0		19.0	33.0	33.0	11.0	24.0	24.0	4.0	17.0	17.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)		5.0			5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0			11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0	0		0	0		0	0
Act Effect Green (s)	9.0	24.1		17.9	33.0	33.0	11.0	25.8	25.8	4.0	17.0	17.0
Actuated g/C Ratio	0.10	0.27		0.20	0.37	0.37	0.12	0.29	0.29	0.04	0.19	0.19
v/c Ratio	0.92	0.63		0.85	0.97	0.25	0.99	0.78	0.72	0.79	0.62	0.92
Control Delay	92.4	30.8		57.8	48.7	3.0	99.9	36.6	14.2	101.7	38.1	41.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	92.4	30.8		57.8	48.7	3.0	99.9	36.6	14.2	101.7	38.1	41.7
LOS	F	C		E	D	A	F	D	B	F	D	D
Approach Delay		40.6			45.5			37.6			44.0	
Approach LOS		D			D			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 42.0

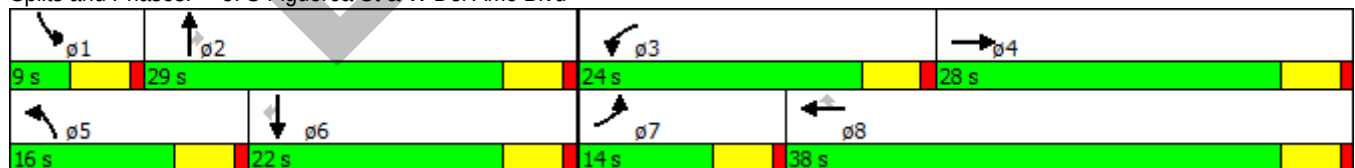
Intersection LOS: D

Intersection Capacity Utilization 82.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 5: S Figueroa St & W Del Amo Blvd



Lanes, Volumes, Timings

6: S Main St & W Del Amo Blvd/E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	199	865	211	221	1201	72	176	574	246	68	523	186
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		0	195		0	150		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.971			0.992			0.955			0.961	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4938	0	1770	5045	0	1770	3380	0	1770	3401	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	4938	0	1770	5045	0	1770	3380	0	1770	3401	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		61			10			77			53	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1251			1668			534			2341	
Travel Time (s)		19.0			25.3			8.1			35.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	216	940	229	240	1305	78	191	624	267	74	568	202
Shared Lane Traffic (%)												
Lane Group Flow (vph)	216	1169	0	240	1383	0	191	891	0	74	770	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Detector Phase	7	4		3	8		5	2		1	6	

Lanes, Volumes, Timings

6: S Main St & W Del Amo Blvd/E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	21.0		9.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	17.0	27.0		20.0	30.0		15.0	33.0		10.0	28.0	
Total Split (%)	18.9%	30.0%		22.2%	33.3%		16.7%	36.7%		11.1%	31.1%	
Maximum Green (s)	12.0	22.0		15.0	25.0		10.0	28.0		5.0	23.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		5.0			5.0			5.0			5.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	12.0	22.6		14.4	25.0		10.0	30.0		5.0	23.0	
Actuated g/C Ratio	0.13	0.25		0.16	0.28		0.11	0.33		0.06	0.26	
v/c Ratio	0.92	0.91		0.85	0.98		0.97	0.76		0.76	0.85	
Control Delay	81.0	43.2		63.4	53.1		100.6	30.0		85.8	40.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	81.0	43.2		63.4	53.1		100.6	30.0		85.8	40.0	
LOS	F	D		E	D		F	C		F	D	
Approach Delay		49.1			54.7			42.5			44.0	
Approach LOS		D			D			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 48.6

Intersection LOS: D

Intersection Capacity Utilization 82.7%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: S Main St & W Del Amo Blvd/E Del Amo Blvd

			
10 s	33 s	20 s	27 s
			
15 s	28 s	17 s	30 s

Lanes, Volumes, Timings
7: Stamps Dr & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1042	73	23	1390	0	57	0	36	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	155		0	0		0	0		0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Frt			0.850						0.850			
Flt Protected				0.950			0.950	0.950				
Satd. Flow (prot)	1863	3539	1583	1770	3539	0	1681	1681	1583	1863	1770	1770
Flt Permitted				0.121			0.950	0.950				
Satd. Flow (perm)	1863	3539	1583	225	3539	0	1681	1681	1583	1863	1770	1770
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95						95			
Link Speed (mph)		45			45			25			50	
Link Distance (ft)		1668			3009			694			308	
Travel Time (s)		25.3			45.6			18.9			4.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1133	79	25	1511	0	62	0	39	0	0	0
Shared Lane Traffic (%)							50%					0%
Lane Group Flow (vph)	0	1133	79	25	1511	0	31	31	39	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Split	NA	Perm	Perm		Perm
Protected Phases		4			8		2	2			6	
Permitted Phases	4		4	8					2	6		6
Detector Phase	4	4	4	8	8		2	2	2	6	6	6

Lanes, Volumes, Timings
7: Stamps Dr & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	38.0	38.0	38.0	38.0	38.0		21.0	21.0	21.0	21.0	21.0	21.0
Total Split (%)	47.5%	47.5%	47.5%	47.5%	47.5%		26.3%	26.3%	26.3%	26.3%	26.3%	26.3%
Maximum Green (s)	33.0	33.0	33.0	33.0	33.0		16.0	16.0	16.0	16.0	16.0	16.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		Max	Max	Max	Max	Max	Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0	0	0	0	0
Act Effect Green (s)		33.0	33.0	33.0	33.0		16.0	16.0	16.0			
Actuated g/C Ratio		0.41	0.41	0.41	0.41		0.20	0.20	0.20			
v/c Ratio		0.78	0.11	0.27	1.04		0.09	0.09	0.10			
Control Delay		24.8	3.0	25.1	58.3		27.0	27.0	0.5			
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0	0.0			
Total Delay		24.8	3.0	25.1	58.3		27.0	27.0	0.5			
LOS		C	A	C	E		C	C	A			
Approach Delay		23.4			57.8			16.8				
Approach LOS		C			E			B				

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.04

Intersection Signal Delay: 41.7

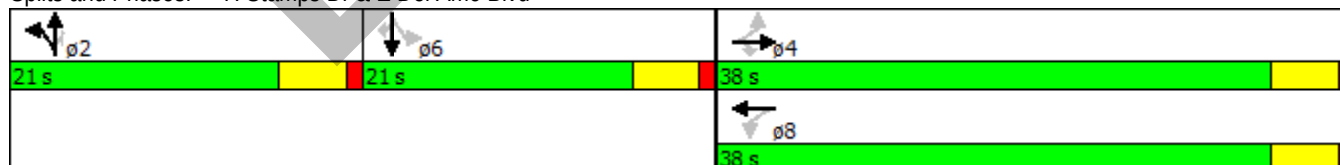
Intersection LOS: D

Intersection Capacity Utilization 50.1%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 7: Stamps Dr & E Del Amo Blvd



Lanes, Volumes, Timings
8: S Avalon Blvd & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			  		 	  	
Volume (vph)	384	637	97	181	845	98	297	1079	297	166	678	384
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		160	195		195	180		310	100		0
Storage Lanes	1		0	0		1	1		1	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	0.97	0.91	0.91
Frt			0.850			0.850			0.850		0.946	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	3433	4811	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	5085	1583	3433	4811	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			169			218			323		123	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		3009			3520			2946			3936	
Travel Time (s)		45.6			53.3			57.4			76.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	417	692	105	197	918	107	323	1173	323	180	737	417
Shared Lane Traffic (%)												
Lane Group Flow (vph)	417	692	105	197	918	107	323	1173	323	180	1154	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	

Lanes, Volumes, Timings
8: S Avalon Blvd & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	21.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	27.0	35.0	35.0	21.0	29.0	29.0	22.0	43.0	43.0	11.0	32.0	32.0
Total Split (%)	24.5%	31.8%	31.8%	19.1%	26.4%	26.4%	20.0%	39.1%	39.1%	10.0%	29.1%	29.1%
Maximum Green (s)	22.0	30.0	30.0	16.0	24.0	24.0	17.0	38.0	38.0	6.0	27.0	27.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (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
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effect Green (s)	22.0	30.9	30.9	15.1	24.0	24.0	17.0	38.0	38.0	6.0	27.0	27.0
Actuated g/C Ratio	0.20	0.28	0.28	0.14	0.22	0.22	0.15	0.35	0.35	0.05	0.25	0.25
v/c Ratio	1.18	0.70	0.19	0.81	1.19	0.21	1.18	0.67	0.43	0.96	0.91	0.91
Control Delay	145.3	40.0	1.3	71.7	136.4	0.9	154.8	32.9	4.7	109.5	47.2	47.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	145.3	40.0	1.3	71.7	136.4	0.9	154.8	32.9	4.7	109.5	47.2	47.2
LOS	F	D	A	E	F	A	F	C	A	F	D	D
Approach Delay		72.8			114.1			49.5			55.6	
Approach LOS		E			F			D			E	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Natural Cycle: 120

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.19

Intersection Signal Delay: 70.1

Intersection LOS: E

Intersection Capacity Utilization 99.4%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 8: S Avalon Blvd & E Del Amo Blvd

 ø1	 ø2	 ø3	 ø4
11 s	43 s	21 s	35 s
 ø5	 ø6	 ø7	 ø8
22 s	32 s	27 s	29 s

Lanes, Volumes, Timings
9: S Figueroa St & I-110 NB Ramps

1/3/2019

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 		 	 	 	
Volume (vph)	671	333	702	756	485	253
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	235			250
Storage Lanes	2	0	2			1
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	0.95	0.97	0.95	0.95	1.00
Frt	0.950					0.850
Flt Protected	0.968		0.950			
Satd. Flow (prot)	3323	0	3433	3539	3539	1583
Flt Permitted	0.968		0.456			
Satd. Flow (perm)	3323	0	1648	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	192					275
Link Speed (mph)	40			40	40	
Link Distance (ft)	170			828	791	
Travel Time (s)	2.9			14.1	13.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	729	362	763	822	527	275
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1091	0	763	822	527	275
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	12			12	12	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1		1	2	2	1
Detector Template	Left		Left	Thru	Thru	Right
Leading Detector (ft)	20		20	100	100	20
Trailing Detector (ft)	0		0	0	0	0
Detector 1 Position(ft)	0		0	0	0	0
Detector 1 Size(ft)	20		20	6	6	20
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Detector Phase	4		2	2	6	6

Lanes, Volumes, Timings
9: S Figueroa St & I-110 NB Ramps

1/3/2019



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	21.0		21.0	21.0	21.0	21.0
Total Split (s)	21.0		29.0	29.0	29.0	29.0
Total Split (%)	42.0%		58.0%	58.0%	58.0%	58.0%
Maximum Green (s)	16.0		24.0	24.0	24.0	24.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		Max	Max	Max	Max
Walk Time (s)	5.0		5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effect Green (s)	15.8		24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.32		0.48	0.48	0.48	0.48
v/c Ratio	0.92		0.96	0.48	0.31	0.30
Control Delay	28.7		40.3	10.0	8.5	2.3
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	28.7		40.3	10.0	8.5	2.3
LOS	C		D	A	A	A
Approach Delay	28.7			24.6	6.4	
Approach LOS	C			C	A	

Intersection Summary

Area Type: Other
Cycle Length: 50
Actuated Cycle Length: 49.8
Natural Cycle: 50
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 21.7
Intersection Capacity Utilization 75.6%
Analysis Period (min) 15

Intersection LOS: C
ICU Level of Service D

Splits and Phases: 9: S Figueroa St & I-110 NB Ramps

↑ p2 29 s ↓ p6 29 s	↑ p4 21 s
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Lanes, Volumes, Timings
10: S Main St & Lenardo Rd

1/3/2019

	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↑↑		↘	↑↑
Volume (vph)	25	32	920	61	59	918
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	145	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.991			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3507	0	1770	3539
Flt Permitted	0.950				0.263	
Satd. Flow (perm)	1770	1583	3507	0	490	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		35	18			
Link Speed (mph)	25		45			45
Link Distance (ft)	479		971			534
Travel Time (s)	13.1		14.7			8.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	35	1000	66	64	998
Shared Lane Traffic (%)						
Lane Group Flow (vph)	27	35	1066	0	64	998
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	12		12			12
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (ft)	20	20	100		20	100
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	20	6		20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6

Lanes, Volumes, Timings
10: S Main St & Lenardo Rd

1/3/2019

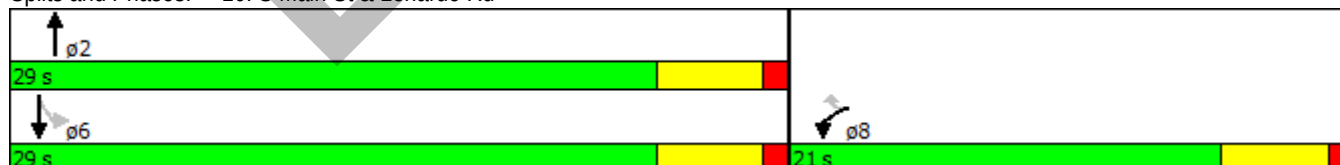
	WBL	WBR	NBT	NBR	SBL	SBT
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	21.0	21.0	21.0		21.0	21.0
Total Split (s)	21.0	21.0	29.0		29.0	29.0
Total Split (%)	42.0%	42.0%	58.0%		58.0%	58.0%
Maximum Green (s)	16.0	16.0	24.0		24.0	24.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		Max	Max
Walk Time (s)	5.0	5.0	5.0		5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effect Green (s)	6.3	6.3	39.3		39.3	39.3
Actuated g/C Ratio	0.14	0.14	0.86		0.86	0.86
v/c Ratio	0.11	0.14	0.35		0.15	0.33
Control Delay	18.5	9.1	2.8		4.0	2.7
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	18.5	9.1	2.8		4.0	2.7
LOS	B	A	A		A	A
Approach Delay	13.2		2.8			2.8
Approach LOS	B		A			A

Intersection Summary

Area Type: Other
 Cycle Length: 50
 Actuated Cycle Length: 45.8
 Natural Cycle: 50
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.35
 Intersection Signal Delay: 3.1
 Intersection Capacity Utilization 46.5%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 10: S Main St & Lenardo Rd



Lanes, Volumes, Timings
11: S Figueroa St & W Torrance Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	646	529	159	59	537	3	179	604	58	81	334	428
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12	12	16	12	12	12	12
Storage Length (ft)	180		0	115		0	255		0	185		185
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.91	0.91	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.976				0.850		0.987				0.850
Flt Protected	0.950	0.984		0.950			0.950			0.950		
Satd. Flow (prot)	1610	3690	0	1770	3539	1583	1770	3959	0	1770	3539	1583
Flt Permitted	0.427	0.655		0.183			0.535			0.248		
Satd. Flow (perm)	724	2456	0	341	3539	1583	997	3959	0	462	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		56				36		16				286
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		368			1713			3767			828	
Travel Time (s)		6.3			29.2			64.2			14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	702	575	173	64	584	3	195	657	63	88	363	465
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	351	1099	0	64	584	3	195	720	0	88	363	465
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	1.00	1.00	1.00	1.00	1.00	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		6

Lanes, Volumes, Timings
11: S Figueroa St & W Torrance Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	21.0	21.0		21.0	21.0	21.0
Total Split (s)	39.0	39.0		39.0	39.0	39.0	21.0	21.0		21.0	21.0	21.0
Total Split (%)	65.0%	65.0%		65.0%	65.0%	65.0%	35.0%	35.0%		35.0%	35.0%	35.0%
Maximum Green (s)	34.0	34.0		34.0	34.0	34.0	16.0	16.0		16.0	16.0	16.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	Max
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	0
Act Effct Green (s)	31.4	31.4		31.4	31.4	31.4	16.1	16.1		16.1	16.1	16.1
Actuated g/C Ratio	0.55	0.55		0.55	0.55	0.55	0.28	0.28		0.28	0.28	0.28
v/c Ratio	0.89	0.81		0.34	0.30	0.00	0.70	0.64		0.68	0.37	0.72
Control Delay	40.2	15.5		13.3	7.4	0.0	37.0	21.7		51.6	18.8	15.7
Queue Delay	0.0	0.1		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	40.2	15.7		13.3	7.4	0.0	37.0	21.7		51.6	18.8	15.7
LOS	D	B		B	A	A	D	C		D	B	B
Approach Delay		21.6			8.0			24.9			20.4	
Approach LOS		C			A			C			C	
Intersection Summary												
Area Type:	Other											
Cycle Length: 60												
Actuated Cycle Length: 57.6												
Natural Cycle: 60												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.89												
Intersection Signal Delay: 19.9							Intersection LOS: B					
Intersection Capacity Utilization 80.2%							ICU Level of Service D					
Analysis Period (min) 15												

Splits and Phases: 11: S Figueroa St & W Torrance Blvd

	
21 s	39 s
	
21 s	39 s

Lanes, Volumes, Timings

12: S Main St & W Torrance Blvd/E Torrance Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	328	23	253	10	75	35	383	694	9	12	553	302
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12	12	16	12	12	12	12
Storage Length (ft)	0		0	0		0	190		0	145		45
Storage Lanes	0		1	0		0	2		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.961			0.998				0.850
Flt Protected		0.955			0.996		0.950			0.950		
Satd. Flow (prot)	0	1779	1583	0	2021	0	3433	4003	0	1770	3539	1583
Flt Permitted		0.711			0.960		0.401			0.311		
Satd. Flow (perm)	0	1324	1583	0	1948	0	1449	4003	0	579	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			177		38			3				308
Link Speed (mph)		40			40			40			45	
Link Distance (ft)		1713			375			2482			971	
Travel Time (s)		29.2			6.4			42.3			14.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	357	25	275	11	82	38	416	754	10	13	601	328
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	382	275	0	131	0	416	764	0	13	601	328
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2		6			6

Lanes, Volumes, Timings

12: S Main St & W Torrance Blvd/E Torrance Blvd

1/3/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0	21.0		21.0	21.0	21.0
Total Split (s)	29.0	29.0	29.0	29.0	29.0		31.0	31.0		31.0	31.0	31.0
Total Split (%)	48.3%	48.3%	48.3%	48.3%	48.3%		51.7%	51.7%		51.7%	51.7%	51.7%
Maximum Green (s)	24.0	24.0	24.0	24.0	24.0		26.0	26.0		26.0	26.0	26.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		Max	Max		Max	Max	Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	0
Act Effect Green (s)		20.2	20.2		20.2		26.2	26.2		26.2	26.2	26.2
Actuated g/C Ratio		0.36	0.36		0.36		0.46	0.46		0.46	0.46	0.46
v/c Ratio		0.81	0.40		0.18		0.62	0.41		0.05	0.37	0.37
Control Delay		31.1	6.9		9.5		17.7	11.6		10.6	11.4	3.3
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		31.1	6.9		9.5		17.7	11.6		10.6	11.4	3.3
LOS		C	A		A		B	B		B	B	A
Approach Delay		21.0			9.5			13.7			8.6	
Approach LOS		C			A			B			A	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 56.5

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 13.5

Intersection LOS: B

Intersection Capacity Utilization 64.8%

ICU Level of Service C

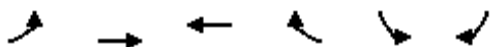
Analysis Period (min) 15

Splits and Phases: 12: S Main St & W Torrance Blvd/E Torrance Blvd

 p2	 p4
31 s	29 s
 p6	 p8
31 s	29 s

Lanes, Volumes, Timings
13: Lenardo Rd/I-405 SB Ramps

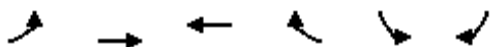
1/3/2019



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↱↱	↰	↰	↰↰	↰
Volume (vph)	35	70	12	346	219	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			0	0	0
Storage Lanes	1			1	2	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	1863	1583	3433	1583
Flt Permitted	0.749				0.950	
Satd. Flow (perm)	1395	3539	1863	1583	3433	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				376		64
Link Speed (mph)		35	40		40	
Link Distance (ft)		701	533		434	
Travel Time (s)		13.7	9.1		7.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	76	13	376	238	64
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	76	13	376	238	64
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		24	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		12	12		12	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm	NA	NA	Perm	Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4			8		6
Detector Phase	4	4	8	8	6	6

Lanes, Volumes, Timings 13: Lenardo Rd/I-405 SB Ramps

1/3/2019



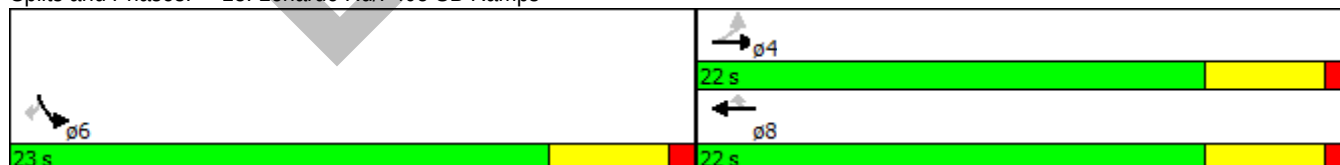
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	22.0	22.0	22.0	22.0	23.0	23.0
Total Split (%)	48.9%	48.9%	48.9%	48.9%	51.1%	51.1%
Maximum Green (s)	17.0	17.0	17.0	17.0	18.0	18.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	Max	Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effect Green (s)	7.7	7.7	7.7	7.7	19.2	19.2
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.52	0.52
v/c Ratio	0.13	0.10	0.03	0.60	0.13	0.08
Control Delay	11.9	11.1	10.6	6.3	5.6	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.9	11.1	10.6	6.3	5.6	2.6
LOS	B	B	B	A	A	A
Approach Delay		11.4	6.4		5.0	
Approach LOS		B	A		A	

Intersection Summary

Area Type: Other
 Cycle Length: 45
 Actuated Cycle Length: 36.9
 Natural Cycle: 45
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.60
 Intersection Signal Delay: 6.6
 Intersection Capacity Utilization 33.1%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 13: Lenardo Rd/I-405 SB Ramps



Lanes, Volumes, Timings
14: S Avalon Blvd & I-405 SB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	669	73	501	0	0	0	86	1230	153	0	846	470
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		150	0		0	160		0	0		120
Storage Lanes	0		1	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850					0.983				0.850
Flt Protected	0.950						0.950					
Satd. Flow (prot)	3433	3539	1583	0	0	0	1770	3479	0	0	3539	1583
Flt Permitted	0.950						0.249					
Satd. Flow (perm)	3433	3539	1583	0	0	0	464	3479	0	0	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			91					34				511
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		533			422			1230			386	
Travel Time (s)		9.1			7.2			24.0			7.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	727	79	545	0	0	0	93	1337	166	0	920	511
Shared Lane Traffic (%)												
Lane Group Flow (vph)	727	79	545	0	0	0	93	1503	0	0	920	511
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1				1	2			2	1
Detector Template	Left	Thru	Right				Left	Thru			Thru	Right
Leading Detector (ft)	20	100	20				20	100			100	20
Trailing Detector (ft)	0	0	0				0	0			0	0
Detector 1 Position(ft)	0	0	0				0	0			0	0
Detector 1 Size(ft)	20	6	20				20	6			6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex				Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm				Perm	NA			NA	Perm
Protected Phases		4						2			6	
Permitted Phases	4		4				2					6
Detector Phase	4	4	4				2	2			6	6

Lanes, Volumes, Timings
14: S Avalon Blvd & I-405 SB Ramps

1/3/2019

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0				4.0	4.0			4.0	4.0
Minimum Split (s)	21.0	21.0	21.0				21.0	21.0			21.0	21.0
Total Split (s)	23.0	23.0	23.0				32.0	32.0			32.0	32.0
Total Split (%)	41.8%	41.8%	41.8%				58.2%	58.2%			58.2%	58.2%
Maximum Green (s)	18.0	18.0	18.0				27.0	27.0			27.0	27.0
Yellow Time (s)	4.0	4.0	4.0				4.0	4.0			4.0	4.0
All-Red Time (s)	1.0	1.0	1.0				1.0	1.0			1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0				5.0	5.0			5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0				3.0	3.0			3.0	3.0
Recall Mode	None	None	None				Max	Max			Max	Max
Walk Time (s)	5.0	5.0	5.0				5.0	5.0			5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0				11.0	11.0			11.0	11.0
Pedestrian Calls (#/hr)	0	0	0				0	0			0	0
Act Effect Green (s)	18.0	18.0	18.0				27.0	27.0			27.0	27.0
Actuated g/C Ratio	0.33	0.33	0.33				0.49	0.49			0.49	0.49
v/c Ratio	0.65	0.07	0.94				0.41	0.87			0.53	0.49
Control Delay	19.0	13.0	44.3				15.9	19.8			11.0	2.8
Queue Delay	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Total Delay	19.0	13.0	44.3				15.9	19.8			11.0	2.8
LOS	B	B	D				B	B			B	A
Approach Delay	28.9						19.5			8.1		
Approach LOS	C						B			A		

Intersection Summary

Area Type: Other

Cycle Length: 55

Actuated Cycle Length: 55

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 18.7

Intersection LOS: B

Intersection Capacity Utilization 66.3%

ICU Level of Service C

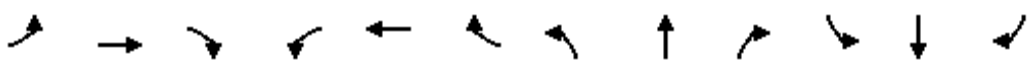
Analysis Period (min) 15

Splits and Phases: 14: S Avalon Blvd & I-405 SB Ramps

 ø2	 ø4
32 s	23 s
 ø6	
32 s	

Lanes, Volumes, Timings
15: S Avalon Blvd & I-405 NB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	183	2	866	430	1275	0	0	1099	275
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		0	0		0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.953		0.950					
Satd. Flow (prot)	0	0	0	1681	1686	1583	3433	3539	0	0	5085	1583
Flt Permitted				0.950	0.953		0.175					
Satd. Flow (perm)	0	0	0	1681	1686	1583	632	3539	0	0	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						29						299
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		346			390			386			2946	
Travel Time (s)		5.9			6.6			7.5			57.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	199	2	941	467	1386	0	0	1195	299
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	99	102	941	467	1386	0	0	1195	299
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	Perm	NA			NA	Perm
Protected Phases					8			2			6	
Permitted Phases				8		8	2					6
Detector Phase				8	8	8	2	2			6	6

Lanes, Volumes, Timings
15: S Avalon Blvd & I-405 NB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Minimum Split (s)				21.0	21.0	21.0	21.0	21.0			21.0	21.0
Total Split (s)				53.0	53.0	53.0	67.0	67.0			67.0	67.0
Total Split (%)				44.2%	44.2%	44.2%	55.8%	55.8%			55.8%	55.8%
Maximum Green (s)				48.0	48.0	48.0	62.0	62.0			62.0	62.0
Yellow Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
All-Red Time (s)				1.0	1.0	1.0	1.0	1.0			1.0	1.0
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	Max	Max			Max	Max
Walk Time (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
Flash Dont Walk (s)				11.0	11.0	11.0	11.0	11.0			11.0	11.0
Pedestrian Calls (#/hr)				0	0	0	0	0			0	0
Act Efect Green (s)				48.0	48.0	48.0	62.0	62.0			62.0	62.0
Actuated g/C Ratio				0.40	0.40	0.40	0.52	0.52			0.52	0.52
v/c Ratio				0.15	0.15	1.45	1.43	0.76			0.45	0.31
Control Delay				23.8	23.8	239.3	238.2	26.4			19.0	2.6
Queue Delay				0.0	0.0	0.0	0.0	48.6			0.0	0.0
Total Delay				23.8	23.8	239.3	238.2	75.1			19.0	2.6
LOS				C	C	F	F	E			B	A
Approach Delay					201.3			116.2			15.7	
Approach LOS					F			F			B	
Intersection Summary												
Area Type:	Other											
Cycle Length: 120												
Actuated Cycle Length: 120												
Natural Cycle: 120												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 1.45												
Intersection Signal Delay: 104.4							Intersection LOS: F					
Intersection Capacity Utilization 97.2%							ICU Level of Service F					
Analysis Period (min) 15												

Splits and Phases: 15: S Avalon Blvd & I-405 NB Ramps



Lanes, Volumes, Timings
16: S Main St & E 213th St

1/3/2019

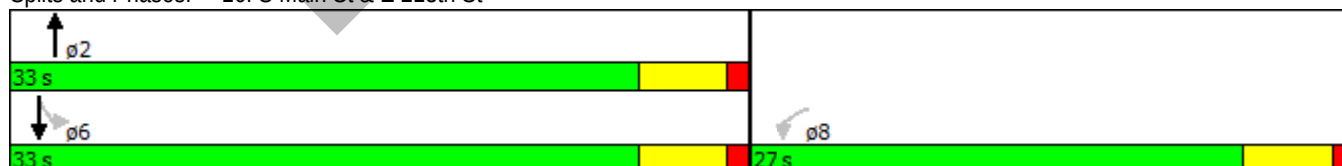
						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	292	325	764	161	119	636
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	12	12
Storage Length (ft)	0	0		0	90	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.929		0.974			
Flt Protected	0.977				0.950	
Satd. Flow (prot)	1916	0	3907	0	1770	3539
Flt Permitted	0.977				0.206	
Satd. Flow (perm)	1916	0	3907	0	384	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	103		56			
Link Speed (mph)	30		35			45
Link Distance (ft)	4544		1360			2482
Travel Time (s)	103.3		26.5			37.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	317	353	830	175	129	691
Shared Lane Traffic (%)						
Lane Group Flow (vph)	670	0	1005	0	129	691
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	28		24			24
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	12		12			12
Two way Left Turn Lane						
Headway Factor	0.85	0.85	0.85	0.85	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1		2		1	2
Detector Template	Left		Thru		Left	Thru
Leading Detector (ft)	20		100		20	100
Trailing Detector (ft)	0		0		0	0
Detector 1 Position(ft)	0		0		0	0
Detector 1 Size(ft)	20		6		20	6
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0		0.0	0.0
Detector 1 Queue (s)	0.0		0.0		0.0	0.0
Detector 1 Delay (s)	0.0		0.0		0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Perm		NA		Perm	NA
Protected Phases			2			6
Permitted Phases	8				6	

Lanes, Volumes, Timings
16: S Main St & E 213th St

1/3/2019

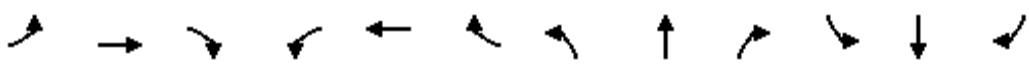
						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8		2		6	6
Switch Phase						
Minimum Initial (s)	4.0		4.0		4.0	4.0
Minimum Split (s)	21.0		21.0		21.0	21.0
Total Split (s)	27.0		33.0		33.0	33.0
Total Split (%)	45.0%		55.0%		55.0%	55.0%
Maximum Green (s)	22.0		28.0		28.0	28.0
Yellow Time (s)	4.0		4.0		4.0	4.0
All-Red Time (s)	1.0		1.0		1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	5.0		5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		Max		Max	Max
Walk Time (s)	5.0		5.0		5.0	5.0
Flash Dont Walk (s)	11.0		11.0		11.0	11.0
Pedestrian Calls (#/hr)	0		0		0	0
Act Efect Green (s)	20.7		28.1		28.1	28.1
Actuated g/C Ratio	0.35		0.48		0.48	0.48
v/c Ratio	0.90		0.53		0.70	0.41
Control Delay	33.8		11.6		39.1	11.2
Queue Delay	0.0		0.0		0.0	0.0
Total Delay	33.8		11.6		39.1	11.2
LOS	C		B		D	B
Approach Delay	33.8		11.6			15.6
Approach LOS	C		B			B
Intersection Summary						
Area Type:	Other					
Cycle Length: 60						
Actuated Cycle Length: 58.8						
Natural Cycle: 60						
Control Type: Actuated-Uncoordinated						
Maximum v/c Ratio: 0.90						
Intersection Signal Delay: 18.9				Intersection LOS: B		
Intersection Capacity Utilization 81.5%				ICU Level of Service D		
Analysis Period (min) 15						

Splits and Phases: 16: S Main St & E 213th St



Lanes, Volumes, Timings
17: S Avalon Blvd & E 213th St

1/3/2019

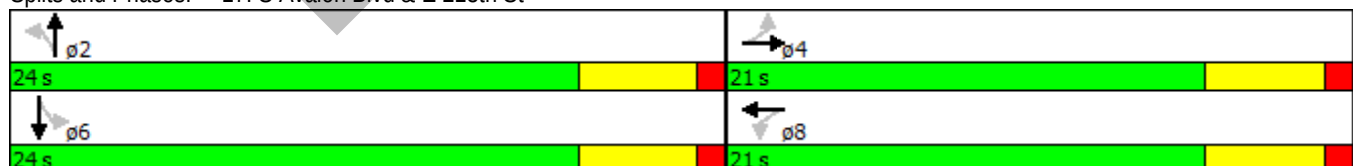
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	237	201	85	155	258	218	105	1014	145	59	1078	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	16	12	16	16	12	16	16	12	16	16
Storage Length (ft)	100		0	100		0	70		0	120		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.955			0.931			0.981			0.979	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	2016	0	1770	3734	0	1770	5654	0	1770	5642	0
Flt Permitted	0.456			0.533			0.211			0.211		
Satd. Flow (perm)	849	2016	0	993	3734	0	393	5654	0	393	5642	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25			32			72			84	
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		4544			967			1397			1230	
Travel Time (s)		103.3			22.0			27.2			24.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	258	218	92	168	280	237	114	1102	158	64	1172	188
Shared Lane Traffic (%)												
Lane Group Flow (vph)	258	310	0	168	517	0	114	1260	0	64	1360	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	0.85	1.00	0.85	0.85	1.00	0.85	0.85	1.00	0.85	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lanes, Volumes, Timings
17: S Avalon Blvd & E 213th St

1/3/2019

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Detector Phase	4	4		8	8		2	2		6	6		
Switch Phase													
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0		
Total Split (s)	21.0	21.0		21.0	21.0		24.0	24.0		24.0	24.0		
Total Split (%)	46.7%	46.7%		46.7%	46.7%		53.3%	53.3%		53.3%	53.3%		
Maximum Green (s)	16.0	16.0		16.0	16.0		19.0	19.0		19.0	19.0		
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0		
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0		
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		
Recall Mode	None	None		None	None		Max	Max		Max	Max		
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0		
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0		
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0		
Act Effct Green (s)	15.2	15.2		15.2	15.2		19.0	19.0		19.0	19.0		
Actuated g/C Ratio	0.34	0.34		0.34	0.34		0.43	0.43		0.43	0.43		
v/c Ratio	0.89	0.44		0.49	0.40		0.68	0.51		0.38	0.55		
Control Delay	50.2	12.5		17.3	11.3		37.6	9.7		17.2	10.0		
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Total Delay	50.2	12.5		17.3	11.3		37.6	9.7		17.2	10.0		
LOS	D	B		B	B		D	A		B	A		
Approach Delay		29.6			12.8			12.0			10.3		
Approach LOS		C			B			B			B		
Intersection Summary													
Area Type:	Other												
Cycle Length: 45													
Actuated Cycle Length: 44.2													
Natural Cycle: 45													
Control Type: Actuated-Uncoordinated													
Maximum v/c Ratio: 0.89													
Intersection Signal Delay: 14.0							Intersection LOS: B						
Intersection Capacity Utilization 74.4%							ICU Level of Service D						
Analysis Period (min) 15													

Splits and Phases: 17: S Avalon Blvd & E 213th St



Lanes, Volumes, Timings
18: S Figueroa St & W Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	144	417	445	37	463	46	348	533	147	44	377	309
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	213		75	152		0	230		0	240		0
Storage Lanes	1		0	1		0	2		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	0.97	0.95	0.95	0.97	0.95	0.95
Frt			0.850		0.986			0.968			0.932	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3490	0	3433	3426	0	3433	3299	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3490	0	3433	3426	0	3433	3299	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			340		15			55			231	
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		1243			2441			713			3767	
Travel Time (s)		24.2			47.6			12.2			64.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	157	453	484	40	503	50	378	579	160	48	410	336
Shared Lane Traffic (%)												
Lane Group Flow (vph)	157	453	484	40	553	0	378	739	0	48	746	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Detector Phase	7	4	4	3	8		5	2		1	6	

Lanes, Volumes, Timings
18: S Figueroa St & W Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	21.0	21.0	9.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	11.0	23.0	23.0	9.0	21.0		12.0	24.0		9.0	21.0	
Total Split (%)	16.9%	35.4%	35.4%	13.8%	32.3%		18.5%	36.9%		13.8%	32.3%	
Maximum Green (s)	6.0	18.0	18.0	4.0	16.0		7.0	19.0		4.0	16.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)		5.0	5.0		5.0			5.0			5.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effect Green (s)	6.0	21.7	21.7	4.0	14.2		7.0	22.8		4.0	16.0	
Actuated g/C Ratio	0.09	0.34	0.34	0.06	0.22		0.11	0.36		0.06	0.25	
v/c Ratio	0.93	0.37	0.63	0.36	0.69		0.99	0.58		0.22	0.74	
Control Delay	89.6	17.8	10.5	38.5	26.9		78.0	18.9		31.5	20.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	89.6	17.8	10.5	38.5	26.9		78.0	18.9		31.5	20.4	
LOS	F	B	B	D	C		E	B		C	C	
Approach Delay		24.9			27.7			38.9			21.1	
Approach LOS		C			C			D			C	

Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 63.3

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 28.9

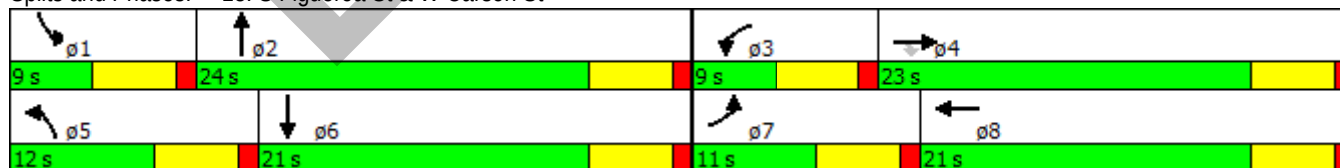
Intersection LOS: C

Intersection Capacity Utilization 69.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 18: S Figueroa St & W Carson St



Lanes, Volumes, Timings
19: S Main St & W Carson St/E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			  			  	
Volume (vph)	100	351	123	121	375	58	135	778	125	62	590	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	16	12	12	16
Storage Length (ft)	210		70	220		70	115		0	175		500
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt			0.850			0.850		0.979			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	4979	0	1770	4973	0
Flt Permitted	0.512			0.525			0.355			0.275		
Satd. Flow (perm)	954	3539	1583	978	3539	1583	661	4979	0	512	4973	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			134			63		84			94	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		2441			4293			978			1360	
Travel Time (s)		47.6			83.6			19.1			26.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	382	134	132	408	63	147	846	136	67	641	111
Shared Lane Traffic (%)												
Lane Group Flow (vph)	109	382	134	132	408	63	147	982	0	67	752	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.85	1.00	1.00	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		

Lanes, Volumes, Timings
19: S Main St & W Carson St/E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0		21.0	21.0	
Total Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	24.0	24.0		24.0	24.0	
Total Split (%)	46.7%	46.7%	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%		53.3%	53.3%	
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0	16.0	19.0	19.0		19.0	19.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	Max	Max		Max	Max	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	
Act Effct Green (s)	11.4	11.4	11.4	11.4	11.4	11.4	19.2	19.2		19.2	19.2	
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.28	0.28	0.47	0.47		0.47	0.47	
v/c Ratio	0.41	0.39	0.25	0.48	0.41	0.13	0.47	0.41		0.28	0.31	
Control Delay	16.5	12.6	4.0	18.3	12.9	4.3	15.6	7.6		11.9	6.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	16.5	12.6	4.0	18.3	12.9	4.3	15.6	7.6		11.9	6.8	
LOS	B	B	A	B	B	A	B	A		B	A	
Approach Delay		11.5			13.2			8.6			7.2	
Approach LOS		B			B			A			A	
Intersection Summary												
Area Type:	Other											
Cycle Length: 45												
Actuated Cycle Length: 40.6												
Natural Cycle: 45												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.48												
Intersection Signal Delay: 9.7												
Intersection Capacity Utilization 54.3%												
Analysis Period (min) 15												
Intersection LOS: A												
ICU Level of Service A												

Splits and Phases: 19: S Main St & W Carson St/E Carson St

	24 s 21 s 24 s 21 s
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Lanes, Volumes, Timings
20: S Avalon Blvd & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	116	502	66	493	399	102	61	1034	503	138	925	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	16	12	12	16	12	12	16
Storage Length (ft)	225		0	215		0	140		0	150		0
Storage Lanes	2		0	2		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	0.95	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.983			0.969			0.951			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3479	0	3433	3429	0	1770	4836	0	1770	5040	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3479	0	3433	3429	0	1770	4836	0	1770	5040	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			34			149			11	
Link Speed (mph)		35			40			35			35	
Link Distance (ft)		4293			2121			702			1397	
Travel Time (s)		83.6			36.2			13.7			27.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	126	546	72	536	434	111	66	1124	547	150	1005	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	126	618	0	536	545	0	66	1671	0	150	1067	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												

Lanes, Volumes, Timings
20: S Avalon Blvd & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	21.0		9.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	12.0	21.0		20.0	29.0		13.0	36.0		13.0	36.0	
Total Split (%)	13.3%	23.3%		22.2%	32.2%		14.4%	40.0%		14.4%	40.0%	
Maximum Green (s)	7.0	16.0		15.0	24.0		8.0	31.0		8.0	31.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		5.0			5.0			5.0			5.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	6.9	16.0		15.0	24.1		7.4	31.0		8.0	33.7	
Actuated g/C Ratio	0.08	0.18		0.17	0.27		0.08	0.34		0.09	0.37	
v/c Ratio	0.48	0.98		0.94	0.58		0.46	0.95		0.96	0.56	
Control Delay	46.4	69.0		63.3	29.6		49.6	39.1		104.7	24.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	46.4	69.0		63.3	29.6		49.6	39.1		104.7	24.2	
LOS	D	E		E	C		D	D		F	C	
Approach Delay		65.2			46.3			39.5			34.2	
Approach LOS		E			D			D			C	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 43.7
 Intersection Capacity Utilization 85.6%
 Analysis Period (min) 15

Intersection LOS: D
 ICU Level of Service E

Splits and Phases: 20: S Avalon Blvd & E Carson St

 p1	 p2	 p3	 p4
13 s	36 s	20 s	21 s
 p5	 p6	 p7	 p8
13 s	36 s	12 s	29 s

Lanes, Volumes, Timings
21: I-405 SB Ramps & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	664	754	121	1216	0	165	0	249	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		180	0		0	150		0	0		0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1593	3185	1425	1593	4577	0	1593	0	1425	0	0	1676
Flt Permitted	0.174			0.369			0.950					
Satd. Flow (perm)	292	3185	1425	619	4577	0	1593	0	1425	0	0	1676
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			820						206			
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		2121			469			428			162	
Travel Time (s)		36.2			8.0			7.3			2.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	722	820	132	1322	0	179	0	271	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	8	722	820	132	1322	0	179	0	271	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1		1			1
Detector Template	Left	Thru	Right	Left	Thru		Left		Right			Right
Leading Detector (ft)	20	100	20	20	100		20		20			20
Trailing Detector (ft)	0	0	0	0	0		0		0			0
Detector 1 Position(ft)	0	0	0	0	0		0		0			0
Detector 1 Size(ft)	20	6	20	20	6		20		20			20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex			Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			0.0
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA	Perm	Perm	NA		Perm		Perm			Perm
Protected Phases		4			8							
Permitted Phases	4		4	8			2		2			6
Detector Phase	4	4	4	8	8		2		2			6

Lanes, Volumes, Timings
21: I-405 SB Ramps & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0		4.0			4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0		21.0			21.0
Total Split (s)	39.0	39.0	39.0	39.0	39.0		21.0		21.0			21.0
Total Split (%)	65.0%	65.0%	65.0%	65.0%	65.0%		35.0%		35.0%			35.0%
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		16.0		16.0			16.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0		4.0			4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0		1.0			1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0		5.0			5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0		3.0			3.0
Recall Mode	None	None	None	None	None		Min		Min			Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0		5.0			5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0		11.0			11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0		0			0
Act Effct Green (s)	23.3	23.3	23.3	23.3	23.3		10.5		10.5			
Actuated g/C Ratio	0.52	0.52	0.52	0.52	0.52		0.24		0.24			
v/c Ratio	0.05	0.43	0.72	0.41	0.55		0.48		0.55			
Control Delay	6.6	7.4	4.9	11.3	8.0		21.0		10.2			
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0		0.0			
Total Delay	6.6	7.4	4.9	11.3	8.0		21.0		10.2			
LOS	A	A	A	B	A		C		B			
Approach Delay	6.1				8.3							
Approach LOS	A				A							
Intersection Summary												
Area Type:	CBD											
Cycle Length: 60												
Actuated Cycle Length: 44.4												
Natural Cycle: 60												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.72												
Intersection Signal Delay: 8.1							Intersection LOS: A					
Intersection Capacity Utilization 67.7%							ICU Level of Service C					
Analysis Period (min) 15												

Splits and Phases: 21: I-405 SB Ramps & E Carson St

 p2	 p4
21 s	39 s
 p6	 p8
21 s	39 s

Lanes, Volumes, Timings

22: Recreation Rd/I-405 NB Ramps & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	163	730	39	14	807	258	7	4	4	54	15	540
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	12	12	12	12	12	12	12
Storage Length (ft)	70		0	100		180	0		0	0		0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992				0.850			0.850			0.850
Flt Protected	0.950			0.950				0.968			0.962	
Satd. Flow (prot)	1770	3511	0	1770	3539	1583	0	1803	1583	0	1792	1583
Flt Permitted	0.247			0.267				0.890			0.813	
Satd. Flow (perm)	460	3511	0	497	3539	1583	0	1658	1583	0	1514	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				280			40			84
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		469			2039			158			364	
Travel Time (s)		8.0			34.8			2.7			6.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	177	793	42	15	877	280	8	4	4	59	16	587
Shared Lane Traffic (%)												
Lane Group Flow (vph)	177	835	0	15	877	280	0	12	4	0	75	587
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2		2	6		6

Lanes, Volumes, Timings

22: Recreation Rd/I-405 NB Ramps & E Carson St

1/3/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	30.0	30.0		30.0	30.0	30.0	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (%)	54.5%	54.5%		54.5%	54.5%	54.5%	45.5%	45.5%	45.5%	45.5%	45.5%	45.5%
Maximum Green (s)	25.0	25.0		25.0	25.0	25.0	20.0	20.0	20.0	20.0	20.0	20.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max	Max	Max	Max	Max
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0	0	0	0
Act Effect Green (s)	22.6	22.6		22.6	22.6	22.6		20.1	20.1		20.1	20.1
Actuated g/C Ratio	0.43	0.43		0.43	0.43	0.43		0.38	0.38		0.38	0.38
v/c Ratio	0.90	0.55		0.07	0.58	0.33		0.02	0.01		0.13	0.90
Control Delay	63.2	12.5		9.6	13.0	2.7		11.5	0.0		12.5	35.0
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	63.2	12.5		9.6	13.0	2.7		11.5	0.0		12.5	35.0
LOS	E	B		A	B	A		B	A		B	C
Approach Delay		21.4			10.5			8.6			32.4	
Approach LOS		C			B			A			C	

Intersection Summary

Area Type: Other

Cycle Length: 55

Actuated Cycle Length: 52.8

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 19.4

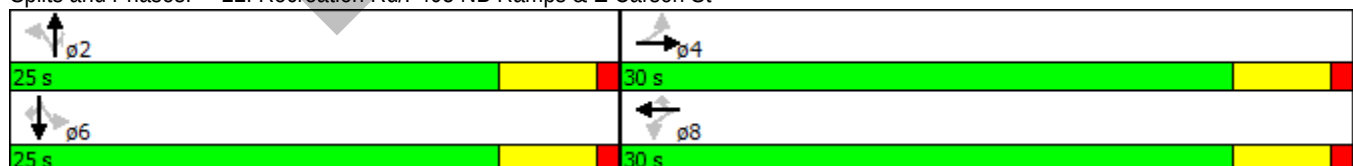
Intersection LOS: B

Intersection Capacity Utilization 71.6%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 22: Recreation Rd/I-405 NB Ramps & E Carson St



Lanes, Volumes, Timings
1: S Figueroa St & I-405 SB Ramps

1/3/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	0	0	762	115	592	1192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	220	
Storage Lanes	0	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt			0.980			
Flt Protected					0.950	
Satd. Flow (prot)	0	0	3468	0	1770	3539
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	3468	0	1770	3539
Link Speed (mph)	40		40			40
Link Distance (ft)	607		2451			246
Travel Time (s)	10.3		41.8			4.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	828	125	643	1296
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	953	0	643	1296
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	12		12			12
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Yield		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	64.2%			ICU Level of Service C		
Analysis Period (min)	15					

Lanes, Volumes, Timings
2: S Figueroa St & I-405 NB Ramps

1/3/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	77	131	770	0	0	1692
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1770	1583	3539	0	0	3539
Flt Permitted	0.950					
Satd. Flow (perm)	1770	1583	3539	0	0	3539
Link Speed (mph)	40		40			40
Link Distance (ft)	724		246			1243
Travel Time (s)	12.3		4.2			21.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	84	142	837	0	0	1839
Shared Lane Traffic (%)						
Lane Group Flow (vph)	84	142	837	0	0	1839
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	12		12			12
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	64.2%			ICU Level of Service C		
Analysis Period (min)	15					

Lanes, Volumes, Timings

3: S Main St & I-405 SB Ramps

1/3/2019

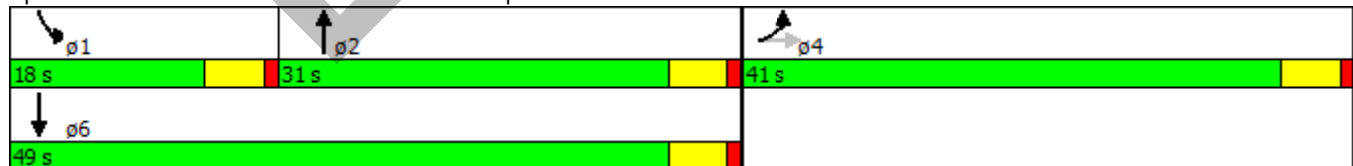
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	636	45	0	0	0	0	754	134	228	1193	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	250		0
Storage Lanes	1		0	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.990						0.977				
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	1844	0	0	0	0	0	3458	0	1770	3539	0
Flt Permitted	0.950									0.950		
Satd. Flow (perm)	1770	1844	0	0	0	0	0	3458	0	1770	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5						23				
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		607			169			2341			290	
Travel Time (s)		10.3			2.9			35.5			4.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	691	49	0	0	0	0	820	146	248	1297	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	18	740	0	0	0	0	0	966	0	248	1297	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2						2		1	2	
Detector Template	Left	Thru						Thru		Left	Thru	
Leading Detector (ft)	20	100						100		20	100	
Trailing Detector (ft)	0	0						0		0	0	
Detector 1 Position(ft)	0	0						0		0	0	
Detector 1 Size(ft)	20	6						6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex						Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0						0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0						0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0						0.0		0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Prot	NA						NA		Prot	NA	
Protected Phases	4							2		1	6	
Permitted Phases		4										
Detector Phase	4	4						2		1	6	

Lanes, Volumes, Timings 3: S Main St & I-405 SB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0						4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0						21.0		9.0	21.0	
Total Split (s)	41.0	41.0						31.0		18.0	49.0	
Total Split (%)	45.6%	45.6%						34.4%		20.0%	54.4%	
Maximum Green (s)	36.0	36.0						26.0		13.0	44.0	
Yellow Time (s)	4.0	4.0						4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0						1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0						0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0						5.0		5.0	5.0	
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Recall Mode	None	None						Max		None	Max	
Walk Time (s)	5.0	5.0						5.0			5.0	
Flash Dont Walk (s)	11.0	11.0						11.0			11.0	
Pedestrian Calls (#/hr)	0	0						0			0	
Act Effct Green (s)	36.0	36.0						26.0		13.0	44.0	
Actuated g/C Ratio	0.40	0.40						0.29		0.14	0.49	
v/c Ratio	0.03	1.00						0.95		0.97	0.75	
Control Delay	16.6	61.7						50.5		90.5	22.0	
Queue Delay	0.0	0.0						0.0		0.0	49.1	
Total Delay	16.6	61.7						50.5		90.5	71.1	
LOS	B	E						D		F	E	
Approach Delay		60.6						50.5			74.2	
Approach LOS		E						D			E	
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 90												
Natural Cycle: 90												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 1.00												
Intersection Signal Delay: 64.0							Intersection LOS: E					
Intersection Capacity Utilization 86.4%							ICU Level of Service E					
Analysis Period (min) 15												

Splits and Phases: 3: S Main St & I-405 SB Ramps



Lanes, Volumes, Timings
4: S Main St & I-405 NB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕↕		↕	↕↕			↕↕	
Volume (vph)	0	0	0	91	120	236	24	648	0	0	1439	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt					0.921						0.994	
Flt Protected					0.990		0.950					
Satd. Flow (prot)	0	0	0	0	3227	0	1770	3539	0	0	3518	0
Flt Permitted					0.990		0.117					
Satd. Flow (perm)	0	0	0	0	3227	0	218	3539	0	0	3518	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					215						11	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		724			336			290			724	
Travel Time (s)		12.3			5.7			4.4			11.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	99	130	257	26	704	0	0	1564	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	486	0	26	704	0	0	1629	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	2		1	2			2	
Detector Template				Left	Thru		Left	Thru			Thru	
Leading Detector (ft)				20	100		20	100			100	
Trailing Detector (ft)				0	0		0	0			0	
Detector 1 Position(ft)				0	0		0	0			0	
Detector 1 Size(ft)				20	6		20	6			6	
Detector 1 Type				Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0		0.0	0.0			0.0	
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Detector Phase				8	8		2	2			6	
Switch Phase												
Minimum Initial (s)				4.0	4.0		4.0	4.0			4.0	
Minimum Split (s)				21.0	21.0		21.0	21.0			21.0	

Lanes, Volumes, Timings
4: S Main St & I-405 NB Ramps

1/3/2019

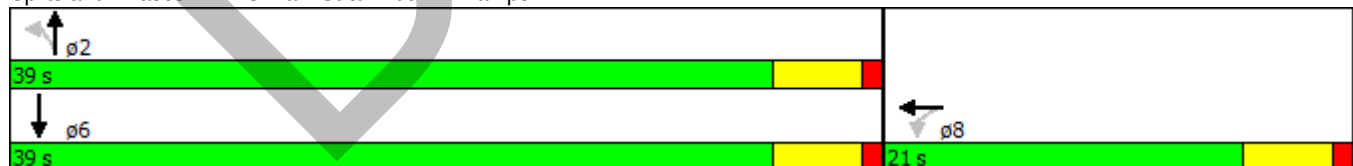
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)				21.0	21.0		39.0	39.0			39.0	
Total Split (%)				35.0%	35.0%		65.0%	65.0%			65.0%	
Maximum Green (s)				16.0	16.0		34.0	34.0			34.0	
Yellow Time (s)				4.0	4.0		4.0	4.0			4.0	
All-Red Time (s)				1.0	1.0		1.0	1.0			1.0	
Lost Time Adjust (s)					0.0		0.0	0.0			0.0	
Total Lost Time (s)					5.0		5.0	5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0	3.0			3.0	
Recall Mode				None	None		Max	Max			Max	
Walk Time (s)				5.0	5.0		5.0	5.0			5.0	
Flash Dont Walk (s)				11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)				0	0		0	0			0	
Act Effect Green (s)					10.4		34.1	34.1			34.1	
Actuated g/C Ratio					0.19		0.62	0.62			0.62	
v/c Ratio					0.61		0.19	0.32			0.74	
Control Delay					14.3		9.9	5.8			10.5	
Queue Delay					0.0		0.0	0.3			0.0	
Total Delay					14.3		9.9	6.1			10.5	
LOS					B		A	A			B	
Approach Delay					14.3			6.3			10.5	
Approach LOS					B			A			B	

Intersection Summary

Area Type: Other
 Cycle Length: 60
 Actuated Cycle Length: 54.6
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay: 10.1
 Intersection Capacity Utilization 86.4%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service E

Splits and Phases: 4: S Main St & I-405 NB Ramps



Lanes, Volumes, Timings
5: S Figueroa St & W Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	59	1336	164	669	1193	133	53	445	510	213	579	226
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	60		0	240		240	240		0	245		245
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.984				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5004	0	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	5004	0	1770	3539	1583	1770	3539	1583	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14				124			530			172
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		519			1251			791			2451	
Travel Time (s)		7.9			19.0			13.5			41.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	64	1452	178	727	1297	145	58	484	554	232	629	246
Shared Lane Traffic (%)												
Lane Group Flow (vph)	64	1630	0	727	1297	145	58	484	554	232	629	246
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6

Lanes, Volumes, Timings
5: S Figueroa St & W Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	21.0		9.0	21.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	16.0	45.0		57.0	86.0	86.0	10.0	27.0	27.0	21.0	38.0	38.0
Total Split (%)	10.7%	30.0%		38.0%	57.3%	57.3%	6.7%	18.0%	18.0%	14.0%	25.3%	25.3%
Maximum Green (s)	11.0	40.0		52.0	81.0	81.0	5.0	22.0	22.0	16.0	33.0	33.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)		5.0			5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0			11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0	0		0	0		0	0
Act Effect Green (s)	9.7	40.0		52.0	84.6	84.6	5.0	22.0	22.0	16.0	33.0	33.0
Actuated g/C Ratio	0.06	0.27		0.35	0.56	0.56	0.03	0.15	0.15	0.11	0.22	0.22
v/c Ratio	0.56	1.21		1.19	0.65	0.15	0.98	0.93	0.81	1.23	0.81	0.51
Control Delay	86.7	148.5		142.0	25.2	4.3	181.9	88.7	16.3	195.3	64.7	19.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	86.7	148.5		142.0	25.2	4.3	181.9	88.7	16.3	195.3	64.7	19.9
LOS	F	F		F	C	A	F	F	B	F	E	B
Approach Delay		146.2			63.0			57.0			82.1	
Approach LOS		F			E			E			F	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.23

Intersection Signal Delay: 88.6

Intersection LOS: F

Intersection Capacity Utilization 107.3%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 5: S Figueroa St & W Del Amo Blvd

			
21 s	27 s	57 s	45 s
			
10 s	38 s	16 s	86 s

Lanes, Volumes, Timings

6: S Main St & W Del Amo Blvd/E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Volume (vph)	243	1570	339	244	1188	106	356	489	301	157	812	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		0	195		0	150		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.973			0.988			0.943			0.962	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4948	0	1770	5024	0	1770	3337	0	1770	3405	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	4948	0	1770	5024	0	1770	3337	0	1770	3405	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		35			10			97			33	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1251			1668			534			2341	
Travel Time (s)		19.0			25.3			8.1			35.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	264	1707	368	265	1291	115	387	532	327	171	883	304
Shared Lane Traffic (%)												
Lane Group Flow (vph)	264	2075	0	265	1406	0	387	859	0	171	1187	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Detector Phase	7	4		3	8		5	2		1	6	

Lanes, Volumes, Timings

6: S Main St & W Del Amo Blvd/E Del Amo Blvd

1/3/2019

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	21.0		9.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	26.0	49.0		21.0	44.0		27.0	48.0		22.0	43.0	
Total Split (%)	18.6%	35.0%		15.0%	31.4%		19.3%	34.3%		15.7%	30.7%	
Maximum Green (s)	21.0	44.0		16.0	39.0		22.0	43.0		17.0	38.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		5.0			5.0			5.0			5.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	21.0	44.0		16.0	39.0		22.0	43.8		16.2	38.0	
Actuated g/C Ratio	0.15	0.31		0.11	0.28		0.16	0.31		0.12	0.27	
v/c Ratio	1.00	1.31		1.31	1.00		1.39	0.77		0.84	1.25	
Control Delay	113.1	184.0		217.8	73.8		239.5	44.2		92.4	163.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.8		0.0	0.0	
Total Delay	113.1	184.0		217.8	73.8		239.5	45.0		92.4	163.2	
LOS	F	F		F	E		F	D		F	F	
Approach Delay		176.0			96.6			105.4			154.3	
Approach LOS		F			F			F			F	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Natural Cycle: 140

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.39

Intersection Signal Delay: 138.2

Intersection LOS: F

Intersection Capacity Utilization 119.2%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 6: S Main St & W Del Amo Blvd/E Del Amo Blvd

 ø1	 ø2	 ø3	 ø4
22 s	48 s	21 s	49 s
 ø5	 ø6	 ø7	 ø8
27 s	43 s	26 s	44 s

Lanes, Volumes, Timings
7: Stamps Dr & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	710	228	73	1236	0	316	0	197	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	155		0	0		0	0		0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Frt			0.850						0.850			
Flt Protected				0.950			0.950	0.950				
Satd. Flow (prot)	1863	3539	1583	1770	3539	0	1681	1681	1583	1863	1770	1770
Flt Permitted				0.248			0.950	0.950				
Satd. Flow (perm)	1863	3539	1583	462	3539	0	1681	1681	1583	1863	1770	1770
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			248						214			
Link Speed (mph)		45			45			25			50	
Link Distance (ft)		1668			3009			694			308	
Travel Time (s)		25.3			45.6			18.9			4.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	772	248	79	1343	0	343	0	214	0	0	0
Shared Lane Traffic (%)							50%					0%
Lane Group Flow (vph)	0	772	248	79	1343	0	171	172	214	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Split	NA	Perm	Perm		Perm
Protected Phases		4			8		2	2			6	
Permitted Phases	4		4	8					2	6		6
Detector Phase	4	4	4	8	8		2	2	2	6	6	6

Lanes, Volumes, Timings
7: Stamps Dr & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	33.0	33.0	33.0	33.0	33.0		21.0	21.0	21.0	21.0	21.0	21.0
Total Split (%)	44.0%	44.0%	44.0%	44.0%	44.0%		28.0%	28.0%	28.0%	28.0%	28.0%	28.0%
Maximum Green (s)	28.0	28.0	28.0	28.0	28.0		16.0	16.0	16.0	16.0	16.0	16.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		Max	Max	Max	Max	Max	Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0	0	0	0	0
Act Efect Green (s)		28.0	28.0	28.0	28.0		16.0	16.0	16.0			
Actuated g/C Ratio		0.37	0.37	0.37	0.37		0.21	0.21	0.21			
v/c Ratio		0.58	0.33	0.46	1.02		0.48	0.48	0.42			
Control Delay		21.0	3.8	28.5	54.3		31.0	31.1	6.9			
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0	0.0			
Total Delay		21.0	3.8	28.5	54.3		31.0	31.1	6.9			
LOS		C	A	C	D		C	C	A			
Approach Delay		16.8			52.8			21.8				
Approach LOS		B			D			C				
Intersection Summary												
Area Type:	Other											
Cycle Length: 75												
Actuated Cycle Length: 75												
Natural Cycle: 75												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 1.02												
Intersection Signal Delay: 34.8						Intersection LOS: C						
Intersection Capacity Utilization 58.8%						ICU Level of Service B						
Analysis Period (min) 15												

Splits and Phases: 7: Stamps Dr & E Del Amo Blvd

 ø2	 ø6	 ø4
21 s	21 s	33 s
		 ø8
		33 s

Lanes, Volumes, Timings
8: S Avalon Blvd & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			  		 	  	
Volume (vph)	452	1031	392	294	720	143	220	1301	227	337	1025	590
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		160	195		195	180		310	100		0
Storage Lanes	1		0	0		1	1		1	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	0.97	0.91	0.91
Frt			0.850			0.850			0.850		0.945	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	3433	4806	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	5085	1583	3433	4806	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			184			124			245		107	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		3009			3520			2946			3936	
Travel Time (s)		45.6			53.3			57.4			76.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	491	1121	426	320	783	155	239	1414	247	366	1114	641
Shared Lane Traffic (%)												
Lane Group Flow (vph)	491	1121	426	320	783	155	239	1414	247	366	1755	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	

Lanes, Volumes, Timings
8: S Avalon Blvd & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	21.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	38.0	46.0	46.0	25.0	33.0	33.0	21.0	61.0	61.0	18.0	58.0	58.0
Total Split (%)	25.3%	30.7%	30.7%	16.7%	22.0%	22.0%	14.0%	40.7%	40.7%	12.0%	38.7%	38.7%
Maximum Green (s)	33.0	41.0	41.0	20.0	28.0	28.0	16.0	56.0	56.0	13.0	53.0	53.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (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
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effect Green (s)	33.0	41.0	41.0	20.0	28.0	28.0	16.0	56.0	56.0	13.0	53.0	53.0
Actuated g/C Ratio	0.22	0.27	0.27	0.13	0.19	0.19	0.11	0.37	0.37	0.09	0.35	0.35
v/c Ratio	1.26	1.16	0.75	1.36	1.19	0.39	1.27	0.74	0.33	1.23	1.02dr	1.02dr
Control Delay	183.6	130.8	37.1	232.1	149.7	16.7	208.1	43.8	4.9	184.3	64.8	64.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	183.6	130.8	37.1	232.1	149.7	16.7	208.1	43.8	4.9	184.3	64.8	64.8
LOS	F	F	D	F	F	B	F	D	A	F	E	E
Approach Delay		123.9			154.3			59.4			85.5	
Approach LOS		F			F			E			F	

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 150
 Natural Cycle: 130
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.36
 Intersection Signal Delay: 101.2
 Intersection Capacity Utilization 106.8%
 Analysis Period (min) 15
 dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 8: S Avalon Blvd & E Del Amo Blvd

 ø1	 ø2	 ø3	 ø4
18 s	61 s	25 s	46 s
 ø5	 ø6	 ø7	 ø8
21 s	58 s	38 s	33 s

Lanes, Volumes, Timings
9: S Figueroa St & I-110 NB Ramps

1/3/2019

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	472	217	678	494	766	641
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	235			250
Storage Lanes	2	0	2			1
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	0.95	0.97	0.95	0.95	1.00
Frt	0.953					0.850
Flt Protected	0.967		0.950			
Satd. Flow (prot)	3330	0	3433	3539	3539	1583
Flt Permitted	0.967		0.315			
Satd. Flow (perm)	3330	0	1138	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	96					697
Link Speed (mph)	40			40	40	
Link Distance (ft)	170			828	791	
Travel Time (s)	2.9			14.1	13.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	513	236	737	537	833	697
Shared Lane Traffic (%)						
Lane Group Flow (vph)	749	0	737	537	833	697
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	12			12	12	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1		1	2	2	1
Detector Template	Left		Left	Thru	Thru	Right
Leading Detector (ft)	20		20	100	100	20
Trailing Detector (ft)	0		0	0	0	0
Detector 1 Position(ft)	0		0	0	0	0
Detector 1 Size(ft)	20		20	6	6	20
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Detector Phase	4		2	2	6	6

Lanes, Volumes, Timings
9: S Figueroa St & I-110 NB Ramps

1/3/2019



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	21.0		21.0	21.0	21.0	21.0
Total Split (s)	21.0		54.0	54.0	54.0	54.0
Total Split (%)	28.0%		72.0%	72.0%	72.0%	72.0%
Maximum Green (s)	16.0		49.0	49.0	49.0	49.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		Max	Max	Max	Max
Walk Time (s)	5.0		5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effect Green (s)	16.0		49.0	49.0	49.0	49.0
Actuated g/C Ratio	0.21		0.65	0.65	0.65	0.65
v/c Ratio	0.95		0.99	0.23	0.36	0.55
Control Delay	50.0		47.1	5.6	6.4	2.2
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	50.0		47.1	5.6	6.4	2.2
LOS	D		D	A	A	A
Approach Delay	50.0			29.6	4.5	
Approach LOS	D			C	A	

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 75
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 23.1
Intersection Capacity Utilization 73.3%
Analysis Period (min) 15

Intersection LOS: C
ICU Level of Service D

Splits and Phases: 9: S Figueroa St & I-110 NB Ramps

 ø2 54 s	 ø4 21 s
 ø6 54 s	

Lanes, Volumes, Timings
10: S Main St & Lenardo Rd

1/3/2019

	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↑↓		↖	↑↑
Volume (vph)	138	178	834	191	182	1258
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	145	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.972			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3440	0	1770	3539
Flt Permitted	0.950				0.227	
Satd. Flow (perm)	1770	1583	3440	0	423	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		164	76			
Link Speed (mph)	25		45			45
Link Distance (ft)	479		971			534
Travel Time (s)	13.1		14.7			8.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	150	193	907	208	198	1367
Shared Lane Traffic (%)						
Lane Group Flow (vph)	150	193	1115	0	198	1367
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	12		12			12
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (ft)	20	20	100		20	100
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	20	6		20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6

Lanes, Volumes, Timings
10: S Main St & Lenardo Rd

1/3/2019



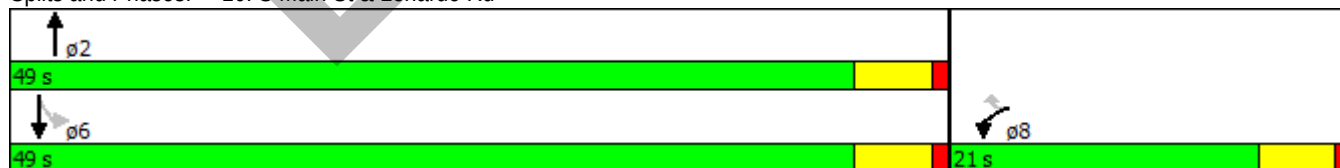
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	21.0	21.0	21.0		21.0	21.0
Total Split (s)	21.0	21.0	49.0		49.0	49.0
Total Split (%)	30.0%	30.0%	70.0%		70.0%	70.0%
Maximum Green (s)	16.0	16.0	44.0		44.0	44.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		Max	Max
Walk Time (s)	5.0	5.0	5.0		5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effect Green (s)	11.0	11.0	46.7		46.7	46.7
Actuated g/C Ratio	0.16	0.16	0.69		0.69	0.69
v/c Ratio	0.52	0.49	0.47		0.68	0.56
Control Delay	31.7	10.8	5.6		23.6	6.9
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	31.7	10.8	5.6		23.6	6.9
LOS	C	B	A		C	A
Approach Delay	20.0		5.6			9.0
Approach LOS	B		A			A

Intersection Summary

Area Type: Other
 Cycle Length: 70
 Actuated Cycle Length: 67.7
 Natural Cycle: 70
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.68
 Intersection Signal Delay: 9.0
 Intersection Capacity Utilization 59.4%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service B

Splits and Phases: 10: S Main St & Lenardo Rd



Lanes, Volumes, Timings
11: S Figueroa St & W Torrance Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	621	836	158	48	499	212	85	348	50	153	461	372
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12	12	16	12	12	12	12
Storage Length (ft)	180		0	115		0	255		0	185		185
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.91	0.91	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.981				0.850		0.981				0.850
Flt Protected	0.950	0.989		0.950			0.950			0.950		
Satd. Flow (prot)	1610	3728	0	1770	3539	1583	1770	3935	0	1770	3539	1583
Flt Permitted	0.450	0.713		0.120			0.398			0.462		
Satd. Flow (perm)	763	2687	0	224	3539	1583	741	3935	0	861	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40				170		26				315
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		368			1713			3767			828	
Travel Time (s)		6.3			29.2			64.2			14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	675	909	172	52	542	230	92	378	54	166	501	404
Shared Lane Traffic (%)	46%											
Lane Group Flow (vph)	364	1392	0	52	542	230	92	432	0	166	501	404
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	1.00	1.00	1.00	1.00	1.00	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		6

Lanes, Volumes, Timings
11: S Figueroa St & W Torrance Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	21.0	21.0		21.0	21.0	21.0
Total Split (s)	39.0	39.0		39.0	39.0	39.0	21.0	21.0		21.0	21.0	21.0
Total Split (%)	65.0%	65.0%		65.0%	65.0%	65.0%	35.0%	35.0%		35.0%	35.0%	35.0%
Maximum Green (s)	34.0	34.0		34.0	34.0	34.0	16.0	16.0		16.0	16.0	16.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	Max
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	0
Act Effct Green (s)	33.2	33.2		33.2	33.2	33.2	16.0	16.0		16.0	16.0	16.0
Actuated g/C Ratio	0.56	0.56		0.56	0.56	0.56	0.27	0.27		0.27	0.27	0.27
v/c Ratio	0.85	0.91		0.42	0.27	0.24	0.46	0.40		0.72	0.52	0.61
Control Delay	33.7	22.9		19.9	7.2	2.8	27.4	18.1		40.8	20.9	9.7
Queue Delay	0.0	2.5		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	33.7	25.4		19.9	7.2	2.8	27.4	18.1		40.8	20.9	9.7
LOS	C	C		B	A	A	C	B		D	C	A
Approach Delay		27.1			6.7			19.7			19.8	
Approach LOS		C			A			B			B	
Intersection Summary												
Area Type:	Other											
Cycle Length: 60												
Actuated Cycle Length: 59.2												
Natural Cycle: 60												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.91												
Intersection Signal Delay: 20.3							Intersection LOS: C					
Intersection Capacity Utilization 80.9%							ICU Level of Service D					
Analysis Period (min) 15												

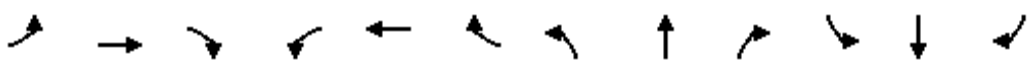
Splits and Phases: 11: S Figueroa St & W Torrance Blvd



Lanes, Volumes, Timings

12: S Main St & W Torrance Blvd/E Torrance Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	410	70	533	11	43	25	289	589	9	45	909	432
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12	12	16	12	12	12	12
Storage Length (ft)	0		0	0		0	190		0	145		45
Storage Lanes	0		1	0		0	2		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.958			0.998				0.850
Flt Protected		0.959			0.993		0.950			0.950		
Satd. Flow (prot)	0	1786	1583	0	2008	0	3433	4003	0	1770	3539	1583
Flt Permitted		0.714			0.925		0.200			0.352		
Satd. Flow (perm)	0	1330	1583	0	1871	0	723	4003	0	656	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			74		27			2				198
Link Speed (mph)		40			40			40				45
Link Distance (ft)		1713			375			2482			971	
Travel Time (s)		29.2			6.4			42.3			14.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	446	76	579	12	47	27	314	640	10	49	988	470
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	522	579	0	86	0	314	650	0	49	988	470
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2		6			6

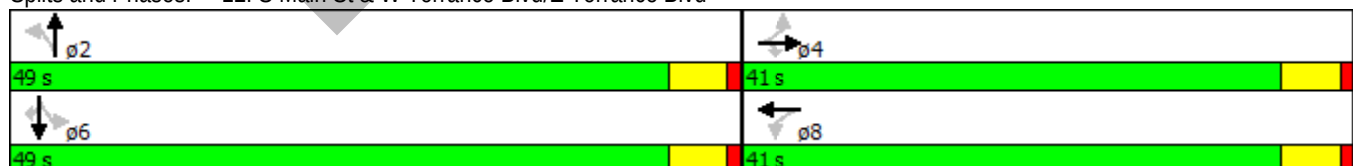
Lanes, Volumes, Timings

12: S Main St & W Torrance Blvd/E Torrance Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0	21.0		21.0	21.0	21.0
Total Split (s)	41.0	41.0	41.0	41.0	41.0		49.0	49.0		49.0	49.0	49.0
Total Split (%)	45.6%	45.6%	45.6%	45.6%	45.6%		54.4%	54.4%		54.4%	54.4%	54.4%
Maximum Green (s)	36.0	36.0	36.0	36.0	36.0		44.0	44.0		44.0	44.0	44.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		Max	Max		Max	Max	Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	0
Act Effct Green (s)		36.0	36.0		36.0		44.0	44.0		44.0	44.0	44.0
Actuated g/C Ratio		0.40	0.40		0.40		0.49	0.49		0.49	0.49	0.49
v/c Ratio		0.98	0.86		0.11		0.89	0.33		0.15	0.57	0.54
Control Delay		63.5	35.8		12.7		50.6	14.6		14.4	18.0	11.3
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		63.5	35.8		12.7		50.6	14.6		14.4	18.0	11.3
LOS		E	D		B		D	B		B	B	B
Approach Delay		48.9			12.7			26.3			15.8	
Approach LOS		D			B			C			B	
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 90												
Natural Cycle: 90												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.98												
Intersection Signal Delay: 28.5												
Intersection Capacity Utilization 78.9%												
Analysis Period (min) 15												
						Intersection LOS: C						
						ICU Level of Service D						

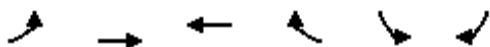
Splits and Phases: 12: S Main St & W Torrance Blvd/E Torrance Blvd



Lanes, Volumes, Timings

13: Lenardo Rd/I-405 SB Ramps

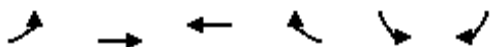
1/3/2019



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	197	385	37	466	197	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			0	0	0
Storage Lanes	1			1	2	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	1863	1583	3433	1583
Flt Permitted	0.731				0.950	
Satd. Flow (perm)	1362	3539	1863	1583	3433	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				507		198
Link Speed (mph)		35	40		40	
Link Distance (ft)		701	533		434	
Travel Time (s)		13.7	9.1		7.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	214	418	40	507	214	198
Shared Lane Traffic (%)						
Lane Group Flow (vph)	214	418	40	507	214	198
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		24	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		12	12		12	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm	NA	NA	Perm	Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4			8		6
Detector Phase	4	4	8	8	6	6

Lanes, Volumes, Timings 13: Lenardo Rd/I-405 SB Ramps

1/3/2019



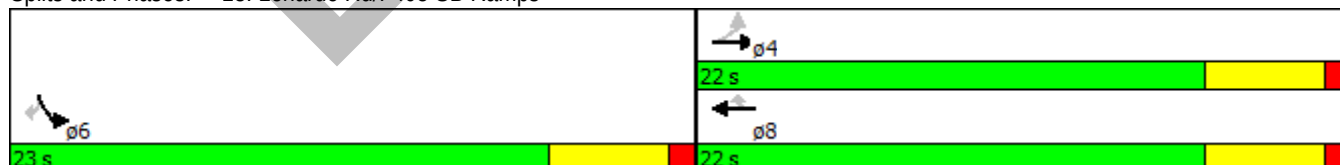
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	22.0	22.0	22.0	22.0	23.0	23.0
Total Split (%)	48.9%	48.9%	48.9%	48.9%	51.1%	51.1%
Maximum Green (s)	17.0	17.0	17.0	17.0	18.0	18.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	Max	Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effect Green (s)	11.9	11.9	11.9	11.9	18.1	18.1
Actuated g/C Ratio	0.30	0.30	0.30	0.30	0.45	0.45
v/c Ratio	0.53	0.40	0.07	0.61	0.14	0.24
Control Delay	16.7	12.1	9.7	5.0	7.8	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.7	12.1	9.7	5.0	7.8	2.7
LOS	B	B	A	A	A	A
Approach Delay		13.6	5.4		5.4	
Approach LOS		B	A		A	

Intersection Summary

Area Type: Other
Cycle Length: 45
Actuated Cycle Length: 40.1
Natural Cycle: 45
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 8.6
Intersection Capacity Utilization 48.1%
Analysis Period (min) 15

Intersection LOS: A
ICU Level of Service A

Splits and Phases: 13: Lenardo Rd/I-405 SB Ramps



Lanes, Volumes, Timings
14: S Avalon Blvd & I-405 SB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	696	513	390	0	0	0	96	1358	215	0	1282	898
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		150	0		0	160		0	0		120
Storage Lanes	0		1	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850					0.979				0.850
Flt Protected	0.950						0.950					
Satd. Flow (prot)	3433	3539	1583	0	0	0	1770	3465	0	0	3539	1583
Flt Permitted	0.950						0.123					
Satd. Flow (perm)	3433	3539	1583	0	0	0	229	3465	0	0	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			45					44				976
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		533			422			1230			386	
Travel Time (s)		9.1			7.2			24.0			7.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	757	558	424	0	0	0	104	1476	234	0	1393	976
Shared Lane Traffic (%)												
Lane Group Flow (vph)	757	558	424	0	0	0	104	1710	0	0	1393	976
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1				1	2			2	1
Detector Template	Left	Thru	Right				Left	Thru			Thru	Right
Leading Detector (ft)	20	100	20				20	100			100	20
Trailing Detector (ft)	0	0	0				0	0			0	0
Detector 1 Position(ft)	0	0	0				0	0			0	0
Detector 1 Size(ft)	20	6	20				20	6			6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex				Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm				Perm	NA			NA	Perm
Protected Phases		4						2			6	
Permitted Phases	4		4				2					6
Detector Phase	4	4	4				2	2			6	6

Lanes, Volumes, Timings
14: S Avalon Blvd & I-405 SB Ramps

1/3/2019

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0				4.0	4.0			4.0	4.0
Minimum Split (s)	21.0	21.0	21.0				21.0	21.0			21.0	21.0
Total Split (s)	24.0	24.0	24.0				46.0	46.0			46.0	46.0
Total Split (%)	34.3%	34.3%	34.3%				65.7%	65.7%			65.7%	65.7%
Maximum Green (s)	19.0	19.0	19.0				41.0	41.0			41.0	41.0
Yellow Time (s)	4.0	4.0	4.0				4.0	4.0			4.0	4.0
All-Red Time (s)	1.0	1.0	1.0				1.0	1.0			1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0				5.0	5.0			5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0				3.0	3.0			3.0	3.0
Recall Mode	None	None	None				Max	Max			Max	Max
Walk Time (s)	5.0	5.0	5.0				5.0	5.0			5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0				11.0	11.0			11.0	11.0
Pedestrian Calls (#/hr)	0	0	0				0	0			0	0
Act Effect Green (s)	19.0	19.0	19.0				41.0	41.0			41.0	41.0
Actuated g/C Ratio	0.27	0.27	0.27				0.59	0.59			0.59	0.59
v/c Ratio	0.81	0.58	0.92				0.78	0.84			0.67	0.73
Control Delay	32.5	24.9	50.7				53.8	16.3			12.0	4.5
Queue Delay	0.0	0.0	0.0				0.0	0.0			1.8	0.5
Total Delay	32.5	24.9	50.7				53.8	16.3			13.7	5.0
LOS	C	C	D				D	B			B	A
Approach Delay		34.5						18.4			10.1	
Approach LOS		C						B			B	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 19.8

Intersection LOS: B

Intersection Capacity Utilization 73.1%

ICU Level of Service D

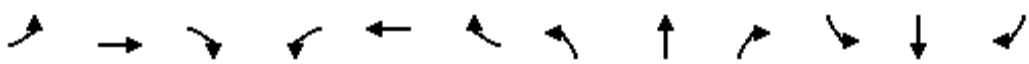
Analysis Period (min) 15

Splits and Phases: 14: S Avalon Blvd & I-405 SB Ramps

 ø2	 ø4
46 s	24 s
 ø6	
46 s	

Lanes, Volumes, Timings
15: S Avalon Blvd & I-405 NB Ramps

1/3/2019

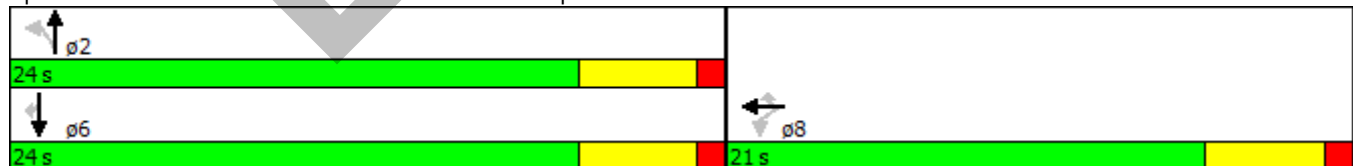
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	360	0	845	625	1001	0	0	1832	616
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		0	0		0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.950		0.950					
Satd. Flow (prot)	0	0	0	1681	1681	1583	3433	3539	0	0	5085	1583
Flt Permitted				0.950	0.950		0.211					
Satd. Flow (perm)	0	0	0	1681	1681	1583	762	3539	0	0	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						48						670
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		346			390			386			2946	
Travel Time (s)		5.9			6.6			7.5			57.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	391	0	918	679	1088	0	0	1991	670
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	195	196	918	679	1088	0	0	1991	670
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	Perm	NA			NA	Perm
Protected Phases					8			2			6	
Permitted Phases				8		8	2					6
Detector Phase				8	8	8	2	2			6	6

Lanes, Volumes, Timings
15: S Avalon Blvd & I-405 NB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Minimum Split (s)				21.0	21.0	21.0	21.0	21.0			21.0	21.0
Total Split (s)				21.0	21.0	21.0	24.0	24.0			24.0	24.0
Total Split (%)				46.7%	46.7%	46.7%	53.3%	53.3%			53.3%	53.3%
Maximum Green (s)				16.0	16.0	16.0	19.0	19.0			19.0	19.0
Yellow Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
All-Red Time (s)				1.0	1.0	1.0	1.0	1.0			1.0	1.0
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	Max	Max			Max	Max
Walk Time (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
Flash Dont Walk (s)				11.0	11.0	11.0	11.0	11.0			11.0	11.0
Pedestrian Calls (#/hr)				0	0	0	0	0			0	0
Act Effct Green (s)				16.0	16.0	16.0	19.0	19.0			19.0	19.0
Actuated g/C Ratio				0.36	0.36	0.36	0.42	0.42			0.42	0.42
v/c Ratio				0.33	0.33	1.55	2.12	0.73			0.93	0.64
Control Delay				12.5	12.5	274.3	530.1	14.4			22.7	4.2
Queue Delay				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay				12.5	12.5	274.3	530.1	14.4			22.7	4.2
LOS				B	B	F	F	B			C	A
Approach Delay					196.1			212.6			18.0	
Approach LOS					F			F			B	
Intersection Summary												
Area Type:	Other											
Cycle Length: 45												
Actuated Cycle Length: 45												
Natural Cycle: 45												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 2.12												
Intersection Signal Delay: 118.6							Intersection LOS: F					
Intersection Capacity Utilization 88.3%							ICU Level of Service E					
Analysis Period (min) 15												

Splits and Phases: 15: S Avalon Blvd & I-405 NB Ramps



Lanes, Volumes, Timings
16: S Main St & E 213th St

1/3/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	228	182	764	263	360	1049
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	12	12
Storage Length (ft)	0	0		0	90	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.940		0.962			
Flt Protected	0.973				0.950	
Satd. Flow (prot)	1931	0	3859	0	1770	3539
Flt Permitted	0.973				0.219	
Satd. Flow (perm)	1931	0	3859	0	408	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	45		132			
Link Speed (mph)	30		35			45
Link Distance (ft)	4544		1360			2482
Travel Time (s)	103.3		26.5			37.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	248	198	830	286	391	1140
Shared Lane Traffic (%)						
Lane Group Flow (vph)	446	0	1116	0	391	1140
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	28		24			24
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	12		12			12
Two way Left Turn Lane						
Headway Factor	0.85	0.85	0.85	0.85	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1		2		1	2
Detector Template	Left		Thru		Left	Thru
Leading Detector (ft)	20		100		20	100
Trailing Detector (ft)	0		0		0	0
Detector 1 Position(ft)	0		0		0	0
Detector 1 Size(ft)	20		6		20	6
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0		0.0	0.0
Detector 1 Queue (s)	0.0		0.0		0.0	0.0
Detector 1 Delay (s)	0.0		0.0		0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Perm		NA		Perm	NA
Protected Phases			2			6
Permitted Phases	8				6	

Lanes, Volumes, Timings
16: S Main St & E 213th St

1/3/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8		2		6	6
Switch Phase						
Minimum Initial (s)	4.0		4.0		4.0	4.0
Minimum Split (s)	21.0		21.0		21.0	21.0
Total Split (s)	21.0		59.0		59.0	59.0
Total Split (%)	26.3%		73.8%		73.8%	73.8%
Maximum Green (s)	16.0		54.0		54.0	54.0
Yellow Time (s)	4.0		4.0		4.0	4.0
All-Red Time (s)	1.0		1.0		1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	5.0		5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		Max		Max	Max
Walk Time (s)	5.0		5.0		5.0	5.0
Flash Dont Walk (s)	11.0		11.0		11.0	11.0
Pedestrian Calls (#/hr)	0		0		0	0
Act Effct Green (s)	16.0		54.0		54.0	54.0
Actuated g/C Ratio	0.20		0.68		0.68	0.68
v/c Ratio	1.06		0.42		1.42	0.48
Control Delay	90.3		5.6		229.3	7.0
Queue Delay	0.0		0.0		0.0	0.0
Total Delay	90.3		5.6		229.3	7.0
LOS	F		A		F	A
Approach Delay	90.3		5.6			63.8
Approach LOS	F		A			E
Intersection Summary						
Area Type:	Other					
Cycle Length: 80						
Actuated Cycle Length: 80						
Natural Cycle: 80						
Control Type: Actuated-Uncoordinated						
Maximum v/c Ratio: 1.42						
Intersection Signal Delay: 46.6				Intersection LOS: D		
Intersection Capacity Utilization 85.7%				ICU Level of Service E		
Analysis Period (min) 15						

Splits and Phases: 16: S Main St & E 213th St



Lanes, Volumes, Timings
17: S Avalon Blvd & E 213th St

1/3/2019

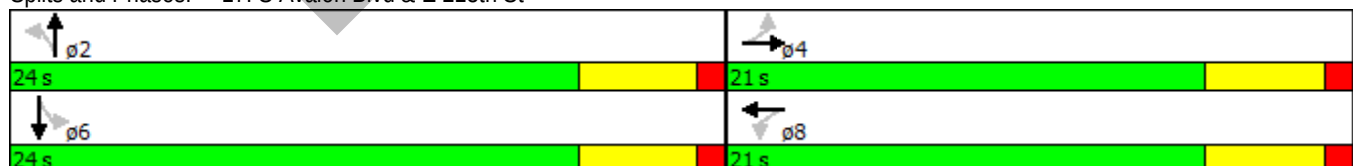
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	255	295	110	139	222	199	144	1287	159	100	1350	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	16	12	16	16	12	16	16	12	16	16
Storage Length (ft)	100		0	100		0	70		0	120		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.959			0.929			0.983			0.982	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	2025	0	1770	3726	0	1770	5665	0	1770	5660	0
Flt Permitted	0.489			0.360			0.211			0.211		
Satd. Flow (perm)	911	2025	0	671	3726	0	393	5665	0	393	5660	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			12			59			67	
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		4544			967			1397			1230	
Travel Time (s)		103.3			22.0			27.2			24.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	277	321	120	151	241	216	157	1399	173	109	1467	199
Shared Lane Traffic (%)												
Lane Group Flow (vph)	277	441	0	151	457	0	157	1572	0	109	1666	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	0.85	1.00	0.85	0.85	1.00	0.85	0.85	1.00	0.85	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lanes, Volumes, Timings
17: S Avalon Blvd & E 213th St

1/3/2019

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Detector Phase	4	4		8	8		2	2		6	6		
Switch Phase													
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0		
Total Split (s)	21.0	21.0		21.0	21.0		24.0	24.0		24.0	24.0		
Total Split (%)	46.7%	46.7%		46.7%	46.7%		53.3%	53.3%		53.3%	53.3%		
Maximum Green (s)	16.0	16.0		16.0	16.0		19.0	19.0		19.0	19.0		
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0		
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0		
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		
Recall Mode	None	None		None	None		Max	Max		Max	Max		
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0		
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0		
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0		
Act Effct Green (s)	15.2	15.2		15.2	15.2		19.0	19.0		19.0	19.0		
Actuated g/C Ratio	0.34	0.34		0.34	0.34		0.43	0.43		0.43	0.43		
v/c Ratio	0.88	0.63		0.66	0.35		0.93	0.64		0.65	0.67		
Control Delay	48.3	16.5		30.2	11.4		77.7	11.1		35.1	11.6		
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Total Delay	48.3	16.5		30.2	11.4		77.7	11.1		35.1	11.6		
LOS	D	B		C	B		E	B		D	B		
Approach Delay		28.8			16.1			17.2			13.0		
Approach LOS		C			B			B			B		
Intersection Summary													
Area Type:	Other												
Cycle Length: 45													
Actuated Cycle Length: 44.3													
Natural Cycle: 45													
Control Type: Actuated-Uncoordinated													
Maximum v/c Ratio: 0.93													
Intersection Signal Delay: 17.2							Intersection LOS: B						
Intersection Capacity Utilization 84.7%							ICU Level of Service E						
Analysis Period (min) 15													

Splits and Phases: 17: S Avalon Blvd & E 213th St



Lanes, Volumes, Timings
18: S Figueroa St & W Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	127	637	504	58	533	33	231	360	118	88	454	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	213		75	152		0	230		0	240		0
Storage Lanes	1		0	1		0	2		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	0.97	0.95	0.95	0.97	0.95	0.95
Frt			0.850		0.991			0.963			0.960	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3507	0	3433	3408	0	3433	3398	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3507	0	3433	3408	0	3433	3398	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			298		10			72			86	
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		1243			2441			713			3767	
Travel Time (s)		24.2			47.6			12.2			64.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	138	692	548	63	579	36	251	391	128	96	493	182
Shared Lane Traffic (%)												
Lane Group Flow (vph)	138	692	548	63	615	0	251	519	0	96	675	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Detector Phase	7	4	4	3	8		5	2		1	6	

Carson IDIF 12:00 pm 9/5/2018 Existing PM plus Project
W.G. Zimmerman Engineering, Inc.

Synchro 8 Report
Page 33

Lanes, Volumes, Timings
18: S Figueroa St & W Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	21.0	21.0	9.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	9.0	21.0	21.0	9.0	21.0		9.0	21.0		9.0	21.0	
Total Split (%)	15.0%	35.0%	35.0%	15.0%	35.0%		15.0%	35.0%		15.0%	35.0%	
Maximum Green (s)	4.0	16.0	16.0	4.0	16.0		4.0	16.0		4.0	16.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)		5.0	5.0		5.0			5.0			5.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effect Green (s)	4.0	18.3	18.3	4.0	14.6		4.0	17.9		4.0	16.0	
Actuated g/C Ratio	0.07	0.31	0.31	0.07	0.25		0.07	0.31		0.07	0.27	
v/c Ratio	1.14	0.63	0.78	0.52	0.70		1.07	0.47		0.41	0.68	
Control Delay	158.7	21.4	19.8	45.0	24.5		112.3	17.0		32.4	20.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	158.7	21.4	19.8	45.0	24.5		112.3	17.0		32.4	20.9	
LOS	F	C	B	D	C		F	B		C	C	
Approach Delay		34.5			26.4			48.1			22.3	
Approach LOS		C			C			D			C	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 58.6

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.14

Intersection Signal Delay: 33.3

Intersection LOS: C

Intersection Capacity Utilization 64.9%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 18: S Figueroa St & W Carson St

 ø1	 ø2	 ø3	 ø4
9 s	21 s	9 s	21 s
 ø5	 ø6	 ø7	 ø8
9 s	21 s	9 s	21 s

Lanes, Volumes, Timings
19: S Main St & W Carson St/E Carson St

1/3/2019

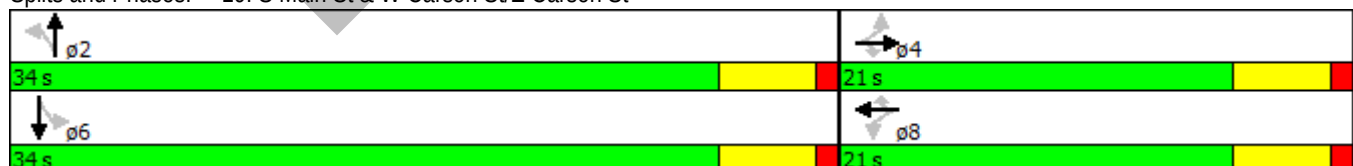
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	129	493	46	112	465	56	182	626	172	169	860	181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	16	12	12	16
Storage Length (ft)	210		70	220		70	115		0	175		500
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt			0.850			0.850		0.968			0.974	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	4923	0	1770	4953	0
Flt Permitted	0.407			0.379			0.221			0.314		
Satd. Flow (perm)	758	3539	1583	706	3539	1583	412	4923	0	585	4953	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			50			61		95			109	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		2441			4293			978			1360	
Travel Time (s)		47.6			83.6			19.1			26.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	140	536	50	122	505	61	198	680	187	184	935	197
Shared Lane Traffic (%)												
Lane Group Flow (vph)	140	536	50	122	505	61	198	867	0	184	1132	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.85	1.00	1.00	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		

Lanes, Volumes, Timings
19: S Main St & W Carson St/E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0		21.0	21.0	
Total Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	34.0	34.0		34.0	34.0	
Total Split (%)	38.2%	38.2%	38.2%	38.2%	38.2%	38.2%	61.8%	61.8%		61.8%	61.8%	
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0	16.0	29.0	29.0		29.0	29.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	Max	Max		Max	Max	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	
Act Effct Green (s)	13.9	13.9	13.9	13.9	13.9	13.9	29.1	29.1		29.1	29.1	
Actuated g/C Ratio	0.26	0.26	0.26	0.26	0.26	0.26	0.55	0.55		0.55	0.55	
v/c Ratio	0.71	0.58	0.11	0.66	0.55	0.13	0.88	0.32		0.57	0.41	
Control Delay	39.9	19.6	5.9	37.5	19.1	5.7	54.5	6.4		18.4	7.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	39.9	19.6	5.9	37.5	19.1	5.7	54.5	6.4		18.4	7.1	
LOS	D	B	A	D	B	A	D	A		B	A	
Approach Delay		22.6			21.2			15.4			8.7	
Approach LOS		C			C			B			A	
Intersection Summary												
Area Type:	Other											
Cycle Length: 55												
Actuated Cycle Length: 53												
Natural Cycle: 55												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.88												
Intersection Signal Delay: 15.5							Intersection LOS: B					
Intersection Capacity Utilization 67.4%							ICU Level of Service C					
Analysis Period (min) 15												

Splits and Phases: 19: S Main St & W Carson St/E Carson St



Lanes, Volumes, Timings
20: S Avalon Blvd & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↕↔		↔↔	↕↔		↔	↕↕↔		↔	↕↕↔	
Volume (vph)	167	715	72	489	392	120	76	1085	464	247	1131	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	16	12	12	16	12	12	16
Storage Length (ft)	225		0	215		0	140		0	150		0
Storage Lanes	2		0	2		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	0.95	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.986			0.965			0.955			0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3490	0	3433	3415	0	1770	4856	0	1770	5014	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3490	0	3433	3415	0	1770	4856	0	1770	5014	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			29			82			15	
Link Speed (mph)		35			40			35			35	
Link Distance (ft)		4293			2121			702			1397	
Travel Time (s)		83.6			36.2			13.7			27.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	182	777	78	532	426	130	83	1179	504	268	1229	129
Shared Lane Traffic (%)												
Lane Group Flow (vph)	182	855	0	532	556	0	83	1683	0	268	1358	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												

Lanes, Volumes, Timings
20: S Avalon Blvd & E Carson St

1/3/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	21.0		9.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	17.0	37.0		26.0	46.0		18.0	51.0		26.0	59.0	
Total Split (%)	12.1%	26.4%		18.6%	32.9%		12.9%	36.4%		18.6%	42.1%	
Maximum Green (s)	12.0	32.0		21.0	41.0		13.0	46.0		21.0	54.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		5.0			5.0			5.0			5.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	11.3	32.0		21.0	41.7		11.0	46.0		21.0	56.0	
Actuated g/C Ratio	0.08	0.23		0.15	0.30		0.08	0.33		0.15	0.40	
v/c Ratio	0.66	1.06		1.04	0.54		0.60	1.02		1.01	0.67	
Control Delay	74.2	100.8		106.0	41.2		79.5	71.2		116.3	36.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	74.2	100.8		106.0	41.2		79.5	71.2		116.3	36.5	
LOS	E	F		F	D		E	E		F	D	
Approach Delay		96.1			72.9			71.6			49.6	
Approach LOS		F			E			E			D	

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Natural Cycle: 140
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.06
 Intersection Signal Delay: 70.0
 Intersection Capacity Utilization 97.7%
 Analysis Period (min) 15

Intersection LOS: E
 ICU Level of Service F

Splits and Phases: 20: S Avalon Blvd & E Carson St

26 s	51 s	26 s	37 s
18 s	59 s	17 s	46 s

Lanes, Volumes, Timings
21: I-405 SB Ramps & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			  							
Volume (vph)	15	1119	962	132	1129	0	123	0	69	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		180	0		0	150		0	0		0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1593	3185	1425	1593	4577	0	1593	0	1425	0	0	1676
Flt Permitted	0.206			0.191			0.950					
Satd. Flow (perm)	345	3185	1425	320	4577	0	1593	0	1425	0	0	1676
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			1046						73			
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		2121			469			428			162	
Travel Time (s)		36.2			8.0			7.3			2.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	1216	1046	143	1227	0	134	0	75	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	1216	1046	143	1227	0	134	0	75	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1		1			1
Detector Template	Left	Thru	Right	Left	Thru		Left		Right			Right
Leading Detector (ft)	20	100	20	20	100		20		20			20
Trailing Detector (ft)	0	0	0	0	0		0		0			0
Detector 1 Position(ft)	0	0	0	0	0		0		0			0
Detector 1 Size(ft)	20	6	20	20	6		20		20			20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex			Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			0.0
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA	Perm	Perm	NA		Perm		Perm			Perm
Protected Phases		4			8							
Permitted Phases	4		4	8			2		2			6
Detector Phase	4	4	4	8	8		2		2			6

Lanes, Volumes, Timings
21: I-405 SB Ramps & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0		4.0			4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0		21.0			21.0
Total Split (s)	44.0	44.0	44.0	44.0	44.0		21.0		21.0			21.0
Total Split (%)	67.7%	67.7%	67.7%	67.7%	67.7%		32.3%		32.3%			32.3%
Maximum Green (s)	39.0	39.0	39.0	39.0	39.0		16.0		16.0			16.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0		4.0			4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0		1.0			1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0		5.0			5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0		3.0			3.0
Recall Mode	None	None	None	None	None		Min		Min			Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0		5.0			5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0		11.0			11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0		0			0
Act Effect Green (s)	34.8	34.8	34.8	34.8	34.8		10.1		10.1			
Actuated g/C Ratio	0.63	0.63	0.63	0.63	0.63		0.18		0.18			
v/c Ratio	0.07	0.61	0.81	0.71	0.43		0.46		0.23			
Control Delay	5.7	7.9	7.4	32.9	5.9		27.1		8.3			
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0		0.0			
Total Delay	5.7	7.9	7.4	32.9	5.9		27.1		8.3			
LOS	A	A	A	C	A		C		A			
Approach Delay		7.7			8.7							
Approach LOS		A			A							
Intersection Summary												
Area Type:	CBD											
Cycle Length: 65												
Actuated Cycle Length: 55.3												
Natural Cycle: 65												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.81												
Intersection Signal Delay: 8.7							Intersection LOS: A					
Intersection Capacity Utilization 82.6%							ICU Level of Service E					
Analysis Period (min) 15												

Splits and Phases: 21: I-405 SB Ramps & E Carson St

	
21 s	44 s
	
21 s	44 s

Lanes, Volumes, Timings

22: Recreation Rd/I-405 NB Ramps & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	190	990	35	23	729	405	35	20	20	52	8	482
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	12	12	12	12	12	12	12
Storage Length (ft)	70		0	100		180	0		0	0		0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995				0.850			0.850			0.850
Flt Protected	0.950			0.950				0.969			0.959	
Satd. Flow (prot)	1770	3522	0	1770	3539	1583	0	1805	1583	0	1786	1583
Flt Permitted	0.296			0.169				0.836			0.771	
Satd. Flow (perm)	551	3522	0	315	3539	1583	0	1557	1583	0	1436	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9				440			40			119
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		469			2039			158			364	
Travel Time (s)		8.0			34.8			2.7			6.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	207	1076	38	25	792	440	38	22	22	57	9	524
Shared Lane Traffic (%)												
Lane Group Flow (vph)	207	1114	0	25	792	440	0	60	22	0	66	524
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2		2	6		6

Lanes, Volumes, Timings

22: Recreation Rd/I-405 NB Ramps & E Carson St

1/3/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	31.0	31.0		31.0	31.0	31.0	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (%)	56.4%	56.4%		56.4%	56.4%	56.4%	43.6%	43.6%	43.6%	43.6%	43.6%	43.6%
Maximum Green (s)	26.0	26.0		26.0	26.0	26.0	19.0	19.0	19.0	19.0	19.0	19.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max	Max	Max	Max	Max
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0	0	0	0
Act Effect Green (s)	23.6	23.6		23.6	23.6	23.6	19.1	19.1	19.1	19.1	19.1	19.1
Actuated g/C Ratio	0.45	0.45		0.45	0.45	0.45	0.36	0.36	0.36	0.36	0.36	0.36
v/c Ratio	0.84	0.71		0.18	0.50	0.46	0.11	0.04	0.13	0.81	0.81	0.81
Control Delay	46.0	14.4		12.2	11.5	2.9	12.9	3.0	13.2	25.2	25.2	25.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.0	14.4		12.2	11.5	2.9	12.9	3.0	13.2	25.2	25.2	25.2
LOS	D	B		B	B	A	B	A	B	C	C	C
Approach Delay		19.3			8.5		10.3		23.9			
Approach LOS		B			A		B		C			

Intersection Summary

Area Type: Other

Cycle Length: 55

Actuated Cycle Length: 52.8

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 15.7

Intersection LOS: B

Intersection Capacity Utilization 65.8%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 22: Recreation Rd/I-405 NB Ramps & E Carson St

24 s	31 s
24 s	31 s

DRAFT

Future (Year 2023)

Lanes, Volumes, Timings
1: S Figueroa St & I-405 SB Ramps

1/3/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	0	0	868	65	86	888
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	220	
Storage Lanes	0	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt			0.989			
Flt Protected					0.950	
Satd. Flow (prot)	0	0	3500	0	1770	3539
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	3500	0	1770	3539
Link Speed (mph)	40		40			40
Link Distance (ft)	607		2451			246
Travel Time (s)	10.3		41.8			4.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	943	71	93	965
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	1014	0	93	965
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	12		12			12
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Yield		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	51.0%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
2: S Figueroa St & I-405 NB Ramps

1/3/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	203	301	929	0	0	714
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1770	1583	3539	0	0	3539
Flt Permitted	0.950					
Satd. Flow (perm)	1770	1583	3539	0	0	3539
Link Speed (mph)	40		40			40
Link Distance (ft)	724		246			1243
Travel Time (s)	12.3		4.2			21.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	221	327	1010	0	0	776
Shared Lane Traffic (%)						
Lane Group Flow (vph)	221	327	1010	0	0	776
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	12		12			12
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	51.0%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings

3: S Main St & I-405 SB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	99	11	0	0	0	0	675	62	91	690	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	250		0
Storage Lanes	1		0	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.985						0.987				
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	1835	0	0	0	0	0	3493	0	1770	3539	0
Flt Permitted	0.950									0.950		
Satd. Flow (perm)	1770	1835	0	0	0	0	0	3493	0	1770	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10						18				
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		607			169			2341			290	
Travel Time (s)		10.3			2.9			35.5			4.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	29	108	12	0	0	0	0	734	67	99	750	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	29	120	0	0	0	0	0	801	0	99	750	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2						2		1	2	
Detector Template	Left	Thru						Thru		Left	Thru	
Leading Detector (ft)	20	100						100		20	100	
Trailing Detector (ft)	0	0						0		0	0	
Detector 1 Position(ft)	0	0						0		0	0	
Detector 1 Size(ft)	20	6						6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex						Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0						0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0						0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0						0.0		0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Prot	NA						NA		Prot	NA	
Protected Phases	4							2		1	6	
Permitted Phases		4										
Detector Phase	4	4						2		1	6	

Lanes, Volumes, Timings

3: S Main St & I-405 SB Ramps

1/3/2019

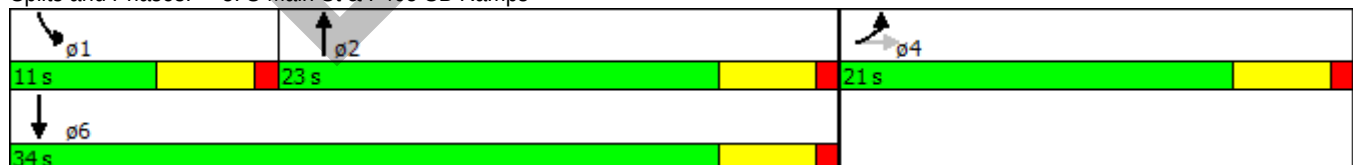
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0						4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0						21.0		9.0	21.0	
Total Split (s)	21.0	21.0						23.0		11.0	34.0	
Total Split (%)	38.2%	38.2%						41.8%		20.0%	61.8%	
Maximum Green (s)	16.0	16.0						18.0		6.0	29.0	
Yellow Time (s)	4.0	4.0						4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0						1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0						0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0						5.0		5.0	5.0	
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Recall Mode	None	None						Max		None	Max	
Walk Time (s)	5.0	5.0						5.0			5.0	
Flash Dont Walk (s)	11.0	11.0						11.0			11.0	
Pedestrian Calls (#/hr)	0	0						0			0	
Act Effect Green (s)	8.3	8.3						28.0		5.9	34.8	
Actuated g/C Ratio	0.17	0.17						0.56		0.12	0.70	
v/c Ratio	0.10	0.38						0.41		0.47	0.30	
Control Delay	16.9	20.1						10.5		28.5	4.7	
Queue Delay	0.0	0.0						0.0		0.0	0.1	
Total Delay	16.9	20.1						10.5		28.5	4.9	
LOS	B	C						B		C	A	
Approach Delay		19.5						10.5			7.6	
Approach LOS		B						B			A	

Intersection Summary

Area Type: Other
 Cycle Length: 55
 Actuated Cycle Length: 50
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.47
 Intersection Signal Delay: 9.9
 Intersection Capacity Utilization 56.4%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service B

Splits and Phases: 3: S Main St & I-405 SB Ramps



Lanes, Volumes, Timings
4: S Main St & I-405 NB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕↕		↗	↕↕			↕↕	
Volume (vph)	0	0	0	80	388	197	30	680	0	0	670	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt					0.956						0.983	
Flt Protected					0.994		0.950					
Satd. Flow (prot)	0	0	0	0	3363	0	1770	3539	0	0	3479	0
Flt Permitted					0.994		0.299					
Satd. Flow (perm)	0	0	0	0	3363	0	557	3539	0	0	3479	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					107						38	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		724			336			290			724	
Travel Time (s)		12.3			5.7			4.4			11.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	87	422		214	33	739	0	0	728
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	723	0	33	739	0	0	821	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	2		1	2			2	
Detector Template				Left	Thru		Left	Thru			Thru	
Leading Detector (ft)				20	100		20	100			100	
Trailing Detector (ft)				0	0		0	0			0	
Detector 1 Position(ft)				0	0		0	0			0	
Detector 1 Size(ft)				20	6		20	6			6	
Detector 1 Type				Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0		0.0	0.0			0.0	
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Detector Phase				8	8		2	2			6	
Switch Phase												
Minimum Initial (s)				4.0	4.0		4.0	4.0			4.0	
Minimum Split (s)				21.0	21.0		21.0	21.0			21.0	

Lanes, Volumes, Timings
4: S Main St & I-405 NB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)				21.0	21.0		24.0	24.0			24.0	
Total Split (%)				46.7%	46.7%		53.3%	53.3%			53.3%	
Maximum Green (s)				16.0	16.0		19.0	19.0			19.0	
Yellow Time (s)				4.0	4.0		4.0	4.0			4.0	
All-Red Time (s)				1.0	1.0		1.0	1.0			1.0	
Lost Time Adjust (s)					0.0		0.0	0.0			0.0	
Total Lost Time (s)					5.0		5.0	5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0	3.0			3.0	
Recall Mode				None	None		Max	Max			Max	
Walk Time (s)				5.0	5.0		5.0	5.0			5.0	
Flash Dont Walk (s)				11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)				0	0		0	0			0	
Act Effect Green (s)					13.4		19.1	19.1			19.1	
Actuated g/C Ratio					0.32		0.45	0.45			0.45	
v/c Ratio					0.64		0.13	0.47			0.52	
Control Delay					13.3		9.6	9.9			10.0	
Queue Delay					0.0		0.0	0.0			0.0	
Total Delay					13.3		9.6	9.9			10.0	
LOS					B		A	A			A	
Approach Delay					13.3			9.9			10.0	
Approach LOS					B			A			A	

Intersection Summary

Area Type: Other

Cycle Length: 45

Actuated Cycle Length: 42.5

Natural Cycle: 45

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 11.0

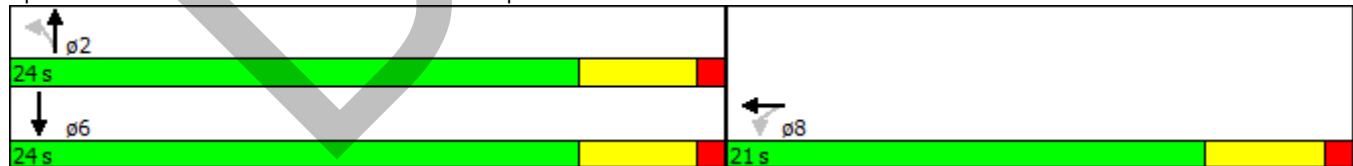
Intersection LOS: B

Intersection Capacity Utilization 56.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 4: S Main St & I-405 NB Ramps



Lanes, Volumes, Timings
5: S Figueroa St & W Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Volume (vph)	150	404	101	193	957	166	202	744	340	43	389	450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	60		0	240		240	240		0	245		245
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.970				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4933	0	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	4933	0	1770	3539	1583	1770	3539	1583	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		68				232			370			300
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		519			1251			791			2451	
Travel Time (s)		7.9			19.0			13.5			41.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	439	110	210	1040	180	220	809	370	47	423	489
Shared Lane Traffic (%)												
Lane Group Flow (vph)	163	549	0	210	1040	180	220	809	370	47	423	489
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6

Lanes, Volumes, Timings
5: S Figueroa St & W Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	21.0		9.0	21.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	13.0	21.0		21.0	29.0	29.0	15.0	29.0	29.0	9.0	23.0	23.0
Total Split (%)	16.3%	26.3%		26.3%	36.3%	36.3%	18.8%	36.3%	36.3%	11.3%	28.8%	28.8%
Maximum Green (s)	8.0	16.0		16.0	24.0	24.0	10.0	24.0	24.0	4.0	18.0	18.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)		5.0			5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0			11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0	0		0	0		0	0
Act Effect Green (s)	8.0	18.4		13.6	24.0	24.0	10.0	27.6	27.6	4.0	18.0	18.0
Actuated g/C Ratio	0.10	0.23		0.17	0.30	0.30	0.12	0.34	0.34	0.05	0.22	0.22
v/c Ratio	0.92	0.46		0.70	0.98	0.28	1.00	0.66	0.47	0.53	0.53	0.83
Control Delay	88.8	25.2		43.5	52.6	2.5	98.0	26.4	4.8	60.4	30.1	25.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.8	25.2		43.5	52.6	2.5	98.0	26.4	4.8	60.4	30.1	25.5
LOS	F	C		D	D	A	F	C	A	E	C	C
Approach Delay		39.8			45.0			32.0			29.3	
Approach LOS		D			D			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 36.8

Intersection LOS: D

Intersection Capacity Utilization 78.0%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: S Figueroa St & W Del Amo Blvd

 ø1	 ø2	 ø3	 ø4
9 s	29 s	21 s	21 s
 ø5	 ø6	 ø7	 ø8
15 s	23 s	13 s	29 s

Lanes, Volumes, Timings

6: S Main St & W Del Amo Blvd/E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	146	583	39	235	1164	63	78	539	248	55	487	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		0	195		0	150		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.991			0.992			0.953			0.968	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5040	0	1770	5045	0	1770	3373	0	1770	3426	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	5040	0	1770	5045	0	1770	3373	0	1770	3426	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			12			105			46	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1251			1668			534			2341	
Travel Time (s)		19.0			25.3			8.1			35.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	159	634	42	255	1265	68	85	586	270	60	529	141
Shared Lane Traffic (%)												
Lane Group Flow (vph)	159	676	0	255	1333	0	85	856	0	60	670	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Detector Phase	7	4		3	8		5	2		1	6	

Lanes, Volumes, Timings

6: S Main St & W Del Amo Blvd/E Del Amo Blvd

1/3/2019

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	21.0		9.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	12.0	21.0		16.0	25.0		10.0	24.0		9.0	23.0	
Total Split (%)	17.1%	30.0%		22.9%	35.7%		14.3%	34.3%		12.9%	32.9%	
Maximum Green (s)	7.0	16.0		11.0	20.0		5.0	19.0		4.0	18.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		5.0			5.0			5.0			5.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	7.0	16.0		11.0	20.1		5.0	19.1		4.0	18.3	
Actuated g/C Ratio	0.10	0.23		0.16	0.29		0.07	0.28		0.06	0.27	
v/c Ratio	0.87	0.57		0.89	0.89		0.65	0.84		0.58	0.70	
Control Delay	75.4	25.1		63.8	33.0		57.9	30.2		56.5	26.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	75.4	25.1		63.8	33.0		57.9	30.2		56.5	26.2	
LOS	E	C		E	C		E	C		E	C	
Approach Delay		34.7			37.9			32.7			28.7	
Approach LOS		C			D			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 68.2

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 34.4

Intersection LOS: C

Intersection Capacity Utilization 74.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 6: S Main St & W Del Amo Blvd/E Del Amo Blvd

 ø1	 ø2	 ø3	 ø4
9 s	24 s	16 s	21 s
 ø5	 ø6	 ø7	 ø8
10 s	23 s	12 s	25 s

Lanes, Volumes, Timings
7: Stamps Dr & E Del Amo Blvd

1/3/2019

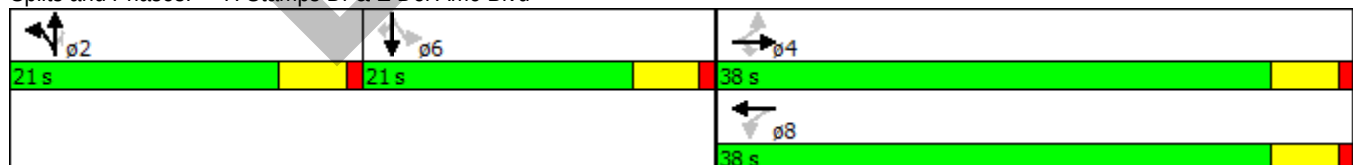
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	877	0	0	1352	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	155		0	0		0	0		0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Frts												
Flt Protected												
Satd. Flow (prot)	1863	3539	1863	1863	3539	0	1770	1770	1863	1863	1770	1770
Flt Permitted												
Satd. Flow (perm)	1863	3539	1863	1863	3539	0	1770	1770	1863	1863	1770	1770
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			50	
Link Distance (ft)		1668			3009			694			308	
Travel Time (s)		25.3			45.6			18.9			4.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	953	0	0	1470	0	0	0	0	0	0	0
Shared Lane Traffic (%)							0%					0%
Lane Group Flow (vph)	0	953	0	0	1470	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Split		Perm	Perm		Perm
Protected Phases		4			8		2	2			6	
Permitted Phases	4		4	8					2	6		6
Detector Phase	4	4	4	8	8		2	2	2	6	6	6

Lanes, Volumes, Timings
7: Stamps Dr & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	38.0	38.0	38.0	38.0	38.0		21.0	21.0	21.0	21.0	21.0	21.0
Total Split (%)	47.5%	47.5%	47.5%	47.5%	47.5%		26.3%	26.3%	26.3%	26.3%	26.3%	26.3%
Maximum Green (s)	33.0	33.0	33.0	33.0	33.0		16.0	16.0	16.0	16.0	16.0	16.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		Max	Max	Max	Max	Max	Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0	0	0	0	0
Act Effect Green (s)		33.0			33.0							
Actuated g/C Ratio		0.41			0.41							
v/c Ratio		0.65			1.01							
Control Delay		21.5			50.4							
Queue Delay		0.0			0.0							
Total Delay		21.5			50.4							
LOS		C			D							
Approach Delay		21.5			50.4							
Approach LOS		C			D							
Intersection Summary												
Area Type:	Other											
Cycle Length: 80												
Actuated Cycle Length: 80												
Natural Cycle: 80												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 1.01												
Intersection Signal Delay: 39.1						Intersection LOS: D						
Intersection Capacity Utilization 41.5%						ICU Level of Service A						
Analysis Period (min) 15												

Splits and Phases: 7: Stamps Dr & E Del Amo Blvd



Lanes, Volumes, Timings
8: S Avalon Blvd & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	272	562	84	180	831	101	270	938	139	171	619	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		160	195		195	180		310	100		0
Storage Lanes	1		0	0		1	1		1	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	0.97	0.91	0.91
Frt			0.850			0.850			0.850		0.961	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	3433	4887	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	5085	1583	3433	4887	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			206			206			151		88	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		3009			3520			2946			3936	
Travel Time (s)		45.6			53.3			57.4			76.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	296	611	91	196	903	110	293	1020	151	186	673	238
Shared Lane Traffic (%)												
Lane Group Flow (vph)	296	611	91	196	903	110	293	1020	151	186	911	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	

Lanes, Volumes, Timings
8: S Avalon Blvd & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	21.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	20.0	30.0	30.0	18.0	28.0	28.0	20.0	30.0	30.0	12.0	22.0	22.0
Total Split (%)	22.2%	33.3%	33.3%	20.0%	31.1%	31.1%	22.2%	33.3%	33.3%	13.3%	24.4%	24.4%
Maximum Green (s)	15.0	25.0	25.0	13.0	23.0	23.0	15.0	25.0	25.0	7.0	17.0	17.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (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
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effect Green (s)	15.0	25.6	25.6	12.4	23.0	23.0	15.0	25.0	25.0	7.0	17.0	17.0
Actuated g/C Ratio	0.17	0.28	0.28	0.14	0.26	0.26	0.17	0.28	0.28	0.08	0.19	0.19
v/c Ratio	1.00	0.61	0.15	0.80	1.00	0.20	0.99	0.72	0.28	0.70	0.92	0.92
Control Delay	93.1	31.1	0.5	62.5	64.5	0.8	90.6	32.9	5.9	55.3	47.5	47.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	93.1	31.1	0.5	62.5	64.5	0.8	90.6	32.9	5.9	55.3	47.5	47.5
LOS	F	C	A	E	E	A	F	C	A	E	D	D
Approach Delay		46.7			58.4			41.6			48.8	
Approach LOS		D			E			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 48.6

Intersection LOS: D

Intersection Capacity Utilization 86.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 8: S Avalon Blvd & E Del Amo Blvd

 p1	 p2	 p3	 p4
12 s	30 s	18 s	30 s
 p5	 p6	 p7	 p8
20 s	22 s	20 s	28 s

Lanes, Volumes, Timings
9: S Figueroa St & I-110 NB Ramps

1/3/2019

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 		 	 	 	
Volume (vph)	589	310	677	713	495	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	235			250
Storage Lanes	2	0	2			1
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	0.95	0.97	0.95	0.95	1.00
Frt	0.948					0.850
Flt Protected	0.968		0.950			
Satd. Flow (prot)	3316	0	3433	3539	3539	1583
Flt Permitted	0.968		0.452			
Satd. Flow (perm)	3316	0	1633	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	186					195
Link Speed (mph)	40			40	40	
Link Distance (ft)	170			828	791	
Travel Time (s)	2.9			14.1	13.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	640	337	736	775	538	195
Shared Lane Traffic (%)						
Lane Group Flow (vph)	977	0	736	775	538	195
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	12			12	12	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1		1	2	2	1
Detector Template	Left		Left	Thru	Thru	Right
Leading Detector (ft)	20		20	100	100	20
Trailing Detector (ft)	0		0	0	0	0
Detector 1 Position(ft)	0		0	0	0	0
Detector 1 Size(ft)	20		20	6	6	20
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Detector Phase	4		2	2	6	6

Lanes, Volumes, Timings
9: S Figueroa St & I-110 NB Ramps

1/3/2019



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	21.0		21.0	21.0	21.0	21.0
Total Split (s)	21.0		34.0	34.0	34.0	34.0
Total Split (%)	38.2%		61.8%	61.8%	61.8%	61.8%
Maximum Green (s)	16.0		29.0	29.0	29.0	29.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		Max	Max	Max	Max
Walk Time (s)	5.0		5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effect Green (s)	15.6		29.0	29.0	29.0	29.0
Actuated g/C Ratio	0.29		0.53	0.53	0.53	0.53
v/c Ratio	0.90		0.85	0.41	0.29	0.21
Control Delay	29.1		23.6	8.6	7.7	1.9
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	29.1		23.6	8.6	7.7	1.9
LOS	C		C	A	A	A
Approach Delay	29.1			15.9	6.2	
Approach LOS	C			B	A	

Intersection Summary

Area Type: Other
Cycle Length: 55
Actuated Cycle Length: 54.6
Natural Cycle: 55
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 17.7
Intersection Capacity Utilization 72.1%
Analysis Period (min) 15

Intersection LOS: B
ICU Level of Service C

Splits and Phases: 9: S Figueroa St & I-110 NB Ramps

 ø2 34 s	 ø4 21 s
 ø6 34 s	

Lanes, Volumes, Timings
10: S Main St & Lenardo Rd

1/3/2019

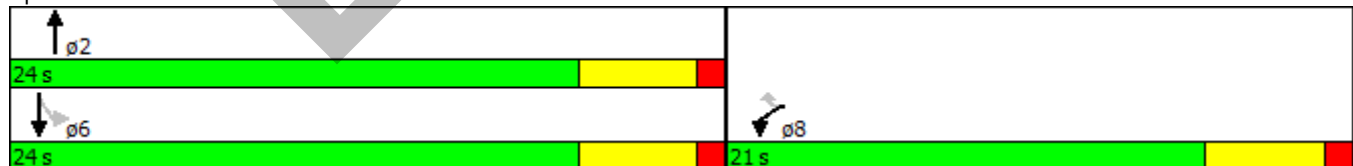
	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↑↑		↘	↑↑
Volume (vph)	0	0	882	0	0	748
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	145	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frnt						
Flt Protected						
Satd. Flow (prot)	1863	1863	3539	0	1863	3539
Flt Permitted						
Satd. Flow (perm)	1863	1863	3539	0	1863	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)						
Link Speed (mph)	25		45			45
Link Distance (ft)	479		971			534
Travel Time (s)	13.1		14.7			8.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	959	0	0	813
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	959	0	0	813
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	12		12			12
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (ft)	20	20	100		20	100
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	20	6		20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6

Lanes, Volumes, Timings
10: S Main St & Lenardo Rd

1/3/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	21.0	21.0	21.0		21.0	21.0
Total Split (s)	21.0	21.0	24.0		24.0	24.0
Total Split (%)	46.7%	46.7%	53.3%		53.3%	53.3%
Maximum Green (s)	16.0	16.0	19.0		19.0	19.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		Max	Max
Walk Time (s)	5.0	5.0	5.0		5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)			39.0			39.0
Actuated g/C Ratio			1.00			1.00
v/c Ratio			0.27			0.23
Control Delay			0.2			0.2
Queue Delay			0.0			0.0
Total Delay			0.2			0.2
LOS			A			A
Approach Delay			0.2			0.2
Approach LOS			A			A
Intersection Summary						
Area Type:	Other					
Cycle Length: 45						
Actuated Cycle Length: 39						
Natural Cycle: 45						
Control Type: Semi Act-Uncoord						
Maximum v/c Ratio: 0.27						
Intersection Signal Delay: 0.2				Intersection LOS: A		
Intersection Capacity Utilization 28.5%				ICU Level of Service A		
Analysis Period (min) 15						

Splits and Phases: 10: S Main St & Lenardo Rd



Lanes, Volumes, Timings
11: S Figueroa St & W Torrance Blvd

1/3/2019

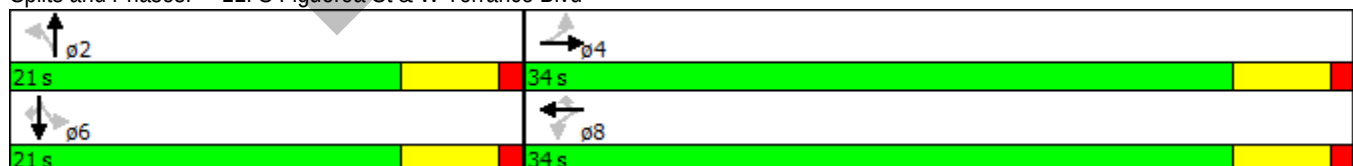
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	618	463	164	61	484	160	184	610	60	57	341	439
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12	12	16	12	12	12	12
Storage Length (ft)	180		0	115		0	255		0	185		185
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.91	0.91	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.974				0.850		0.987				0.850
Flt Protected	0.950	0.984		0.950			0.950			0.950		
Satd. Flow (prot)	1610	3682	0	1770	3539	1583	1770	3959	0	1770	3539	1583
Flt Permitted	0.457	0.673		0.201			0.531			0.262		
Satd. Flow (perm)	775	2519	0	374	3539	1583	989	3959	0	488	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		65				51		19				299
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		368			1713			3767			828	
Travel Time (s)		6.3			29.2			64.2			14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	672	503	178	66	526	174	200	663	65	62	371	477
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	336	1017	0	66	526	174	200	728	0	62	371	477
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	1.00	1.00	1.00	1.00	1.00	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		6

Lanes, Volumes, Timings
11: S Figueroa St & W Torrance Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	21.0	21.0		21.0	21.0	21.0
Total Split (s)	34.0	34.0		34.0	34.0	34.0	21.0	21.0		21.0	21.0	21.0
Total Split (%)	61.8%	61.8%		61.8%	61.8%	61.8%	38.2%	38.2%		38.2%	38.2%	38.2%
Maximum Green (s)	29.0	29.0		29.0	29.0	29.0	16.0	16.0		16.0	16.0	16.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	Max
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	0
Act Effct Green (s)	26.5	26.5		26.5	26.5	26.5	16.1	16.1		16.1	16.1	16.1
Actuated g/C Ratio	0.50	0.50		0.50	0.50	0.50	0.31	0.31		0.31	0.31	0.31
v/c Ratio	0.86	0.78		0.35	0.30	0.21	0.66	0.59		0.42	0.34	0.69
Control Delay	36.9	15.0		14.0	7.9	5.8	31.4	18.2		26.5	16.2	13.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	36.9	15.0		14.0	7.9	5.8	31.4	18.2		26.5	16.2	13.2
LOS	D	B		B	A	A	C	B		C	B	B
Approach Delay		20.4			8.0			21.1			15.3	
Approach LOS		C			A			C			B	
Intersection Summary												
Area Type:	Other											
Cycle Length: 55												
Actuated Cycle Length: 52.7												
Natural Cycle: 55												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.86												
Intersection Signal Delay: 17.0							Intersection LOS: B					
Intersection Capacity Utilization 76.2%							ICU Level of Service D					
Analysis Period (min) 15												

Splits and Phases: 11: S Figueroa St & W Torrance Blvd



Lanes, Volumes, Timings

12: S Main St & W Torrance Blvd/E Torrance Blvd

1/3/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		↰		↰	↰		↰	↰	↰
Volume (vph)	260	24	235	10	77	36	379	614	9	12	479	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12	12	16	12	12	12	12
Storage Length (ft)	0		0	0		0	190		0	145		45
Storage Lanes	0		1	0		0	2		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.961			0.998				0.850
Flt Protected		0.956			0.996		0.950			0.950		
Satd. Flow (prot)	0	1781	1583	0	2021	0	3433	4003	0	1770	3539	1583
Flt Permitted		0.651			0.962		0.459			0.372		
Satd. Flow (perm)	0	1213	1583	0	1952	0	1659	4003	0	693	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			198		39			4				286
Link Speed (mph)		40			40			40				45
Link Distance (ft)		1713			375			2482				971
Travel Time (s)		29.2			6.4			42.3				14.7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	283	26	255	11	84	39	412	667	10	13	521	286
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	309	255	0	134	0	412	677	0	13	521	286
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		6

Lanes, Volumes, Timings

12: S Main St & W Torrance Blvd/E Torrance Blvd

1/3/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0	21.0		21.0	21.0	21.0
Total Split (s)	22.0	22.0	22.0	22.0	22.0		23.0	23.0		23.0	23.0	23.0
Total Split (%)	48.9%	48.9%	48.9%	48.9%	48.9%		51.1%	51.1%		51.1%	51.1%	51.1%
Maximum Green (s)	17.0	17.0	17.0	17.0	17.0		18.0	18.0		18.0	18.0	18.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		Max	Max		Max	Max	Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	0
Act Effect Green (s)		14.5	14.5		14.5		18.6	18.6		18.6	18.6	18.6
Actuated g/C Ratio		0.34	0.34		0.34		0.43	0.43		0.43	0.43	0.43
v/c Ratio		0.76	0.38		0.20		0.58	0.39		0.04	0.34	0.34
Control Delay		26.8	5.1		8.0		14.2	9.8		8.8	9.7	2.9
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		26.8	5.1		8.0		14.2	9.8		8.8	9.7	2.9
LOS		C	A		A		B	A		A	A	A
Approach Delay		17.0			8.0			11.5			7.3	
Approach LOS		B			A			B			A	

Intersection Summary

Area Type: Other

Cycle Length: 45

Actuated Cycle Length: 43.2

Natural Cycle: 45

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 11.2

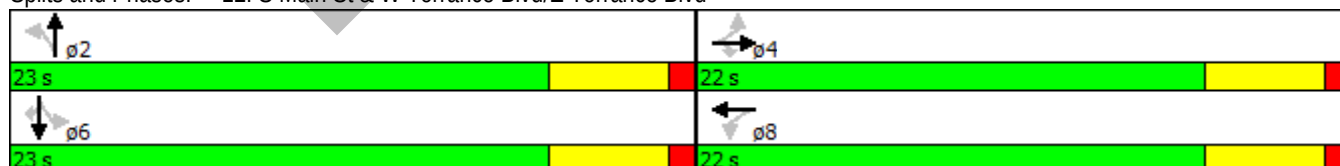
Intersection LOS: B

Intersection Capacity Utilization 58.9%

ICU Level of Service B

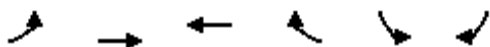
Analysis Period (min) 15

Splits and Phases: 12: S Main St & W Torrance Blvd/E Torrance Blvd



Lanes, Volumes, Timings
13: Lenardo Rd/I-405 SB Ramps

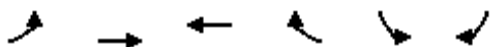
1/3/2019



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	0	0	0	251	946	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			0	0	0
Storage Lanes	1			1	2	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.97	1.00
Frt				0.850		
Flt Protected					0.950	
Satd. Flow (prot)	1863	3539	1863	1583	3433	1863
Flt Permitted					0.950	
Satd. Flow (perm)	1863	3539	1863	1583	3433	1863
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				1091		
Link Speed (mph)		35	40		40	
Link Distance (ft)		701	533		434	
Travel Time (s)		13.7	9.1		7.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	273	1028	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	273	1028	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		24	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		12	12		12	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm			Perm	Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4			8		6
Detector Phase	4	4	8	8	6	6

Lanes, Volumes, Timings 13: Lenardo Rd/I-405 SB Ramps

1/3/2019

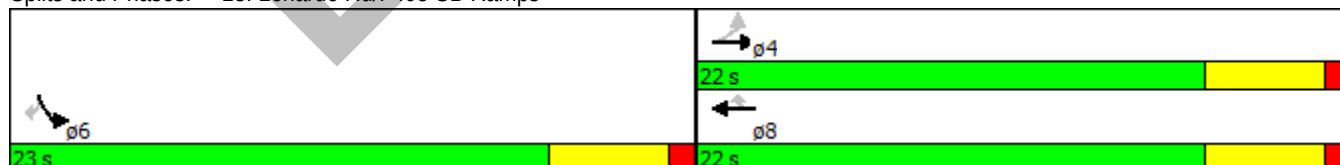


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	22.0	22.0	22.0	22.0	23.0	23.0
Total Split (%)	48.9%	48.9%	48.9%	48.9%	51.1%	51.1%
Maximum Green (s)	17.0	17.0	17.0	17.0	18.0	18.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	Max	Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effect Green (s)				5.6	21.2	
Actuated g/C Ratio				0.15	0.57	
v/c Ratio				0.23	0.52	
Control Delay				0.5	6.1	
Queue Delay				0.0	0.0	
Total Delay				0.5	6.1	
LOS				A	A	
Approach Delay					6.1	
Approach LOS					A	

Intersection Summary

Area Type:	Other
Cycle Length: 45	
Actuated Cycle Length: 37	
Natural Cycle: 45	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.52	
Intersection Signal Delay: 4.9	Intersection LOS: A
Intersection Capacity Utilization 31.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 13: Lenardo Rd/I-405 SB Ramps



Lanes, Volumes, Timings
14: S Avalon Blvd & I-405 SB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	473	3	478	0	0	0	0	1083	125	0	715	262
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		150	0		0	160		0	0		120
Storage Lanes	0		1	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850					0.984				0.850
Flt Protected	0.950											
Satd. Flow (prot)	3433	3539	1583	0	0	0	1863	3483	0	0	3539	1583
Flt Permitted	0.950											
Satd. Flow (perm)	3433	3539	1583	0	0	0	1863	3483	0	0	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			111					27				285
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		533			422			1230			386	
Travel Time (s)		9.1			7.2			24.0			7.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	514	3	520	0	0	0	0	1177	136	0	777	285
Shared Lane Traffic (%)												
Lane Group Flow (vph)	514	3	520	0	0	0	0	1313	0	0	777	285
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1				1	2			2	1
Detector Template	Left	Thru	Right				Left	Thru			Thru	Right
Leading Detector (ft)	20	100	20				20	100			100	20
Trailing Detector (ft)	0	0	0				0	0			0	0
Detector 1 Position(ft)	0	0	0				0	0			0	0
Detector 1 Size(ft)	20	6	20				20	6			6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex				Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm				Perm	NA			NA	Perm
Protected Phases		4						2			6	
Permitted Phases	4		4				2					6
Detector Phase	4	4	4				2	2			6	6

Lanes, Volumes, Timings
14: S Avalon Blvd & I-405 SB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0				4.0	4.0			4.0	4.0
Minimum Split (s)	21.0	21.0	21.0				21.0	21.0			21.0	21.0
Total Split (s)	28.0	28.0	28.0				32.0	32.0			32.0	32.0
Total Split (%)	46.7%	46.7%	46.7%				53.3%	53.3%			53.3%	53.3%
Maximum Green (s)	23.0	23.0	23.0				27.0	27.0			27.0	27.0
Yellow Time (s)	4.0	4.0	4.0				4.0	4.0			4.0	4.0
All-Red Time (s)	1.0	1.0	1.0				1.0	1.0			1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0				5.0	5.0			5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0				3.0	3.0			3.0	3.0
Recall Mode	None	None	None				Max	Max			Max	Max
Walk Time (s)	5.0	5.0	5.0				5.0	5.0			5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0				11.0	11.0			11.0	11.0
Pedestrian Calls (#/hr)	0	0	0				0	0			0	0
Act Effect Green (s)	20.0	20.0	20.0					27.1			27.1	27.1
Actuated g/C Ratio	0.35	0.35	0.35					0.47			0.47	0.47
v/c Ratio	0.43	0.00	0.83					0.79			0.46	0.32
Control Delay	15.2	11.3	26.6					17.8			11.9	2.6
Queue Delay	0.0	0.0	0.0					0.0			0.0	0.0
Total Delay	15.2	11.3	26.6					17.8			11.9	2.6
LOS	B	B	C					B			B	A
Approach Delay		20.9						17.8			9.4	
Approach LOS		C						B			A	
Intersection Summary												
Area Type:	Other											
Cycle Length: 60												
Actuated Cycle Length: 57.2												
Natural Cycle: 60												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.83												
Intersection Signal Delay: 16.1							Intersection LOS: B					
Intersection Capacity Utilization 57.7%							ICU Level of Service B					
Analysis Period (min) 15												

Splits and Phases: 14: S Avalon Blvd & I-405 SB Ramps

 p2	 p4
32 s	28 s
 p6	
32 s	

Lanes, Volumes, Timings
15: S Avalon Blvd & I-405 NB Ramps

1/3/2019

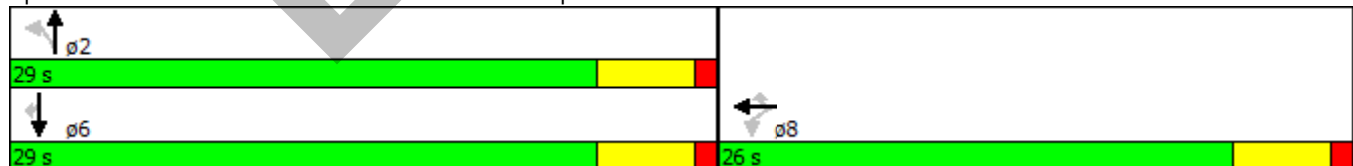
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	93	2	557	350	1193	0	0	809	229
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		0	0		0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.954		0.950					
Satd. Flow (prot)	0	0	0	1681	1688	1583	3433	3539	0	0	5085	1583
Flt Permitted				0.950	0.954		0.288					
Satd. Flow (perm)	0	0	0	1681	1688	1583	1041	3539	0	0	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						40						249
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		346			390			386			2946	
Travel Time (s)		5.9			6.6			7.5			57.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	101	2	605	380	1297	0	0	879	249
Shared Lane Traffic (%)				49%								
Lane Group Flow (vph)	0	0	0	52	51	605	380	1297	0	0	879	249
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	Perm	NA			NA	Perm
Protected Phases					8			2			6	
Permitted Phases				8		8	2					6
Detector Phase				8	8	8	2	2			6	6

Lanes, Volumes, Timings
15: S Avalon Blvd & I-405 NB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Minimum Split (s)				21.0	21.0	21.0	21.0	21.0			21.0	21.0
Total Split (s)				26.0	26.0	26.0	29.0	29.0			29.0	29.0
Total Split (%)				47.3%	47.3%	47.3%	52.7%	52.7%			52.7%	52.7%
Maximum Green (s)				21.0	21.0	21.0	24.0	24.0			24.0	24.0
Yellow Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
All-Red Time (s)				1.0	1.0	1.0	1.0	1.0			1.0	1.0
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	Max	Max			Max	Max
Walk Time (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
Flash Dont Walk (s)				11.0	11.0	11.0	11.0	11.0			11.0	11.0
Pedestrian Calls (#/hr)				0	0	0	0	0			0	0
Act Effect Green (s)				21.0	21.0	21.0	24.0	24.0			24.0	24.0
Actuated g/C Ratio				0.38	0.38	0.38	0.44	0.44			0.44	0.44
v/c Ratio				0.08	0.08	0.96	0.84	0.84			0.40	0.30
Control Delay				11.4	11.3	47.1	34.0	20.6			11.2	2.7
Queue Delay				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay				11.4	11.3	47.1	34.0	20.6			11.2	2.7
LOS				B	B	D	C	C			B	A
Approach Delay					41.9			23.6			9.4	
Approach LOS					D			C			A	
Intersection Summary												
Area Type:	Other											
Cycle Length: 55												
Actuated Cycle Length: 55												
Natural Cycle: 55												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.96												
Intersection Signal Delay: 22.7							Intersection LOS: C					
Intersection Capacity Utilization 75.8%							ICU Level of Service D					
Analysis Period (min) 15												

Splits and Phases: 15: S Avalon Blvd & I-405 NB Ramps



Lanes, Volumes, Timings
16: S Main St & E 213th St

1/3/2019

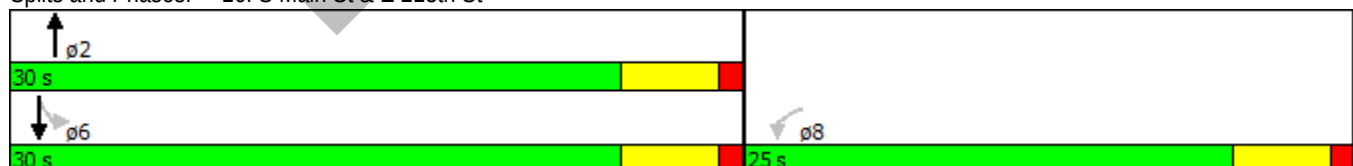
	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T		T	T
Volume (vph)	301	312	694	166	124	561
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	12	12
Storage Length (ft)	0	0		0	90	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.931		0.971			
Flt Protected	0.976				0.950	
Satd. Flow (prot)	1918	0	3895	0	1770	3539
Flt Permitted	0.976				0.234	
Satd. Flow (perm)	1918	0	3895	0	436	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	107		69			
Link Speed (mph)	30		35			45
Link Distance (ft)	4544		1360			2482
Travel Time (s)	103.3		26.5			37.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	327	339	754	180	135	610
Shared Lane Traffic (%)						
Lane Group Flow (vph)	666	0	934	0	135	610
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	28		24			24
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	12		12			12
Two way Left Turn Lane						
Headway Factor	0.85	0.85	0.85	0.85	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1		2		1	2
Detector Template	Left		Thru		Left	Thru
Leading Detector (ft)	20		100		20	100
Trailing Detector (ft)	0		0		0	0
Detector 1 Position(ft)	0		0		0	0
Detector 1 Size(ft)	20		6		20	6
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0		0.0	0.0
Detector 1 Queue (s)	0.0		0.0		0.0	0.0
Detector 1 Delay (s)	0.0		0.0		0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Perm		NA		Perm	NA
Protected Phases			2			6
Permitted Phases	8				6	

Lanes, Volumes, Timings
16: S Main St & E 213th St

1/3/2019

							
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	
Detector Phase	8		2		6	6	
Switch Phase							
Minimum Initial (s)	4.0		4.0		4.0	4.0	
Minimum Split (s)	21.0		21.0		21.0	21.0	
Total Split (s)	25.0		30.0		30.0	30.0	
Total Split (%)	45.5%		54.5%		54.5%	54.5%	
Maximum Green (s)	20.0		25.0		25.0	25.0	
Yellow Time (s)	4.0		4.0		4.0	4.0	
All-Red Time (s)	1.0		1.0		1.0	1.0	
Lost Time Adjust (s)	0.0		0.0		0.0	0.0	
Total Lost Time (s)	5.0		5.0		5.0	5.0	
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0		3.0		3.0	3.0	
Recall Mode	None		Max		Max	Max	
Walk Time (s)	5.0		5.0		5.0	5.0	
Flash Dont Walk (s)	11.0		11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0		0		0	0	
Act Effect Green (s)	18.9		25.1		25.1	25.1	
Actuated g/C Ratio	0.35		0.46		0.46	0.46	
v/c Ratio	0.90		0.51		0.67	0.37	
Control Delay	32.1		10.7		33.5	10.5	
Queue Delay	0.0		0.0		0.0	0.0	
Total Delay	32.1		10.7		33.5	10.5	
LOS	C		B		C	B	
Approach Delay	32.1		10.7			14.6	
Approach LOS	C		B			B	
Intersection Summary							
Area Type:	Other						
Cycle Length: 55							
Actuated Cycle Length: 54							
Natural Cycle: 55							
Control Type: Actuated-Uncoordinated							
Maximum v/c Ratio: 0.90							
Intersection Signal Delay: 18.0				Intersection LOS: B			
Intersection Capacity Utilization 79.7%				ICU Level of Service D			
Analysis Period (min) 15							

Splits and Phases: 16: S Main St & E 213th St



Lanes, Volumes, Timings
17: S Avalon Blvd & E 213th St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	244	208	88	127	243	68	108	846	139	60	923	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	16	12	16	16	12	16	16	12	16	16
Storage Length (ft)	100		0	100		0	70		0	120		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.955			0.967			0.979			0.976	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	2016	0	1770	3879	0	1770	5642	0	1770	5625	0
Flt Permitted	0.548			0.512			0.209			0.232		
Satd. Flow (perm)	1021	2016	0	954	3879	0	389	5642	0	432	5625	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		45			59			87			109	
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		4544			967			1397			1230	
Travel Time (s)		103.3			22.0			27.2			24.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	265	226	96	138	264	74	117	920	151	65	1003	193
Shared Lane Traffic (%)												
Lane Group Flow (vph)	265	322	0	138	338	0	117	1071	0	65	1196	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	0.85	1.00	0.85	0.85	1.00	0.85	0.85	1.00	0.85	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lanes, Volumes, Timings
17: S Avalon Blvd & E 213th St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	21.0	21.0		21.0	21.0		24.0	24.0		24.0	24.0	
Total Split (%)	46.7%	46.7%		46.7%	46.7%		53.3%	53.3%		53.3%	53.3%	
Maximum Green (s)	16.0	16.0		16.0	16.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	14.1	14.1		14.1	14.1		19.1	19.1		19.1	19.1	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.44	0.44		0.44	0.44	
v/c Ratio	0.80	0.47		0.45	0.26		0.68	0.42		0.34	0.47	
Control Delay	34.4	12.2		16.5	9.1		38.2	8.5		15.2	8.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	34.4	12.2		16.5	9.1		38.2	8.5		15.2	8.8	
LOS	C	B		B	A		D	A		B	A	
Approach Delay		22.3			11.2			11.5			9.1	
Approach LOS		C			B			B			A	
Intersection Summary												
Area Type:	Other											
Cycle Length: 45												
Actuated Cycle Length: 43.2												
Natural Cycle: 45												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.80												
Intersection Signal Delay: 12.4							Intersection LOS: B					
Intersection Capacity Utilization 67.8%							ICU Level of Service C					
Analysis Period (min) 15												

Splits and Phases: 17: S Avalon Blvd & E 213th St

24 s	21 s
24 s	21 s

Lanes, Volumes, Timings
18: S Figueroa St & W Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	149	349	449	38	439	47	357	535	151	45	379	323
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	213		75	152		0	230		0	240		0
Storage Lanes	1		0	1		0	2		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	0.97	0.95	0.95	0.97	0.95	0.95
Frt			0.850		0.986			0.967			0.931	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3490	0	3433	3422	0	3433	3295	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3490	0	3433	3422	0	3433	3295	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			338		17			56			238	
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		1243			2441			713			3767	
Travel Time (s)		24.2			47.6			12.2			64.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	162	379	488	41	477	51	388	582	164	49	412	351
Shared Lane Traffic (%)												
Lane Group Flow (vph)	162	379	488	41	528	0	388	746	0	49	763	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Detector Phase	7	4	4	3	8		5	2		1	6	

Lanes, Volumes, Timings
18: S Figueroa St & W Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	21.0	21.0	9.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	11.0	23.0	23.0	9.0	21.0		12.0	24.0		9.0	21.0	
Total Split (%)	16.9%	35.4%	35.4%	13.8%	32.3%		18.5%	36.9%		13.8%	32.3%	
Maximum Green (s)	6.0	18.0	18.0	4.0	16.0		7.0	19.0		4.0	16.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)		5.0	5.0		5.0			5.0			5.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effect Green (s)	6.0	19.7	19.7	4.0	13.9		7.0	22.8		4.0	16.0	
Actuated g/C Ratio	0.10	0.31	0.31	0.06	0.22		0.11	0.36		0.06	0.25	
v/c Ratio	0.96	0.34	0.67	0.37	0.67		1.02	0.59		0.22	0.75	
Control Delay	95.2	18.8	12.2	38.7	26.3		83.3	18.9		31.5	20.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	95.2	18.8	12.2	38.7	26.3		83.3	18.9		31.5	20.7	
LOS	F	B	B	D	C		F	B		C	C	
Approach Delay		27.7			27.2			40.9			21.4	
Approach LOS		C			C			D			C	

Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 63

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 30.4

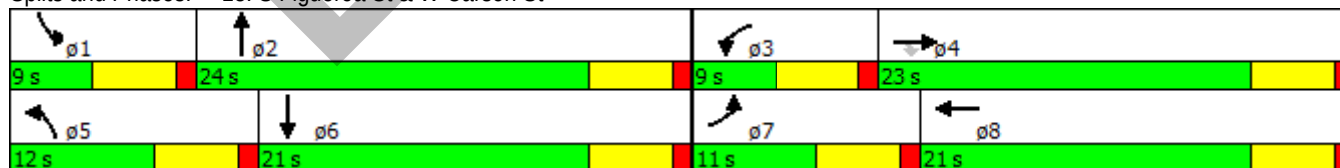
Intersection LOS: C

Intersection Capacity Utilization 69.6%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 18: S Figueroa St & W Carson St



Lanes, Volumes, Timings
19: S Main St & W Carson St/E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	87	350	102	52	353	58	136	750	118	57	546	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	16	12	12	16
Storage Length (ft)	210		70	220		70	115		0	175		500
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt			0.850			0.850		0.980			0.981	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	4984	0	1770	4989	0
Flt Permitted	0.524			0.526			0.383			0.291		
Satd. Flow (perm)	976	3539	1583	980	3539	1583	713	4984	0	542	4989	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			111			63		82			72	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		2441			4293			978			1360	
Travel Time (s)		47.6			83.6			19.1			26.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	95	380	111	57	384	63	148	815	128	62	593	85
Shared Lane Traffic (%)												
Lane Group Flow (vph)	95	380	111	57	384	63	148	943	0	62	678	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.85	1.00	1.00	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		

Lanes, Volumes, Timings
19: S Main St & W Carson St/E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0		21.0	21.0	
Total Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	24.0	24.0		24.0	24.0	
Total Split (%)	46.7%	46.7%	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%		53.3%	53.3%	
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0	16.0	19.0	19.0		19.0	19.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	Max	Max		Max	Max	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	
Act Effct Green (s)	10.6	10.6	10.6	10.6	10.6	10.6	19.1	19.1		19.1	19.1	
Actuated g/C Ratio	0.27	0.27	0.27	0.27	0.27	0.27	0.48	0.48		0.48	0.48	
v/c Ratio	0.37	0.40	0.22	0.22	0.41	0.13	0.43	0.39		0.24	0.28	
Control Delay	15.7	13.0	4.1	13.0	13.0	4.4	13.3	7.1		10.5	6.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	15.7	13.0	4.1	13.0	13.0	4.4	13.3	7.1		10.5	6.5	
LOS	B	B	A	B	B	A	B	A		B	A	
Approach Delay		11.7			11.9			8.0			6.8	
Approach LOS		B			B			A			A	
Intersection Summary												
Area Type:	Other											
Cycle Length: 45												
Actuated Cycle Length: 39.8												
Natural Cycle: 45												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.43												
Intersection Signal Delay: 9.1							Intersection LOS: A					
Intersection Capacity Utilization 51.7%							ICU Level of Service A					
Analysis Period (min) 15												

Splits and Phases: 19: S Main St & W Carson St/E Carson St

					
24 s			21 s		
					
24 s			21 s		

Lanes, Volumes, Timings
20: S Avalon Blvd & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	118	470	67	395	327	105	67	749	518	138	774	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	16	12	12	16	12	12	16
Storage Length (ft)	225		0	215		0	140		0	150		0
Storage Lanes	2		0	2		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	0.95	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.981			0.964			0.939			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3472	0	3433	3412	0	1770	4775	0	1770	5034	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3472	0	3433	3412	0	1770	4775	0	1770	5034	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			56			236			15	
Link Speed (mph)		35			40			35			35	
Link Distance (ft)		4293			2121			702			1397	
Travel Time (s)		83.6			36.2			13.7			27.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	128	511	73	429	355	114	73	814	563	150	841	61
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	584	0	429	469	0	73	1377	0	150	902	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												

Lanes, Volumes, Timings
20: S Avalon Blvd & E Carson St

1/3/2019

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Detector Phase	7	4		3	8		5	2		1	6		
Switch Phase													
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
Minimum Split (s)	9.0	21.0		9.0	21.0		9.0	21.0		9.0	21.0		
Total Split (s)	11.0	21.0		15.0	25.0		13.0	27.0		12.0	26.0		
Total Split (%)	14.7%	28.0%		20.0%	33.3%		17.3%	36.0%		16.0%	34.7%		
Maximum Green (s)	6.0	16.0		10.0	20.0		8.0	22.0		7.0	21.0		
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0		
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0		
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		
Recall Mode	None	None		None	None		None	Max		None	Max		
Walk Time (s)		5.0			5.0			5.0			5.0		
Flash Dont Walk (s)		11.0			11.0			11.0			11.0		
Pedestrian Calls (#/hr)		0			0			0			0		
Act Effct Green (s)	6.0	15.2		10.0	21.5		7.3	22.0		7.0	23.9		
Actuated g/C Ratio	0.08	0.20		0.13	0.29		0.10	0.30		0.09	0.32		
v/c Ratio	0.46	0.80		0.93	0.46		0.42	0.87		0.90	0.55		
Control Delay	38.7	36.9		61.8	21.4		39.2	28.1		85.2	23.2		
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Total Delay	38.7	36.9		61.8	21.4		39.2	28.1		85.2	23.2		
LOS	D	D		E	C		D	C		F	C		
Approach Delay		37.2			40.7			28.7			32.0		
Approach LOS		D			D			C			C		
Intersection Summary													
Area Type:	Other												
Cycle Length: 75													
Actuated Cycle Length: 74.3													
Natural Cycle: 75													
Control Type: Actuated-Uncoordinated													
Maximum v/c Ratio: 0.93													
Intersection Signal Delay: 33.6							Intersection LOS: C						
Intersection Capacity Utilization 76.8%							ICU Level of Service D						
Analysis Period (min) 15													

Splits and Phases: 20: S Avalon Blvd & E Carson St

 ø1	 ø2	 ø3	 ø4
12 s	27 s	15 s	21 s
 ø5	 ø6	 ø7	 ø8
13 s	26 s	11 s	25 s

Lanes, Volumes, Timings
21: I-405 SB Ramps & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	587	629	111	1066	0	103	0	227	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		180	0		0	150		0	0		0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1593	3185	1425	1593	4577	0	1593	0	1425	0	0	1676
Flt Permitted	0.223			0.410			0.950					
Satd. Flow (perm)	374	3185	1425	687	4577	0	1593	0	1425	0	0	1676
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			684						191			
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		2121			469			428			162	
Travel Time (s)		36.2			8.0			7.3			2.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	638	684	121	1159	0	112	0	247	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	8	638	684	121	1159	0	112	0	247	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1		1			1
Detector Template	Left	Thru	Right	Left	Thru		Left		Right			Right
Leading Detector (ft)	20	100	20	20	100		20		20			20
Trailing Detector (ft)	0	0	0	0	0		0		0			0
Detector 1 Position(ft)	0	0	0	0	0		0		0			0
Detector 1 Size(ft)	20	6	20	20	6		20		20			20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex			Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			0.0
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA	Perm	Perm	NA		Perm		Perm			Perm
Protected Phases		4			8							
Permitted Phases	4		4	8			2		2			6
Detector Phase	4	4	4	8	8		2		2			6

Lanes, Volumes, Timings
21: I-405 SB Ramps & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0		4.0			4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0		21.0			21.0
Total Split (s)	29.0	29.0	29.0	29.0	29.0		21.0		21.0			21.0
Total Split (%)	58.0%	58.0%	58.0%	58.0%	58.0%		42.0%		42.0%			42.0%
Maximum Green (s)	24.0	24.0	24.0	24.0	24.0		16.0		16.0			16.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0		4.0			4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0		1.0			1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0		5.0			5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0		3.0			3.0
Recall Mode	None	None	None	None	None		Min		Min			Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0		5.0			5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0		11.0			11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0		0			0
Act Effect Green (s)	18.0	18.0	18.0	18.0	18.0		8.5		8.5			
Actuated g/C Ratio	0.49	0.49	0.49	0.49	0.49		0.23		0.23			
v/c Ratio	0.04	0.41	0.66	0.36	0.52		0.31		0.52			
Control Delay	6.3	7.1	4.2	10.1	7.6		15.4		8.9			
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0		0.0			
Total Delay	6.3	7.1	4.2	10.1	7.6		15.4		8.9			
LOS	A	A	A	B	A		B		A			
Approach Delay		5.6			7.8							
Approach LOS		A			A							
Intersection Summary												
Area Type:	CBD											
Cycle Length: 50												
Actuated Cycle Length: 36.9												
Natural Cycle: 50												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.66												
Intersection Signal Delay: 7.2							Intersection LOS: A					
Intersection Capacity Utilization 58.4%							ICU Level of Service B					
Analysis Period (min) 15												

Splits and Phases: 21: I-405 SB Ramps & E Carson St

 Ø2	 Ø4
21 s	29 s
 Ø6	 Ø8
21 s	29 s

Lanes, Volumes, Timings

22: Recreation Rd/I-405 NB Ramps & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	86	678	40	14	773	256	7	4	4	22	15	435
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	12	12	12	12	12	12	12
Storage Length (ft)	70		0	100		180	0		0	0		0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992				0.850			0.850			0.850
Flt Protected	0.950			0.950				0.968			0.971	
Satd. Flow (prot)	1770	3511	0	1770	3539	1583	0	1803	1583	0	1809	1583
Flt Permitted	0.255			0.282				0.897			0.885	
Satd. Flow (perm)	475	3511	0	525	3539	1583	0	1671	1583	0	1649	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15				278			48			55
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		469			2039			158			364	
Travel Time (s)		8.0			34.8			2.7			6.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	93	737	43	15	840	278	8	4	4	24	16	473
Shared Lane Traffic (%)												
Lane Group Flow (vph)	93	780	0	15	840	278	0	12	4	0	40	473
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2		2	6		6

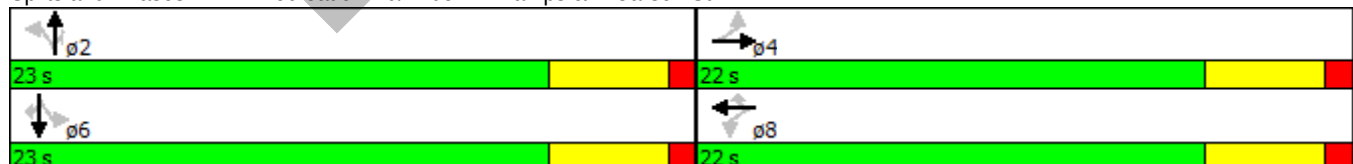
Lanes, Volumes, Timings

22: Recreation Rd/I-405 NB Ramps & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	22.0	22.0		22.0	22.0	22.0	23.0	23.0	23.0	23.0	23.0	23.0
Total Split (%)	48.9%	48.9%		48.9%	48.9%	48.9%	51.1%	51.1%	51.1%	51.1%	51.1%	51.1%
Maximum Green (s)	17.0	17.0		17.0	17.0	17.0	18.0	18.0	18.0	18.0	18.0	18.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max	Max	Max	Max	Max
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0	0	0	0
Act Efect Green (s)	15.6	15.6		15.6	15.6	15.6		18.0	18.0		18.0	18.0
Actuated g/C Ratio	0.36	0.36		0.36	0.36	0.36		0.41	0.41		0.41	0.41
v/c Ratio	0.55	0.62		0.08	0.66	0.37		0.02	0.01		0.06	0.69
Control Delay	27.0	13.7		10.4	14.7	3.4		8.4	0.0		8.6	17.0
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	27.0	13.7		10.4	14.7	3.4		8.4	0.0		8.6	17.0
LOS	C	B		B	B	A		A	A		A	B
Approach Delay		15.1			11.9			6.3			16.3	
Approach LOS		B			B			A			B	
Intersection Summary												
Area Type:	Other											
Cycle Length: 45												
Actuated Cycle Length: 43.7												
Natural Cycle: 45												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.69												
Intersection Signal Delay: 13.9							Intersection LOS: B					
Intersection Capacity Utilization 64.1%							ICU Level of Service C					
Analysis Period (min) 15												

Splits and Phases: 22: Recreation Rd/I-405 NB Ramps & E Carson St



Lanes, Volumes, Timings
1: S Figueroa St & I-405 SB Ramps

1/3/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	0	0	761	118	610	1213
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	220	
Storage Lanes	0	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt			0.980			
Flt Protected					0.950	
Satd. Flow (prot)	0	0	3468	0	1770	3539
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	3468	0	1770	3539
Link Speed (mph)	40		40			40
Link Distance (ft)	607		2451			246
Travel Time (s)	10.3		41.8			4.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	827	128	663	1318
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	955	0	663	1318
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	12		12			12
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Yield		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	65.3%			ICU Level of Service C		
Analysis Period (min)	15					

Lanes, Volumes, Timings
2: S Figueroa St & I-405 NB Ramps

1/3/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	79	135	771	0	0	1728
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1770	1583	3539	0	0	3539
Flt Permitted	0.950					
Satd. Flow (perm)	1770	1583	3539	0	0	3539
Link Speed (mph)	40		40			40
Link Distance (ft)	724		246			1243
Travel Time (s)	12.3		4.2			21.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	86	147	838	0	0	1878
Shared Lane Traffic (%)						
Lane Group Flow (vph)	86	147	838	0	0	1878
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	12		12			12
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	65.3%			ICU Level of Service C		
Analysis Period (min)	15					

Lanes, Volumes, Timings

3: S Main St & I-405 SB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	18	655	46	0	0	0	0	619	126	234	1115	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	250		0
Storage Lanes	1		0	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.990						0.975				
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	1844	0	0	0	0	0	3451	0	1770	3539	0
Flt Permitted	0.950									0.950		
Satd. Flow (perm)	1770	1844	0	0	0	0	0	3451	0	1770	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5						25				
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		607			169			2341			290	
Travel Time (s)		10.3			2.9			35.5			4.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	712	50	0	0	0	0	673	137	254	1212	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	762	0	0	0	0	0	810	0	254	1212	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2						2		1	2	
Detector Template	Left	Thru						Thru		Left	Thru	
Leading Detector (ft)	20	100						100		20	100	
Trailing Detector (ft)	0	0						0		0	0	
Detector 1 Position(ft)	0	0						0		0	0	
Detector 1 Size(ft)	20	6						6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex						Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0						0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0						0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0						0.0		0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Prot	NA						NA		Prot	NA	
Protected Phases	4							2		1	6	
Permitted Phases		4										
Detector Phase	4	4						2		1	6	

Lanes, Volumes, Timings 3: S Main St & I-405 SB Ramps

1/3/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0						4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0						21.0		9.0	21.0	
Total Split (s)	43.0	43.0						28.0		19.0	47.0	
Total Split (%)	47.8%	47.8%						31.1%		21.1%	52.2%	
Maximum Green (s)	38.0	38.0						23.0		14.0	42.0	
Yellow Time (s)	4.0	4.0						4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0						1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0						0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0						5.0		5.0	5.0	
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Recall Mode	None	None						Max		None	Max	
Walk Time (s)	5.0	5.0						5.0			5.0	
Flash Dont Walk (s)	11.0	11.0						11.0			11.0	
Pedestrian Calls (#/hr)	0	0						0			0	
Act Effect Green (s)	38.0	38.0						23.0		14.0	42.0	
Actuated g/C Ratio	0.42	0.42						0.26		0.16	0.47	
v/c Ratio	0.03	0.98						0.90		0.92	0.73	
Control Delay	15.4	53.9						46.1		77.4	22.8	
Queue Delay	0.0	0.0						0.0		0.0	49.3	
Total Delay	15.4	53.9						46.1		77.4	72.1	
LOS	B	D						D		E	E	
Approach Delay		52.9						46.1			73.1	
Approach LOS		D						D			E	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Natural Cycle: 90
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 60.8
 Intersection Capacity Utilization 83.9%
 Analysis Period (min) 15

Intersection LOS: E
 ICU Level of Service E

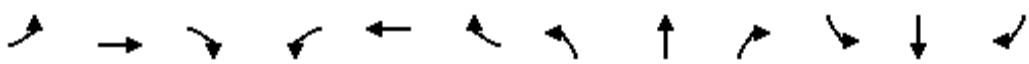
Splits and Phases: 3: S Main St & I-405 SB Ramps

19 s	28 s	43 s
47 s		

Lanes, Volumes, Timings

4: S Main St & I-405 NB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕↕		↕	↕↕			↕↕	
Volume (vph)	0	0	0	61	124	242	25	626	0	0	1267	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt					0.915						0.993	
Flt Protected					0.993		0.950					
Satd. Flow (prot)	0	0	0	0	3216	0	1770	3539	0	0	3514	0
Flt Permitted					0.993		0.137					
Satd. Flow (perm)	0	0	0	0	3216	0	255	3539	0	0	3514	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					202						13	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		724			336			290			724	
Travel Time (s)		12.3			5.7			4.4			11.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	66	135	263	27	680	0	0	1377	67
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	464	0	27	680	0	0	1444	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	2		1	2			2	
Detector Template				Left	Thru		Left	Thru			Thru	
Leading Detector (ft)				20	100		20	100			100	
Trailing Detector (ft)				0	0		0	0			0	
Detector 1 Position(ft)				0	0		0	0			0	
Detector 1 Size(ft)				20	6		20	6			6	
Detector 1 Type				Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0		0.0	0.0			0.0	
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Detector Phase				8	8		2	2			6	
Switch Phase												
Minimum Initial (s)				4.0	4.0		4.0	4.0			4.0	
Minimum Split (s)				21.0	21.0		21.0	21.0			21.0	

Lanes, Volumes, Timings
4: S Main St & I-405 NB Ramps

1/3/2019

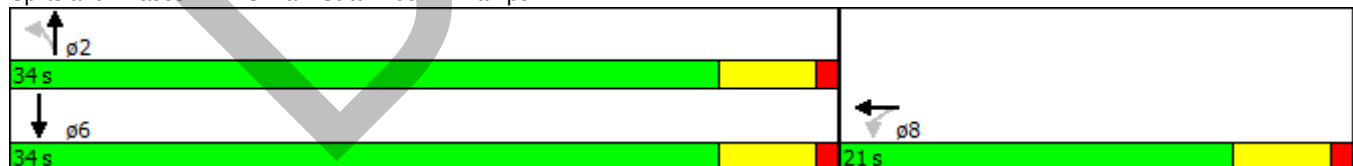
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)				21.0	21.0		34.0	34.0			34.0	
Total Split (%)				38.2%	38.2%		61.8%	61.8%			61.8%	
Maximum Green (s)				16.0	16.0		29.0	29.0			29.0	
Yellow Time (s)				4.0	4.0		4.0	4.0			4.0	
All-Red Time (s)				1.0	1.0		1.0	1.0			1.0	
Lost Time Adjust (s)					0.0		0.0	0.0			0.0	
Total Lost Time (s)					5.0		5.0	5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0	3.0			3.0	
Recall Mode				None	None		Max	Max			Max	
Walk Time (s)				5.0	5.0		5.0	5.0			5.0	
Flash Dont Walk (s)				11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)				0	0		0	0			0	
Act Effect Green (s)					9.8		29.1	29.1			29.1	
Actuated g/C Ratio					0.20		0.60	0.60			0.60	
v/c Ratio					0.58		0.18	0.32			0.69	
Control Delay					12.5		9.3	6.0			9.6	
Queue Delay					0.0		0.0	0.2			0.0	
Total Delay					12.5		9.3	6.3			9.6	
LOS					B		A	A			A	
Approach Delay					12.5			6.4			9.6	
Approach LOS					B			A			A	

Intersection Summary

Area Type: Other
 Cycle Length: 55
 Actuated Cycle Length: 48.9
 Natural Cycle: 55
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 9.2
 Intersection Capacity Utilization 83.9%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service E

Splits and Phases: 4: S Main St & I-405 NB Ramps



Lanes, Volumes, Timings
5: S Figueroa St & W Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	60	867	169	207	685	121	55	455	366	202	594	233
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	60		0	240		240	240		0	245		245
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.975				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4958	0	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	4958	0	1770	3539	1583	1770	3539	1583	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		54				187			196			253
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		519			1251			791			2451	
Travel Time (s)		7.9			19.0			13.5			41.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	942	184	225	745	132	60	495	398	220	646	253
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	1126	0	225	745	132	60	495	398	220	646	253
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6

Lanes, Volumes, Timings
5: S Figueroa St & W Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	21.0		9.0	21.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	9.0	21.0		14.0	26.0	26.0	11.0	21.0	21.0	14.0	24.0	24.0
Total Split (%)	12.9%	30.0%		20.0%	37.1%	37.1%	15.7%	30.0%	30.0%	20.0%	34.3%	34.3%
Maximum Green (s)	4.0	16.0		9.0	21.0	21.0	6.0	16.0	16.0	9.0	19.0	19.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)		5.0			5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0			11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0	0		0	0		0	0
Act Effect Green (s)	4.0	16.0		9.0	22.8	22.8	5.9	16.0	16.0	9.0	23.4	23.4
Actuated g/C Ratio	0.06	0.23		0.13	0.33	0.33	0.08	0.23	0.23	0.13	0.33	0.33
v/c Ratio	0.64	0.96		0.99	0.65	0.21	0.40	0.61	0.78	0.97	0.55	0.36
Control Delay	63.2	45.2		92.6	24.0	2.1	38.9	28.0	25.1	87.1	22.4	4.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.2	45.2		92.6	24.0	2.1	38.9	28.0	25.1	87.1	22.4	4.8
LOS	E	D		F	C	A	D	C	C	F	C	A
Approach Delay		46.2			35.4			27.5			31.2	
Approach LOS		D			D			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 35.5

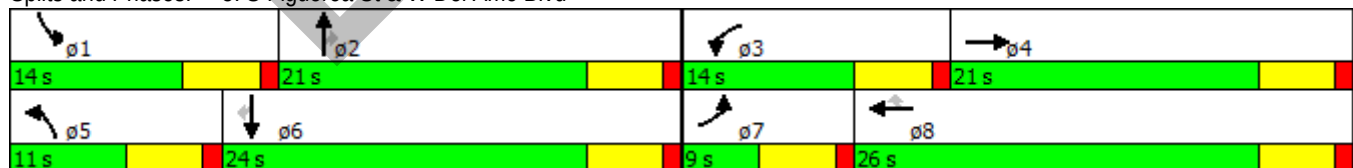
Intersection LOS: D

Intersection Capacity Utilization 72.4%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 5: S Figueroa St & W Del Amo Blvd



Lanes, Volumes, Timings

6: S Main St & W Del Amo Blvd/E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	169	1181	120	254	813	62	43	416	304	139	779	156
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		0	195		0	150		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.986			0.989			0.937			0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5014	0	1770	5029	0	1770	3316	0	1770	3451	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	5014	0	1770	5029	0	1770	3316	0	1770	3451	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			13			197			27	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1251			1668			534			2341	
Travel Time (s)		19.0			25.3			8.1			35.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	184	1284	130	276	884	67	47	452	330	151	847	170
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	1414	0	276	951	0	47	782	0	151	1017	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Detector Phase	7	4		3	8		5	2		1	6	

Lanes, Volumes, Timings

6: S Main St & W Del Amo Blvd/E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	21.0		9.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	20.0	29.0		19.0	28.0		9.0	28.0		14.0	33.0	
Total Split (%)	22.2%	32.2%		21.1%	31.1%		10.0%	31.1%		15.6%	36.7%	
Maximum Green (s)	15.0	24.0		14.0	23.0		4.0	23.0		9.0	28.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		5.0			5.0			5.0			5.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	13.2	24.0		14.0	24.8		4.0	23.0		9.0	29.8	
Actuated g/C Ratio	0.15	0.27		0.16	0.28		0.04	0.26		0.10	0.33	
v/c Ratio	0.71	1.05		1.00	0.68		0.60	0.79		0.85	0.88	
Control Delay	51.8	70.9		95.6	32.0		74.3	29.7		79.9	38.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	51.8	70.9		95.6	32.0		74.3	29.7		79.9	38.6	
LOS	D	E		F	C		E	C		E	D	
Approach Delay		68.7			46.3			32.3			43.9	
Approach LOS		E			D			C			D	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 50.7

Intersection LOS: D

Intersection Capacity Utilization 86.1%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: S Main St & W Del Amo Blvd/E Del Amo Blvd

 ϕ1	 ϕ2	 ϕ3	 ϕ4
14 s	28 s	19 s	29 s
 ϕ5	 ϕ6	 ϕ7	 ϕ8
9 s	33 s	20 s	28 s

Lanes, Volumes, Timings
7: Stamps Dr & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1478	0	0	1116	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	155		0	0		0	0		0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Frts												
Flt Protected												
Satd. Flow (prot)	1863	3539	1863	1863	3539	0	1770	1770	1863	1863	1770	1770
Flt Permitted												
Satd. Flow (perm)	1863	3539	1863	1863	3539	0	1770	1770	1863	1863	1770	1770
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			25			50	
Link Distance (ft)		1668			3009			694			308	
Travel Time (s)		25.3			45.6			18.9			4.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1607	0	0	1213	0	0	0	0	0	0	0
Shared Lane Traffic (%)							0%					0%
Lane Group Flow (vph)	0	1607	0	0	1213	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Split		Perm	Perm		Perm
Protected Phases		4			8		2	2			6	
Permitted Phases	4		4	8					2	6		6
Detector Phase	4	4	4	8	8		2	2	2	6	6	6

Lanes, Volumes, Timings
7: Stamps Dr & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	48.0	48.0	48.0	48.0	48.0		21.0	21.0	21.0	21.0	21.0	21.0
Total Split (%)	53.3%	53.3%	53.3%	53.3%	53.3%		23.3%	23.3%	23.3%	23.3%	23.3%	23.3%
Maximum Green (s)	43.0	43.0	43.0	43.0	43.0		16.0	16.0	16.0	16.0	16.0	16.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		Max	Max	Max	Max	Max	Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0	0	0	0	0
Act Effct Green (s)		42.9			42.9							
Actuated g/C Ratio		0.48			0.48							
v/c Ratio		0.95			0.72							
Control Delay		36.6			21.7							
Queue Delay		0.0			0.0							
Total Delay		36.6			21.7							
LOS		D			C							
Approach Delay		36.6			21.7							
Approach LOS		D			C							
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 89.9												
Natural Cycle: 90												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.95												
Intersection Signal Delay: 30.2						Intersection LOS: C						
Intersection Capacity Utilization 45.0%						ICU Level of Service A						
Analysis Period (min) 15												

Splits and Phases: 7: Stamps Dr & E Del Amo Blvd

 p2	 p6	 p4
21 s	21 s	48 s
		 p8
		48 s

Lanes, Volumes, Timings
8: S Avalon Blvd & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			  		 	  	
Volume (vph)	210	935	252	261	657	147	191	970	210	347	912	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		160	195		195	180		310	100		0
Storage Lanes	1		0	0		1	1		1	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	0.97	0.91	0.91
Frt			0.850			0.850			0.850		0.966	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	3433	4912	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	5085	1583	3433	4912	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			274			160			228		70	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		3009			3520			2946			3936	
Travel Time (s)		45.6			53.3			57.4			76.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	228	1016	274	284	714	160	208	1054	228	377	991	293
Shared Lane Traffic (%)												
Lane Group Flow (vph)	228	1016	274	284	714	160	208	1054	228	377	1284	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	

Lanes, Volumes, Timings
8: S Avalon Blvd & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	21.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	21.0	33.0	33.0	21.0	33.0	33.0	17.0	29.0	29.0	17.0	29.0	29.0
Total Split (%)	21.0%	33.0%	33.0%	21.0%	33.0%	33.0%	17.0%	29.0%	29.0%	17.0%	29.0%	29.0%
Maximum Green (s)	16.0	28.0	28.0	16.0	28.0	28.0	12.0	24.0	24.0	12.0	24.0	24.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (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
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effect Green (s)	15.3	28.0	28.0	16.0	28.7	28.7	12.0	24.0	24.0	12.0	24.0	24.0
Actuated g/C Ratio	0.15	0.28	0.28	0.16	0.29	0.29	0.12	0.24	0.24	0.12	0.24	0.24
v/c Ratio	0.84	1.03	0.43	1.00	0.70	0.28	0.98	0.86	0.41	0.92	1.04	1.04
Control Delay	67.9	71.9	5.8	98.0	36.5	5.9	102.9	45.1	6.7	72.3	73.2	73.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.9	71.9	5.8	98.0	36.5	5.9	102.9	45.1	6.7	72.3	73.2	73.2
LOS	E	E	A	F	D	A	F	D	A	E	E	E
Approach Delay		59.3			47.4			47.3			73.0	
Approach LOS		E			D			D			E	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.04

Intersection Signal Delay: 57.8

Intersection LOS: E

Intersection Capacity Utilization 91.2%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 8: S Avalon Blvd & E Del Amo Blvd

			
17 s	29 s	21 s	33 s
			
17 s	29 s	21 s	33 s

Lanes, Volumes, Timings
9: S Figueroa St & I-110 NB Ramps

1/3/2019

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	WT		WT	TT	TT	RT
Volume (vph)	361	195	648	466	765	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	235			250
Storage Lanes	2	0	2			1
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	0.95	0.97	0.95	0.95	1.00
Frt	0.947					0.850
Flt Protected	0.969		0.950			
Satd. Flow (prot)	3316	0	3433	3539	3539	1583
Flt Permitted	0.969		0.319			
Satd. Flow (perm)	3316	0	1153	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	120					243
Link Speed (mph)	40			40	40	
Link Distance (ft)	170			828	791	
Travel Time (s)	2.9			14.1	13.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	392	212	704	507	832	243
Shared Lane Traffic (%)						
Lane Group Flow (vph)	604	0	704	507	832	243
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	12			12	12	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1		1	2	2	1
Detector Template	Left		Left	Thru	Thru	Right
Leading Detector (ft)	20		20	100	100	20
Trailing Detector (ft)	0		0	0	0	0
Detector 1 Position(ft)	0		0	0	0	0
Detector 1 Size(ft)	20		20	6	6	20
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Detector Phase	4		2	2	6	6

Lanes, Volumes, Timings
9: S Figueroa St & I-110 NB Ramps

1/3/2019



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	21.0		21.0	21.0	21.0	21.0
Total Split (s)	21.0		59.0	59.0	59.0	59.0
Total Split (%)	26.3%		73.8%	73.8%	73.8%	73.8%
Maximum Green (s)	16.0		54.0	54.0	54.0	54.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		Max	Max	Max	Max
Walk Time (s)	5.0		5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effect Green (s)	15.0		54.0	54.0	54.0	54.0
Actuated g/C Ratio	0.19		0.68	0.68	0.68	0.68
v/c Ratio	0.83		0.89	0.21	0.34	0.21
Control Delay	35.8		27.8	5.0	5.8	1.1
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	35.8		27.8	5.0	5.8	1.1
LOS	D		C	A	A	A
Approach Delay	35.8			18.3	4.7	
Approach LOS	D			B	A	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 79.1
 Natural Cycle: 80
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 16.9
 Intersection Capacity Utilization 68.6%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 9: S Figueroa St & I-110 NB Ramps

Lanes, Volumes, Timings
10: S Main St & Lenardo Rd

1/3/2019

	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↑↑		↘	↑↑
Volume (vph)	0	0	768	0	0	1138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	145	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Fr						
Flt Protected						
Satd. Flow (prot)	1863	1863	3539	0	1863	3539
Flt Permitted						
Satd. Flow (perm)	1863	1863	3539	0	1863	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)						
Link Speed (mph)	25		45			45
Link Distance (ft)	479		971			534
Travel Time (s)	13.1		14.7			8.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	835	0	0	1237
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	835	0	0	1237
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	12		12			12
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (ft)	20	20	100		20	100
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	20	6		20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6

Lanes, Volumes, Timings
10: S Main St & Lenardo Rd

1/3/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	21.0	21.0	21.0		21.0	21.0
Total Split (s)	21.0	21.0	109.0		109.0	109.0
Total Split (%)	16.2%	16.2%	83.8%		83.8%	83.8%
Maximum Green (s)	16.0	16.0	104.0		104.0	104.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		Max	Max
Walk Time (s)	5.0	5.0	5.0		5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)			120.0			120.0
Actuated g/C Ratio			1.00			1.00
v/c Ratio			0.24			0.35
Control Delay			0.2			0.3
Queue Delay			0.0			0.0
Total Delay			0.2			0.3
LOS			A			A
Approach Delay			0.2			0.3
Approach LOS			A			A
Intersection Summary						
Area Type:	Other					
Cycle Length: 130						
Actuated Cycle Length: 120						
Natural Cycle: 45						
Control Type: Semi Act-Uncoord						
Maximum v/c Ratio: 0.35						
Intersection Signal Delay: 0.2				Intersection LOS: A		
Intersection Capacity Utilization 35.6%				ICU Level of Service A		
Analysis Period (min) 15						

Splits and Phases: 10: S Main St & Lenardo Rd

 109 s	 109 s	 21 s
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Lanes, Volumes, Timings
11: S Figueroa St & W Torrance Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	618	705	163	49	383	168	88	340	52	118	455	381
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12	12	16	12	12	12	12
Storage Length (ft)	180		0	115		0	255		0	185		185
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.91	0.91	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.978				0.850		0.980				0.850
Flt Protected	0.950	0.989		0.950			0.950			0.950		
Satd. Flow (prot)	1610	3716	0	1770	3539	1583	1770	3931	0	1770	3539	1583
Flt Permitted	0.508	0.747		0.142			0.415			0.477		
Satd. Flow (perm)	861	2807	0	265	3539	1583	773	3931	0	889	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		49				177		28				414
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		368			1713			3767			828	
Travel Time (s)		6.3			29.2			64.2			14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	672	766	177	53	416	183	96	370	57	128	495	414
Shared Lane Traffic (%)	42%											
Lane Group Flow (vph)	390	1225	0	53	416	183	96	427	0	128	495	414
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	1.00	1.00	1.00	1.00	1.00	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		6

Lanes, Volumes, Timings
11: S Figueroa St & W Torrance Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	21.0	21.0		21.0	21.0	21.0
Total Split (s)	39.0	39.0		39.0	39.0	39.0	21.0	21.0		21.0	21.0	21.0
Total Split (%)	65.0%	65.0%		65.0%	65.0%	65.0%	35.0%	35.0%		35.0%	35.0%	35.0%
Maximum Green (s)	34.0	34.0		34.0	34.0	34.0	16.0	16.0		16.0	16.0	16.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	Max
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	0
Act Effct Green (s)	30.8	30.8		30.8	30.8	30.8	16.1	16.1		16.1	16.1	16.1
Actuated g/C Ratio	0.54	0.54		0.54	0.54	0.54	0.28	0.28		0.28	0.28	0.28
v/c Ratio	0.84	0.80		0.37	0.22	0.20	0.44	0.38		0.51	0.49	0.56
Control Delay	30.2	14.6		16.1	6.9	1.9	26.0	17.3		27.4	20.0	5.6
Queue Delay	0.0	0.4		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	30.2	15.0		16.1	6.9	1.9	26.0	17.3		27.4	20.0	5.6
LOS	C	B		B	A	A	C	B		C	C	A
Approach Delay		18.7			6.3			18.9			15.2	
Approach LOS		B			A			B			B	
Intersection Summary												
Area Type:	Other											
Cycle Length: 60												
Actuated Cycle Length: 57												
Natural Cycle: 60												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.84												
Intersection Signal Delay: 15.7							Intersection LOS: B					
Intersection Capacity Utilization 73.3%							ICU Level of Service D					
Analysis Period (min) 15												

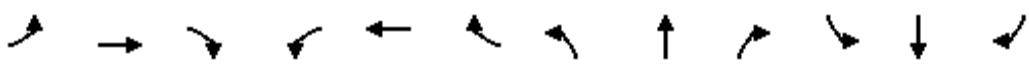
Splits and Phases: 11: S Figueroa St & W Torrance Blvd

	
21 s	39 s
	
21 s	39 s

Lanes, Volumes, Timings

12: S Main St & W Torrance Blvd/E Torrance Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	294	72	521	11	44	26	284	451	9	46	782	304
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12	12	16	12	12	12	12
Storage Length (ft)	0		0	0		0	190		0	145		45
Storage Lanes	0		1	0		0	2		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.957			0.997				0.850
Flt Protected		0.961			0.993		0.950			0.950		
Satd. Flow (prot)	0	1790	1583	0	2006	0	3433	3999	0	1770	3539	1583
Flt Permitted		0.709			0.935		0.266			0.467		
Satd. Flow (perm)	0	1321	1583	0	1889	0	961	3999	0	870	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82		28			5				240
Link Speed (mph)		40			40			40				45
Link Distance (ft)		1713			375			2482			971	
Travel Time (s)		29.2			6.4			42.3			14.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	320	78	566	12	48	28	309	490	10	50	850	330
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	398	566	0	88	0	309	500	0	50	850	330
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2		6			6

Lanes, Volumes, Timings

12: S Main St & W Torrance Blvd/E Torrance Blvd

1/3/2019

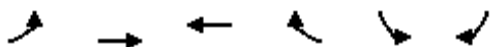
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0	21.0		21.0	21.0	21.0
Total Split (s)	26.0	26.0	26.0	26.0	26.0		29.0	29.0		29.0	29.0	29.0
Total Split (%)	47.3%	47.3%	47.3%	47.3%	47.3%		52.7%	52.7%		52.7%	52.7%	52.7%
Maximum Green (s)	21.0	21.0	21.0	21.0	21.0		24.0	24.0		24.0	24.0	24.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		Max	Max		Max	Max	Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	0
Act Effct Green (s)		19.7	19.7		19.7		24.1	24.1		24.1	24.1	24.1
Actuated g/C Ratio		0.37	0.37		0.37		0.45	0.45		0.45	0.45	0.45
v/c Ratio		0.82	0.90		0.12		0.72	0.28		0.13	0.54	0.39
Control Delay		32.5	34.0		8.8		25.5	10.1		10.4	12.7	4.8
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		32.5	34.0		8.8		25.5	10.1		10.4	12.7	4.8
LOS		C	C		A		C	B		B	B	A
Approach Delay		33.4			8.8			16.0			10.5	
Approach LOS		C			A			B			B	
Intersection Summary												
Area Type:	Other											
Cycle Length: 55												
Actuated Cycle Length: 53.8												
Natural Cycle: 55												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.90												
Intersection Signal Delay: 19.1												
Intersection Capacity Utilization 70.9%												
Analysis Period (min) 15												
Intersection LOS: B												
ICU Level of Service C												

Splits and Phases: 12: S Main St & W Torrance Blvd/E Torrance Blvd

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Lanes, Volumes, Timings
13: Lenardo Rd/I-405 SB Ramps

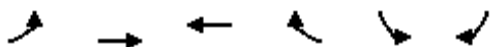
1/3/2019



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↱↱	↰	↱	↰↱	↱
Volume (vph)	0	0	0	394	580	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			0	0	0
Storage Lanes	1			1	2	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.97	1.00
Frt				0.850		
Flt Protected					0.950	
Satd. Flow (prot)	1863	3539	1863	1583	3433	1863
Flt Permitted					0.950	
Satd. Flow (perm)	1863	3539	1863	1583	3433	1863
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				1091		
Link Speed (mph)		35	40		40	
Link Distance (ft)		701	533		434	
Travel Time (s)		13.7	9.1		7.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	428	630	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	428	630	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		24	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		12	12		12	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm			Perm	Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4			8		6
Detector Phase	4	4	8	8	6	6

Lanes, Volumes, Timings 13: Lenardo Rd/I-405 SB Ramps

1/3/2019

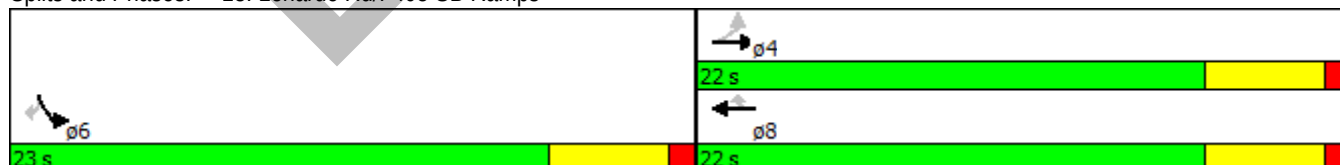


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	22.0	22.0	22.0	22.0	23.0	23.0
Total Split (%)	48.9%	48.9%	48.9%	48.9%	51.1%	51.1%
Maximum Green (s)	17.0	17.0	17.0	17.0	18.0	18.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	Max	Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effect Green (s)				5.5	18.5	
Actuated g/C Ratio				0.16	0.54	
v/c Ratio				0.37	0.34	
Control Delay				0.9	5.0	
Queue Delay				0.0	0.0	
Total Delay				0.9	5.0	
LOS				A	A	
Approach Delay					5.0	
Approach LOS					A	

Intersection Summary

Area Type:	Other
Cycle Length: 45	
Actuated Cycle Length: 34	
Natural Cycle: 45	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.37	
Intersection Signal Delay: 3.3	Intersection LOS: A
Intersection Capacity Utilization 28.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 13: Lenardo Rd/I-405 SB Ramps



Lanes, Volumes, Timings
14: S Avalon Blvd & I-405 SB Ramps

1/3/2019

	↖	→	↗	↖	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↑↑	↗				↖	↑↑			↑↑	↗
Volume (vph)	177	132	272	0	0	0	0	1180	195	0	960	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		150	0		0	160		0	0		120
Storage Lanes	0		1	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850					0.979				0.850
Flt Protected	0.950											
Satd. Flow (prot)	3433	3539	1583	0	0	0	1863	3465	0	0	3539	1583
Flt Permitted	0.950											
Satd. Flow (perm)	3433	3539	1583	0	0	0	1863	3465	0	0	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95					51				435
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		533			422			1230			386	
Travel Time (s)		9.1			7.2			24.0			7.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	192	143	296	0	0	0	0	1283	212	0	1043	435
Shared Lane Traffic (%)												
Lane Group Flow (vph)	192	143	296	0	0	0	0	1495	0	0	1043	435
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1				1	2			2	1
Detector Template	Left	Thru	Right				Left	Thru			Thru	Right
Leading Detector (ft)	20	100	20				20	100			100	20
Trailing Detector (ft)	0	0	0				0	0			0	0
Detector 1 Position(ft)	0	0	0				0	0			0	0
Detector 1 Size(ft)	20	6	20				20	6			6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex				Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm				Perm	NA			NA	Perm
Protected Phases		4						2			6	
Permitted Phases	4		4				2					6
Detector Phase	4	4	4				2	2			6	6

Lanes, Volumes, Timings
14: S Avalon Blvd & I-405 SB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0				4.0	4.0			4.0	4.0
Minimum Split (s)	21.0	21.0	21.0				21.0	21.0			21.0	21.0
Total Split (s)	21.0	21.0	21.0				39.0	39.0			39.0	39.0
Total Split (%)	35.0%	35.0%	35.0%				65.0%	65.0%			65.0%	65.0%
Maximum Green (s)	16.0	16.0	16.0				34.0	34.0			34.0	34.0
Yellow Time (s)	4.0	4.0	4.0				4.0	4.0			4.0	4.0
All-Red Time (s)	1.0	1.0	1.0				1.0	1.0			1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0				5.0	5.0			5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0				3.0	3.0			3.0	3.0
Recall Mode	None	None	None				Max	Max			Max	Max
Walk Time (s)	5.0	5.0	5.0				5.0	5.0			5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0				11.0	11.0			11.0	11.0
Pedestrian Calls (#/hr)	0	0	0				0	0			0	0
Act Effect Green (s)	12.2	12.2	12.2					34.5			34.5	34.5
Actuated g/C Ratio	0.22	0.22	0.22					0.61			0.61	0.61
v/c Ratio	0.26	0.19	0.71					0.70			0.49	0.38
Control Delay	18.8	18.1	23.7					10.4			7.8	1.9
Queue Delay	0.0	0.0	0.0					0.0			0.2	0.0
Total Delay	18.8	18.1	23.7					10.4			8.0	1.9
LOS	B	B	C					B			A	A
Approach Delay		20.9						10.4			6.2	
Approach LOS		C						B			A	

Intersection Summary

Area Type: Other
 Cycle Length: 60
 Actuated Cycle Length: 56.7
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay: 10.5
 Intersection Capacity Utilization 52.2%
 Analysis Period (min) 15

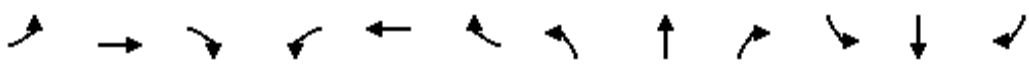
Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 14: S Avalon Blvd & I-405 SB Ramps



Lanes, Volumes, Timings
15: S Avalon Blvd & I-405 NB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	94	0	410	385	960	0	0	1263	521
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		0	0		0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.950		0.950					
Satd. Flow (prot)	0	0	0	1681	1681	1583	3433	3539	0	0	5085	1583
Flt Permitted				0.950	0.950		0.168					
Satd. Flow (perm)	0	0	0	1681	1681	1583	607	3539	0	0	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						149						566
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		346			390			386			2946	
Travel Time (s)		5.9			6.6			7.5			57.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	102	0	446	418	1043	0	0	1373	566
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	51	51	446	418	1043	0	0	1373	566
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	Perm	NA			NA	Perm
Protected Phases					8			2			6	
Permitted Phases				8		8	2					6
Detector Phase				8	8	8	2	2			6	6

Lanes, Volumes, Timings
15: S Avalon Blvd & I-405 NB Ramps

1/3/2019

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Minimum Split (s)				21.0	21.0	21.0	21.0	21.0			21.0	21.0
Total Split (s)				23.0	23.0	23.0	67.0	67.0			67.0	67.0
Total Split (%)				25.6%	25.6%	25.6%	74.4%	74.4%			74.4%	74.4%
Maximum Green (s)				18.0	18.0	18.0	62.0	62.0			62.0	62.0
Yellow Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
All-Red Time (s)				1.0	1.0	1.0	1.0	1.0			1.0	1.0
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	Max	Max			Max	Max
Walk Time (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
Flash Dont Walk (s)				11.0	11.0	11.0	11.0	11.0			11.0	11.0
Pedestrian Calls (#/hr)				0	0	0	0	0			0	0
Act Effect Green (s)				18.0	18.0	18.0	62.0	62.0			62.0	62.0
Actuated g/C Ratio				0.20	0.20	0.20	0.69	0.69			0.69	0.69
v/c Ratio				0.15	0.15	1.03	1.00	0.43			0.39	0.45
Control Delay				31.2	31.2	75.6	61.7	6.8			6.4	1.6
Queue Delay				0.0	0.0	0.0	0.0	0.8			0.0	0.0
Total Delay				31.2	31.2	75.6	61.7	7.7			6.4	1.6
LOS				C	C	E	E	A			A	A
Approach Delay					67.3			23.1			5.0	
Approach LOS					E			C			A	

Intersection Summary

Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.03	
Intersection Signal Delay: 20.4	Intersection LOS: C
Intersection Capacity Utilization 60.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 15: S Avalon Blvd & I-405 NB Ramps



Lanes, Volumes, Timings
16: S Main St & E 213th St

1/3/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	235	171	516	271	371	909
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	12	12
Storage Length (ft)	0	0		0	90	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.943		0.948			
Flt Protected	0.972				0.950	
Satd. Flow (prot)	1935	0	3803	0	1770	3539
Flt Permitted	0.972				0.306	
Satd. Flow (perm)	1935	0	3803	0	570	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	45		262			
Link Speed (mph)	30		35			45
Link Distance (ft)	4544		1360			2482
Travel Time (s)	103.3		26.5			37.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	255	186	561	295	403	988
Shared Lane Traffic (%)						
Lane Group Flow (vph)	441	0	856	0	403	988
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	28		24			24
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	12		12			12
Two way Left Turn Lane						
Headway Factor	0.85	0.85	0.85	0.85	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1		2		1	2
Detector Template	Left		Thru		Left	Thru
Leading Detector (ft)	20		100		20	100
Trailing Detector (ft)	0		0		0	0
Detector 1 Position(ft)	0		0		0	0
Detector 1 Size(ft)	20		6		20	6
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0		0.0	0.0
Detector 1 Queue (s)	0.0		0.0		0.0	0.0
Detector 1 Delay (s)	0.0		0.0		0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Perm		NA		Perm	NA
Protected Phases			2			6
Permitted Phases	8				6	

Lanes, Volumes, Timings
16: S Main St & E 213th St

1/3/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8		2		6	6
Switch Phase						
Minimum Initial (s)	4.0		4.0		4.0	4.0
Minimum Split (s)	21.0		21.0		21.0	21.0
Total Split (s)	21.0		54.0		54.0	54.0
Total Split (%)	28.0%		72.0%		72.0%	72.0%
Maximum Green (s)	16.0		49.0		49.0	49.0
Yellow Time (s)	4.0		4.0		4.0	4.0
All-Red Time (s)	1.0		1.0		1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	5.0		5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		Max		Max	Max
Walk Time (s)	5.0		5.0		5.0	5.0
Flash Dont Walk (s)	11.0		11.0		11.0	11.0
Pedestrian Calls (#/hr)	0		0		0	0
Act Effect Green (s)	16.0		49.0		49.0	49.0
Actuated g/C Ratio	0.21		0.65		0.65	0.65
v/c Ratio	0.98		0.33		1.08	0.43
Control Delay	68.2		4.2		89.3	6.9
Queue Delay	0.0		0.0		0.0	0.0
Total Delay	68.2		4.2		89.3	6.9
LOS	E		A		F	A
Approach Delay	68.2		4.2			30.8
Approach LOS	E		A			C
Intersection Summary						
Area Type:	Other					
Cycle Length: 75						
Actuated Cycle Length: 75						
Natural Cycle: 75						
Control Type: Actuated-Uncoordinated						
Maximum v/c Ratio: 1.08						
Intersection Signal Delay: 28.5				Intersection LOS: C		
Intersection Capacity Utilization 79.5%				ICU Level of Service D		
Analysis Period (min) 15						

Splits and Phases: 16: S Main St & E 213th St



Lanes, Volumes, Timings
17: S Avalon Blvd & E 213th St

1/3/2019

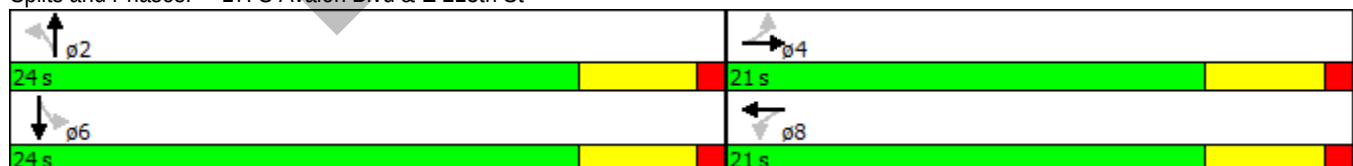
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	263	304	113	126	212	75	148	1013	130	93	927	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	16	12	16	16	12	16	16	12	16	16
Storage Length (ft)	100		0	100		0	70		0	120		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.959			0.961			0.983			0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	2025	0	1770	3855	0	1770	5665	0	1770	5619	0
Flt Permitted	0.562			0.338			0.209			0.209		
Satd. Flow (perm)	1047	2025	0	630	3855	0	389	5665	0	389	5619	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		44			32			62			119	
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		4544			967			1397			1230	
Travel Time (s)		103.3			22.0			27.2			24.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	286	330	123	137	230	82	161	1101	141	101	1008	205
Shared Lane Traffic (%)												
Lane Group Flow (vph)	286	453	0	137	312	0	161	1242	0	101	1213	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	0.85	1.00	0.85	0.85	1.00	0.85	0.85	1.00	0.85	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lanes, Volumes, Timings
17: S Avalon Blvd & E 213th St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	21.0	21.0		21.0	21.0		24.0	24.0		24.0	24.0	
Total Split (%)	46.7%	46.7%		46.7%	46.7%		53.3%	53.3%		53.3%	53.3%	
Maximum Green (s)	16.0	16.0		16.0	16.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	14.7	14.7		14.7	14.7		19.1	19.1		19.1	19.1	
Actuated g/C Ratio	0.34	0.34		0.34	0.34		0.44	0.44		0.44	0.44	
v/c Ratio	0.81	0.64		0.65	0.24		0.95	0.50		0.60	0.48	
Control Delay	35.3	15.7		30.7	9.7		82.0	9.6		31.1	9.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	35.3	15.7		30.7	9.7		82.0	9.6		31.1	9.0	
LOS	D	B		C	A		F	A		C	A	
Approach Delay		23.3			16.1			17.9			10.7	
Approach LOS		C			B			B			B	
Intersection Summary												
Area Type:	Other											
Cycle Length: 45												
Actuated Cycle Length: 43.8												
Natural Cycle: 45												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.95												
Intersection Signal Delay: 16.3	Intersection LOS: B											
Intersection Capacity Utilization 76.8%	ICU Level of Service D											
Analysis Period (min) 15												

Splits and Phases: 17: S Avalon Blvd & E 213th St



Lanes, Volumes, Timings
18: S Figueroa St & W Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	135	557	518	62	419	34	237	357	125	91	446	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	213		75	152		0	230		0	240		0
Storage Lanes	1		0	1		0	2		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	0.97	0.95	0.95	0.97	0.95	0.95
Frt			0.850		0.989			0.961			0.958	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3500	0	3433	3401	0	3433	3391	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3500	0	3433	3401	0	3433	3391	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			296		14			79			93	
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		1243			2441			713			3767	
Travel Time (s)		24.2			47.6			12.2			64.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	147	605	563	67	455	37	258	388	136	99	485	189
Shared Lane Traffic (%)												
Lane Group Flow (vph)	147	605	563	67	492	0	258	524	0	99	674	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Detector Phase	7	4	4	3	8		5	2		1	6	

Carson IDIF 12:00 pm 9/5/2018 Future PM without Project
W.G. Zimmerman Engineering, Inc.

Synchro 8 Report
Page 33

Lanes, Volumes, Timings
18: S Figueroa St & W Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	21.0	21.0	9.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	9.0	21.0	21.0	9.0	21.0		9.0	21.0		9.0	21.0	
Total Split (%)	15.0%	35.0%	35.0%	15.0%	35.0%		15.0%	35.0%		15.0%	35.0%	
Maximum Green (s)	4.0	16.0	16.0	4.0	16.0		4.0	16.0		4.0	16.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)		5.0	5.0		5.0			5.0			5.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effect Green (s)	4.0	17.4	17.4	4.0	13.6		4.0	18.0		4.0	16.0	
Actuated g/C Ratio	0.07	0.30	0.30	0.07	0.24		0.07	0.31		0.07	0.28	
v/c Ratio	1.20	0.57	0.82	0.54	0.59		1.08	0.47		0.42	0.67	
Control Delay	175.3	20.4	22.8	46.4	22.0		114.9	16.5		32.3	20.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	175.3	20.4	22.8	46.4	22.0		114.9	16.5		32.3	20.1	
LOS	F	C	C	D	C		F	B		C	C	
Approach Delay		38.7			24.9			49.0			21.7	
Approach LOS		D			C			D			C	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 57.7

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.20

Intersection Signal Delay: 35.0

Intersection LOS: C

Intersection Capacity Utilization 65.9%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 18: S Figueroa St & W Carson St

 p1	 p2	 p3	 p4
9 s	21 s	9 s	21 s
 p5	 p6	 p7	 p8
9 s	21 s	9 s	21 s

Lanes, Volumes, Timings
19: S Main St & W Carson St/E Carson St

1/3/2019

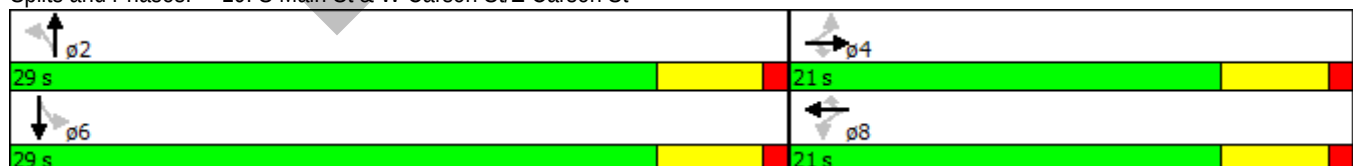
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	118	497	43	105	334	53	163	546	100	165	793	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	16	12	12	16
Storage Length (ft)	210		70	220		70	115		0	175		500
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt			0.850			0.850		0.977			0.981	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	4968	0	1770	4989	0
Flt Permitted	0.535			0.403			0.270			0.373		
Satd. Flow (perm)	997	3539	1583	751	3539	1583	503	4968	0	695	4989	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			47			58		102			71	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		2441			4293			978			1360	
Travel Time (s)		47.6			83.6			19.1			26.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	128	540	47	114	363	58	177	593	109	179	862	122
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	540	47	114	363	58	177	702	0	179	984	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.85	1.00	1.00	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		

Lanes, Volumes, Timings
19: S Main St & W Carson St/E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0		21.0	21.0	
Total Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	29.0	29.0		29.0	29.0	
Total Split (%)	42.0%	42.0%	42.0%	42.0%	42.0%	42.0%	58.0%	58.0%		58.0%	58.0%	
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0	16.0	24.0	24.0		24.0	24.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	Max	Max		Max	Max	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	
Act Effct Green (s)	13.1	13.1	13.1	13.1	13.1	13.1	24.1	24.1		24.1	24.1	
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.28	0.28	0.51	0.51		0.51	0.51	
v/c Ratio	0.46	0.55	0.10	0.55	0.37	0.12	0.69	0.27		0.51	0.38	
Control Delay	20.0	16.7	5.3	25.2	14.6	5.0	29.8	6.3		15.1	7.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	20.0	16.7	5.3	25.2	14.6	5.0	29.8	6.3		15.1	7.4	
LOS	B	B	A	C	B	A	C	A		B	A	
Approach Delay		16.5			15.8			11.0			8.6	
Approach LOS		B			B			B			A	
Intersection Summary												
Area Type:	Other											
Cycle Length: 50												
Actuated Cycle Length: 47.3												
Natural Cycle: 50												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.69												
Intersection Signal Delay: 12.2							Intersection LOS: B					
Intersection Capacity Utilization 63.1%							ICU Level of Service B					
Analysis Period (min) 15												

Splits and Phases: 19: S Main St & W Carson St/E Carson St



Lanes, Volumes, Timings
20: S Avalon Blvd & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	171	640	73	392	367	104	77	777	478	234	804	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	16	12	12	16	12	12	16
Storage Length (ft)	225		0	215		0	140		0	150		0
Storage Lanes	2		0	2		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	0.95	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.985			0.967			0.943			0.983	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3486	0	3433	3422	0	1770	4795	0	1770	4999	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3486	0	3433	3422	0	1770	4795	0	1770	4999	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			38			170			26	
Link Speed (mph)		35			40			35			35	
Link Distance (ft)		4293			2121			702			1397	
Travel Time (s)		83.6			36.2			13.7			27.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	186	696	79	426	399	113	84	845	520	254	874	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	186	775	0	426	512	0	84	1365	0	254	984	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												

Lanes, Volumes, Timings
20: S Avalon Blvd & E Carson St

1/3/2019

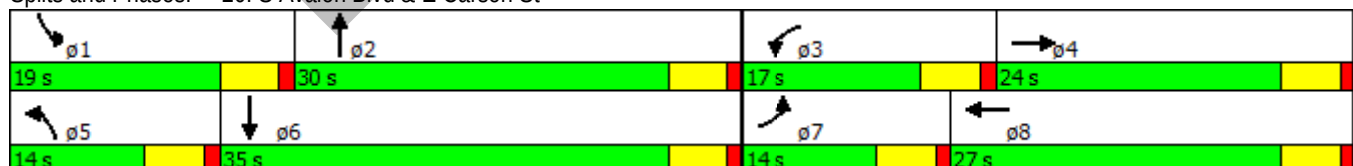
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	21.0		9.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	14.0	24.0		17.0	27.0		14.0	30.0		19.0	35.0	
Total Split (%)	15.6%	26.7%		18.9%	30.0%		15.6%	33.3%		21.1%	38.9%	
Maximum Green (s)	9.0	19.0		12.0	22.0		9.0	25.0		14.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		5.0			5.0			5.0			5.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	8.7	19.0		12.0	22.3		8.2	25.0		14.0	33.0	
Actuated g/C Ratio	0.10	0.21		0.13	0.25		0.09	0.28		0.16	0.37	
v/c Ratio	0.56	1.04		0.93	0.58		0.52	0.94		0.92	0.53	
Control Delay	45.8	79.5		68.2	30.7		50.7	41.4		77.4	23.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	45.8	79.5		68.2	30.7		50.7	41.4		77.4	23.9	
LOS	D	E		E	C		D	D		E	C	
Approach Delay		73.0			47.7			42.0			34.9	
Approach LOS		E			D			D			C	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.04
 Intersection Signal Delay: 47.7
 Intersection Capacity Utilization 86.5%
 Analysis Period (min) 15

Intersection LOS: D
 ICU Level of Service E

Splits and Phases: 20: S Avalon Blvd & E Carson St



Lanes, Volumes, Timings
21: I-405 SB Ramps & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			  							
Volume (vph)	16	1052	810	109	983	0	32	0	57	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		180	0		0	150		0	0		0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1593	3185	1425	1593	4577	0	1593	0	1425	0	0	1676
Flt Permitted	0.256			0.220			0.950					
Satd. Flow (perm)	429	3185	1425	369	4577	0	1593	0	1425	0	0	1676
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			880						62			
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		2121			469			428			162	
Travel Time (s)		36.2			8.0			7.3			2.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	1143	880	118	1068	0	35	0	62	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	1143	880	118	1068	0	35	0	62	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1		1			1
Detector Template	Left	Thru	Right	Left	Thru		Left		Right			Right
Leading Detector (ft)	20	100	20	20	100		20		20			20
Trailing Detector (ft)	0	0	0	0	0		0		0			0
Detector 1 Position(ft)	0	0	0	0	0		0		0			0
Detector 1 Size(ft)	20	6	20	20	6		20		20			20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex			Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			0.0
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA	Perm	Perm	NA		Perm		Perm			Perm
Protected Phases		4			8							
Permitted Phases	4		4	8			2		2			6
Detector Phase	4	4	4	8	8		2		2			6

Carson IDIF 12:00 pm 9/5/2018 Future PM without Project
W.G. Zimmerman Engineering, Inc.

Synchro 8 Report
Page 39

Lanes, Volumes, Timings
21: I-405 SB Ramps & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0		4.0			4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0		21.0			21.0
Total Split (s)	39.0	39.0	39.0	39.0	39.0		21.0		21.0			21.0
Total Split (%)	65.0%	65.0%	65.0%	65.0%	65.0%		35.0%		35.0%			35.0%
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		16.0		16.0			16.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0		4.0			4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0		1.0			1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0		5.0			5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0		3.0			3.0
Recall Mode	None	None	None	None	None		Min		Min			Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0		5.0			5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0		11.0			11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0		0			0
Act Effect Green (s)	29.2	29.2	29.2	29.2	29.2		6.7		6.7			
Actuated g/C Ratio	0.63	0.63	0.63	0.63	0.63		0.15		0.15			
v/c Ratio	0.06	0.57	0.72	0.51	0.37		0.15		0.24			
Control Delay	3.9	6.1	4.3	13.9	4.4		20.9		9.2			
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0		0.0			
Total Delay	3.9	6.1	4.3	13.9	4.4		20.9		9.2			
LOS	A	A	A	B	A		C		A			
Approach Delay		5.3			5.3							
Approach LOS		A			A							

Intersection Summary

Area Type: CBD
Cycle Length: 60
Actuated Cycle Length: 46.2
Natural Cycle: 60
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 5.5
Intersection Capacity Utilization 70.8%
Analysis Period (min) 15

Intersection LOS: A
ICU Level of Service C

Splits and Phases: 21: I-405 SB Ramps & E Carson St

 p2	 p4
21 s	39 s
 p6	 p8
21 s	39 s

Lanes, Volumes, Timings

22: Recreation Rd/I-405 NB Ramps & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	122	960	36	23	672	391	36	20	20	39	8	410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	12	12	12	12	12	12	12
Storage Length (ft)	70		0	100		180	0		0	0		0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995				0.850			0.850			0.850
Flt Protected	0.950			0.950				0.969			0.960	
Satd. Flow (prot)	1770	3522	0	1770	3539	1583	0	1805	1583	0	1788	1583
Flt Permitted	0.315			0.183				0.845			0.803	
Satd. Flow (perm)	587	3522	0	341	3539	1583	0	1574	1583	0	1496	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9				425			40			120
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		469			2039			158			364	
Travel Time (s)		8.0			34.8			2.7			6.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	133	1043	39	25	730	425	39	22	22	42	9	446
Shared Lane Traffic (%)												
Lane Group Flow (vph)	133	1082	0	25	730	425	0	61	22	0	51	446
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2		2	6		6

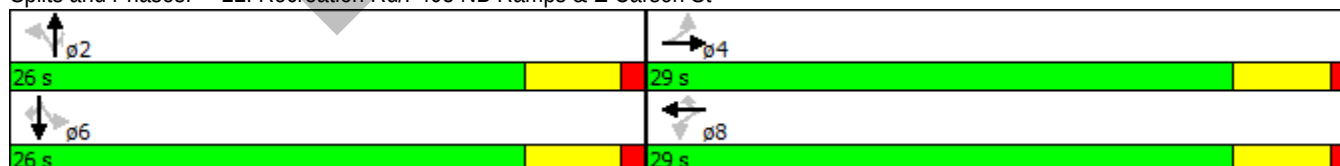
Lanes, Volumes, Timings

22: Recreation Rd/I-405 NB Ramps & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	29.0	29.0		29.0	29.0	29.0	26.0	26.0	26.0	26.0	26.0	26.0
Total Split (%)	52.7%	52.7%		52.7%	52.7%	52.7%	47.3%	47.3%	47.3%	47.3%	47.3%	47.3%
Maximum Green (s)	24.0	24.0		24.0	24.0	24.0	21.0	21.0	21.0	21.0	21.0	21.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max	Max	Max	Max	Max
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0	0	0	0
Act Effct Green (s)	21.9	21.9		21.9	21.9	21.9		21.1	21.1		21.1	21.1
Actuated g/C Ratio	0.41	0.41		0.41	0.41	0.41		0.40	0.40		0.40	0.40
v/c Ratio	0.55	0.74		0.18	0.50	0.47		0.10	0.03		0.09	0.64
Control Delay	21.8	16.6		13.3	12.7	3.2		11.5	2.6		11.4	14.8
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	21.8	16.6		13.3	12.7	3.2		11.5	2.6		11.4	14.8
LOS	C	B		B	B	A		B	A		B	B
Approach Delay		17.2			9.3			9.1			14.4	
Approach LOS		B			A			A			B	
Intersection Summary												
Area Type:	Other											
Cycle Length: 55												
Actuated Cycle Length: 53												
Natural Cycle: 55												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.74												
Intersection Signal Delay: 13.4							Intersection LOS: B					
Intersection Capacity Utilization 59.8%							ICU Level of Service B					
Analysis Period (min) 15												

Splits and Phases: 22: Recreation Rd/I-405 NB Ramps & E Carson St



Future (Year 2023) + Development

Lanes, Volumes, Timings
1: S Figueroa St & I-405 SB Ramps

1/3/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	0	0	881	65	86	901
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	220	
Storage Lanes	0	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt			0.990			
Flt Protected					0.950	
Satd. Flow (prot)	0	0	3504	0	1770	3539
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	3504	0	1770	3539
Link Speed (mph)	40		40			40
Link Distance (ft)	607		2451			246
Travel Time (s)	10.3		41.8			4.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	958	71	93	979
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	1029	0	93	979
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	12		12			12
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Yield		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	51.3%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
2: S Figueroa St & I-405 NB Ramps

1/3/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	203	301	942	0	0	727
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1770	1583	3539	0	0	3539
Flt Permitted	0.950					
Satd. Flow (perm)	1770	1583	3539	0	0	3539
Link Speed (mph)	40		40			40
Link Distance (ft)	724		246			1243
Travel Time (s)	12.3		4.2			21.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	221	327	1024	0	0	790
Shared Lane Traffic (%)						
Lane Group Flow (vph)	221	327	1024	0	0	790
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	12		12			12
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	51.3%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings

3: S Main St & I-405 SB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	99	11	0	0	0	0	776	77	92	778	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	250		0
Storage Lanes	1		0	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.985						0.986				
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	1835	0	0	0	0	0	3490	0	1770	3539	0
Flt Permitted	0.950									0.950		
Satd. Flow (perm)	1770	1835	0	0	0	0	0	3490	0	1770	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9						20				
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		607			169			2341			290	
Travel Time (s)		10.3			2.9			35.5			4.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	29	108	12	0	0	0	0	843	84	100	846	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	29	120	0	0	0	0	0	927	0	100	846	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2						2		1	2	
Detector Template	Left	Thru						Thru		Left	Thru	
Leading Detector (ft)	20	100						100		20	100	
Trailing Detector (ft)	0	0						0		0	0	
Detector 1 Position(ft)	0	0						0		0	0	
Detector 1 Size(ft)	20	6						6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex						Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0						0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0						0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0						0.0		0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Prot	NA						NA		Prot	NA	
Protected Phases	4							2		1	6	
Permitted Phases		4										
Detector Phase	4	4						2		1	6	

Lanes, Volumes, Timings

3: S Main St & I-405 SB Ramps

1/3/2019

	           											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0						4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0						21.0		9.0	21.0	
Total Split (s)	21.0	21.0						27.0		12.0	39.0	
Total Split (%)	35.0%	35.0%						45.0%		20.0%	65.0%	
Maximum Green (s)	16.0	16.0						22.0		7.0	34.0	
Yellow Time (s)	4.0	4.0						4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0						1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0						0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0						5.0		5.0	5.0	
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Recall Mode	None	None						Max		None	Max	
Walk Time (s)	5.0	5.0						5.0			5.0	
Flash Dont Walk (s)	11.0	11.0						11.0			11.0	
Pedestrian Calls (#/hr)	0	0						0			0	
Act Effect Green (s)	8.5	8.5						28.4		6.7	38.0	
Actuated g/C Ratio	0.16	0.16						0.53		0.13	0.71	
v/c Ratio	0.10	0.40						0.50		0.45	0.34	
Control Delay	19.1	22.3						12.3		28.9	4.7	
Queue Delay	0.0	0.0						0.0		0.0	0.2	
Total Delay	19.1	22.3						12.3		28.9	4.9	
LOS	B	C						B		C	A	
Approach Delay		21.7						12.3			7.5	
Approach LOS		C						B			A	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 53.5

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.50

Intersection Signal Delay: 10.7

Intersection Capacity Utilization 60.6%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service B

Splits and Phases: 3: S Main St & I-405 SB Ramps

 p1	 p2	 p4
12 s	27 s	21 s
 p6		
39 s		

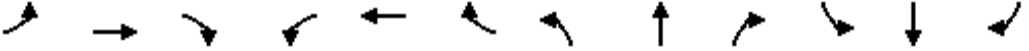
Lanes, Volumes, Timings
4: S Main St & I-405 NB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕↕		↕	↕↕			↕↕	
Volume (vph)	0	0	0	90	388	201	30	773	0	0	804	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt					0.956						0.986	
Flt Protected					0.993		0.950					
Satd. Flow (prot)	0	0	0	0	3360	0	1770	3539	0	0	3490	0
Flt Permitted					0.993		0.229					
Satd. Flow (perm)	0	0	0	0	3360	0	427	3539	0	0	3490	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					77						31	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		724			336			290			724	
Travel Time (s)		12.3			5.7			4.4			11.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	98	422		218	33	840	0	0	874
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	738	0	33	840	0	0	967	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	2		1	2			2	
Detector Template				Left	Thru		Left	Thru			Thru	
Leading Detector (ft)				20	100		20	100			100	
Trailing Detector (ft)				0	0		0	0			0	
Detector 1 Position(ft)				0	0		0	0			0	
Detector 1 Size(ft)				20	6		20	6			6	
Detector 1 Type				Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0		0.0	0.0			0.0	
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Detector Phase				8	8		2	2			6	
Switch Phase												
Minimum Initial (s)				4.0	4.0		4.0	4.0			4.0	
Minimum Split (s)				21.0	21.0		21.0	21.0			21.0	

Lanes, Volumes, Timings
4: S Main St & I-405 NB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)				21.0	21.0		24.0	24.0			24.0	
Total Split (%)				46.7%	46.7%		53.3%	53.3%			53.3%	
Maximum Green (s)				16.0	16.0		19.0	19.0			19.0	
Yellow Time (s)				4.0	4.0		4.0	4.0			4.0	
All-Red Time (s)				1.0	1.0		1.0	1.0			1.0	
Lost Time Adjust (s)					0.0		0.0	0.0			0.0	
Total Lost Time (s)					5.0		5.0	5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0	3.0			3.0	
Recall Mode				None	None		Max	Max			Max	
Walk Time (s)				5.0	5.0		5.0	5.0			5.0	
Flash Dont Walk (s)				11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)				0	0		0	0			0	
Act Effect Green (s)					13.7		19.1	19.1			19.1	
Actuated g/C Ratio					0.32		0.45	0.45			0.45	
v/c Ratio					0.65		0.17	0.53			0.62	
Control Delay					14.1		11.0	10.7			11.4	
Queue Delay					0.0		0.0	0.2			0.0	
Total Delay					14.1		11.0	10.9			11.4	
LOS					B		B	B			B	
Approach Delay					14.1			10.9			11.4	
Approach LOS					B			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 45

Actuated Cycle Length: 42.8

Natural Cycle: 45

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 12.0

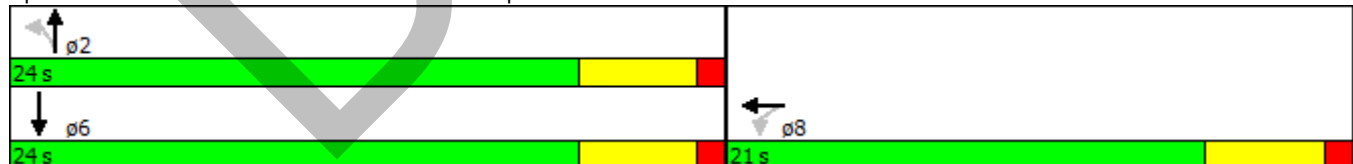
Intersection LOS: B

Intersection Capacity Utilization 60.6%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 4: S Main St & I-405 NB Ramps



Lanes, Volumes, Timings
5: S Figueroa St & W Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	154	414	101	327	1205	172	202	748	506	58	390	450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	60		0	240		240	240		0	245		245
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.971				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4938	0	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	4938	0	1770	3539	1583	1770	3539	1583	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		60				206			504			267
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		519			1251			791			2451	
Travel Time (s)		7.9			19.0			13.5			41.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	167	450	110	355	1310	187	220	813	550	63	424	489
Shared Lane Traffic (%)												
Lane Group Flow (vph)	167	560	0	355	1310	187	220	813	550	63	424	489
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6

Lanes, Volumes, Timings
5: S Figueroa St & W Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	21.0		9.0	21.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	14.0	25.0		27.0	38.0	38.0	16.0	29.0	29.0	9.0	22.0	22.0
Total Split (%)	15.6%	27.8%		30.0%	42.2%	42.2%	17.8%	32.2%	32.2%	10.0%	24.4%	24.4%
Maximum Green (s)	9.0	20.0		22.0	33.0	33.0	11.0	24.0	24.0	4.0	17.0	17.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)		5.0			5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0			11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0	0		0	0		0	0
Act Effect Green (s)	9.0	21.3		20.7	33.0	33.0	11.0	25.8	25.8	4.0	17.0	17.0
Actuated g/C Ratio	0.10	0.24		0.23	0.37	0.37	0.12	0.29	0.29	0.04	0.19	0.19
v/c Ratio	0.94	0.46		0.87	1.01	0.26	1.02	0.80	0.68	0.81	0.63	0.95
Control Delay	97.3	27.9		56.4	57.1	3.3	107.8	37.8	8.8	104.0	38.5	47.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	97.3	27.9		56.4	57.1	3.3	107.8	37.8	8.8	104.0	38.5	47.0
LOS	F	C		E	E	A	F	D	A	F	D	D
Approach Delay		43.9			51.5			37.5			47.0	
Approach LOS		D			D			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 45.2

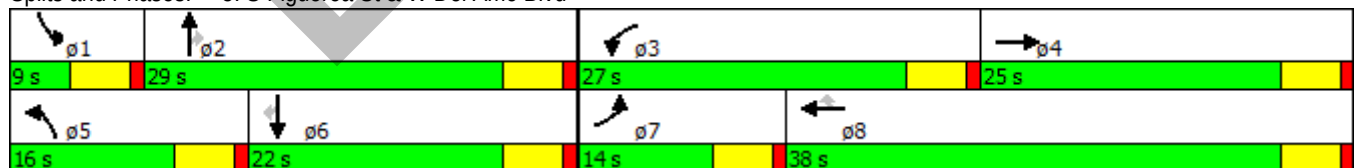
Intersection LOS: D

Intersection Capacity Utilization 84.9%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 5: S Figueroa St & W Del Amo Blvd



Lanes, Volumes, Timings

6: S Main St & W Del Amo Blvd/E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	203	899	212	237	1294	74	178	595	254	72	538	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		0	195		0	150		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.971			0.992			0.955			0.961	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4938	0	1770	5045	0	1770	3380	0	1770	3401	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	4938	0	1770	5045	0	1770	3380	0	1770	3401	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		58			10			75			52	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1251			1668			534			2341	
Travel Time (s)		19.0			25.3			8.1			35.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	221	977	230	258	1407	80	193	647	276	78	585	207
Shared Lane Traffic (%)												
Lane Group Flow (vph)	221	1207	0	258	1487	0	193	923	0	78	792	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Detector Phase	7	4		3	8		5	2		1	6	

Lanes, Volumes, Timings

6: S Main St & W Del Amo Blvd/E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	21.0		9.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	17.0	28.0		20.0	31.0		15.0	32.0		10.0	27.0	
Total Split (%)	18.9%	31.1%		22.2%	34.4%		16.7%	35.6%		11.1%	30.0%	
Maximum Green (s)	12.0	23.0		15.0	26.0		10.0	27.0		5.0	22.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		5.0			5.0			5.0			5.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	12.0	23.3		14.7	26.0		10.0	29.0		5.0	22.0	
Actuated g/C Ratio	0.13	0.26		0.16	0.29		0.11	0.32		0.06	0.24	
v/c Ratio	0.94	0.91		0.89	1.02		0.98	0.81		0.80	0.91	
Control Delay	85.2	42.9		69.8	60.1		103.1	33.3		92.2	47.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	85.2	42.9		69.8	60.1		103.1	33.3		92.2	47.0	
LOS	F	D		E	E		F	C		F	D	
Approach Delay		49.4			61.6			45.4			51.1	
Approach LOS		D			E			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 52.9

Intersection LOS: D

Intersection Capacity Utilization 85.4%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: S Main St & W Del Amo Blvd/E Del Amo Blvd

 p1	 p2	 p3	 p4
10 s	32 s	20 s	28 s
 p5	 p6	 p7	 p8
15 s	27 s	17 s	31 s

Lanes, Volumes, Timings
7: Stamps Dr & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1068	73	23	1430	0	57	0	36	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	155		0	0		0	0		0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Frt			0.850						0.850			
Flt Protected				0.950			0.950	0.950				
Satd. Flow (prot)	1863	3539	1583	1770	3539	0	1681	1681	1583	1863	1770	1770
Flt Permitted				0.121			0.950	0.950				
Satd. Flow (perm)	1863	3539	1583	225	3539	0	1681	1681	1583	1863	1770	1770
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95						95			
Link Speed (mph)		45			45			25			50	
Link Distance (ft)		1668			3009			694			308	
Travel Time (s)		25.3			45.6			18.9			4.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1161	79	25	1554	0	62	0	39	0	0	0
Shared Lane Traffic (%)							50%					0%
Lane Group Flow (vph)	0	1161	79	25	1554	0	31	31	39	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Split	NA	Perm	Perm		Perm
Protected Phases		4			8		2	2			6	
Permitted Phases	4		4	8					2	6		6
Detector Phase	4	4	4	8	8		2	2	2	6	6	6

Lanes, Volumes, Timings
7: Stamps Dr & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	38.0	38.0	38.0	38.0	38.0		21.0	21.0	21.0	21.0	21.0	21.0
Total Split (%)	47.5%	47.5%	47.5%	47.5%	47.5%		26.3%	26.3%	26.3%	26.3%	26.3%	26.3%
Maximum Green (s)	33.0	33.0	33.0	33.0	33.0		16.0	16.0	16.0	16.0	16.0	16.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		Max	Max	Max	Max	Max	Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0	0	0	0	0
Act Effect Green (s)		33.0	33.0	33.0	33.0		16.0	16.0	16.0			
Actuated g/C Ratio		0.41	0.41	0.41	0.41		0.20	0.20	0.20			
v/c Ratio		0.80	0.11	0.27	1.07		0.09	0.09	0.10			
Control Delay		25.6	3.0	25.1	68.0		27.0	27.0	0.5			
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0	0.0			
Total Delay		25.6	3.0	25.1	68.0		27.0	27.0	0.5			
LOS		C	A	C	E		C	C	A			
Approach Delay		24.1			67.3			16.8				
Approach LOS		C			E			B				

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 47.2

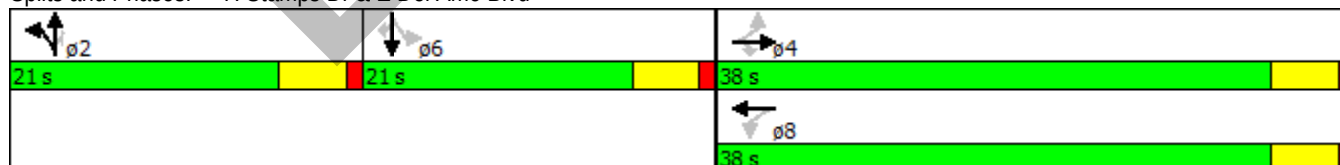
Intersection LOS: D

Intersection Capacity Utilization 51.2%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 7: Stamps Dr & E Del Amo Blvd



Lanes, Volumes, Timings
8: S Avalon Blvd & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			  		 	  	
Volume (vph)	394	659	119	186	871	101	311	1131	301	171	709	391
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		160	195		195	180		310	100		0
Storage Lanes	1		0	0		1	1		1	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	0.97	0.91	0.91
Frt			0.850			0.850			0.850		0.947	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	3433	4816	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	5085	1583	3433	4816	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			169			169			327		121	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		3009			3520			2946			3936	
Travel Time (s)		45.6			53.3			57.4			76.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	428	716	129	202	947	110	338	1229	327	186	771	425
Shared Lane Traffic (%)												
Lane Group Flow (vph)	428	716	129	202	947	110	338	1229	327	186	1196	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	

Lanes, Volumes, Timings
8: S Avalon Blvd & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	21.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	26.0	35.0	35.0	21.0	30.0	30.0	21.0	43.0	43.0	11.0	33.0	33.0
Total Split (%)	23.6%	31.8%	31.8%	19.1%	27.3%	27.3%	19.1%	39.1%	39.1%	10.0%	30.0%	30.0%
Maximum Green (s)	21.0	30.0	30.0	16.0	25.0	25.0	16.0	38.0	38.0	6.0	28.0	28.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (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
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effect Green (s)	21.0	30.8	30.8	15.2	25.0	25.0	16.0	38.0	38.0	6.0	28.0	28.0
Actuated g/C Ratio	0.19	0.28	0.28	0.14	0.23	0.23	0.15	0.35	0.35	0.05	0.25	0.25
v/c Ratio	1.27	0.72	0.23	0.83	1.18	0.22	1.32	0.70	0.43	0.99	0.91	0.91
Control Delay	180.6	40.9	2.9	73.0	131.2	2.1	204.9	33.7	4.7	117.4	46.8	46.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	180.6	40.9	2.9	73.0	131.2	2.1	204.9	33.7	4.7	117.4	46.8	46.8
LOS	F	D	A	E	F	A	F	C	A	F	D	D
Approach Delay		84.1			110.6			59.2			56.3	
Approach LOS		F			F			E			E	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Natural Cycle: 130

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.32

Intersection Signal Delay: 75.1

Intersection LOS: E

Intersection Capacity Utilization 102.3%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 8: S Avalon Blvd & E Del Amo Blvd

			
11 s	43 s	21 s	35 s
			
21 s	33 s	26 s	30 s

Lanes, Volumes, Timings
9: S Figueroa St & I-110 NB Ramps

1/3/2019

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	WT		WT	TT	TT	RT
Volume (vph)	691	342	726	781	506	294
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	235			250
Storage Lanes	2	0	2			1
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	0.95	0.97	0.95	0.95	1.00
Frt	0.950					0.850
Flt Protected	0.968		0.950			
Satd. Flow (prot)	3323	0	3433	3539	3539	1583
Flt Permitted	0.968		0.446			
Satd. Flow (perm)	3323	0	1612	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	190					320
Link Speed (mph)	40			40	40	
Link Distance (ft)	170			828	791	
Travel Time (s)	2.9			14.1	13.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	751	372	789	849	550	320
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1123	0	789	849	550	320
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	12			12	12	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1		1	2	2	1
Detector Template	Left		Left	Thru	Thru	Right
Leading Detector (ft)	20		20	100	100	20
Trailing Detector (ft)	0		0	0	0	0
Detector 1 Position(ft)	0		0	0	0	0
Detector 1 Size(ft)	20		20	6	6	20
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Detector Phase	4		2	2	6	6

Lanes, Volumes, Timings
9: S Figueroa St & I-110 NB Ramps

1/3/2019



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	21.0		21.0	21.0	21.0	21.0
Total Split (s)	21.0		29.0	29.0	29.0	29.0
Total Split (%)	42.0%		58.0%	58.0%	58.0%	58.0%
Maximum Green (s)	16.0		24.0	24.0	24.0	24.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		Max	Max	Max	Max
Walk Time (s)	5.0		5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effect Green (s)	16.0		24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.32		0.48	0.48	0.48	0.48
v/c Ratio	0.94		1.02	0.50	0.32	0.35
Control Delay	31.8		55.4	10.2	8.7	2.4
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	31.8		55.4	10.2	8.7	2.4
LOS	C		E	B	A	A
Approach Delay	31.8			31.9	6.3	
Approach LOS	C			C	A	

Intersection Summary

Area Type: Other
Cycle Length: 50
Actuated Cycle Length: 50
Natural Cycle: 50
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 25.8
Intersection Capacity Utilization 77.7%
Analysis Period (min) 15

Intersection LOS: C
ICU Level of Service D

Splits and Phases: 9: S Figueroa St & I-110 NB Ramps

↑ p2 29 s ↓ p6 29 s	↑ p4 21 s
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Lanes, Volumes, Timings
10: S Main St & Lenardo Rd

1/3/2019

	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↑↑		↘	↑↑
Volume (vph)	25	32	946	61	59	940
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	145	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.991			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3507	0	1770	3539
Flt Permitted	0.950				0.254	
Satd. Flow (perm)	1770	1583	3507	0	473	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		35	18			
Link Speed (mph)	25		45			45
Link Distance (ft)	479		971			534
Travel Time (s)	13.1		14.7			8.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	35	1028	66	64	1022
Shared Lane Traffic (%)						
Lane Group Flow (vph)	27	35	1094	0	64	1022
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	12		12			12
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (ft)	20	20	100		20	100
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	20	6		20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6

Lanes, Volumes, Timings
10: S Main St & Lenardo Rd

1/3/2019

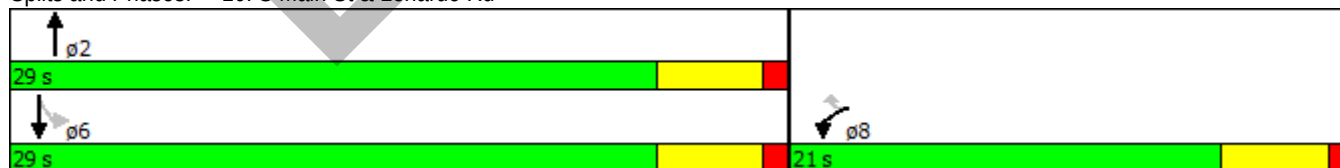
	WBL	WBR	NBT	NBR	SBL	SBT
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	21.0	21.0	21.0		21.0	21.0
Total Split (s)	21.0	21.0	29.0		29.0	29.0
Total Split (%)	42.0%	42.0%	58.0%		58.0%	58.0%
Maximum Green (s)	16.0	16.0	24.0		24.0	24.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		Max	Max
Walk Time (s)	5.0	5.0	5.0		5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effect Green (s)	6.3	6.3	39.3		39.3	39.3
Actuated g/C Ratio	0.14	0.14	0.86		0.86	0.86
v/c Ratio	0.11	0.14	0.36		0.16	0.34
Control Delay	18.5	9.1	2.8		4.1	2.7
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	18.5	9.1	2.8		4.1	2.7
LOS	B	A	A		A	A
Approach Delay	13.2		2.8			2.8
Approach LOS	B		A			A

Intersection Summary

Area Type: Other
 Cycle Length: 50
 Actuated Cycle Length: 45.8
 Natural Cycle: 50
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.36
 Intersection Signal Delay: 3.1
 Intersection Capacity Utilization 47.3%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 10: S Main St & Lenardo Rd



Lanes, Volumes, Timings
11: S Figueroa St & W Torrance Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	664	546	164	61	558	209	184	626	60	83	351	441
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12	12	16	12	12	12	12
Storage Length (ft)	180		0	115		0	255		0	185		185
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.91	0.91	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.976				0.850		0.987				0.850
Flt Protected	0.950	0.984		0.950			0.950			0.950		
Satd. Flow (prot)	1610	3690	0	1770	3539	1583	1770	3959	0	1770	3539	1583
Flt Permitted	0.411	0.645		0.171			0.516			0.235		
Satd. Flow (perm)	697	2419	0	319	3539	1583	961	3959	0	438	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		53				43		17				259
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		368			1713			3767			828	
Travel Time (s)		6.3			29.2			64.2			14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	722	593	178	66	607	227	200	680	65	90	382	479
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	361	1132	0	66	607	227	200	745	0	90	382	479
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	1.00	1.00	1.00	1.00	1.00	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		6

Lanes, Volumes, Timings
11: S Figueroa St & W Torrance Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	21.0	21.0		21.0	21.0	21.0
Total Split (s)	38.0	38.0		38.0	38.0	38.0	22.0	22.0		22.0	22.0	22.0
Total Split (%)	63.3%	63.3%		63.3%	63.3%	63.3%	36.7%	36.7%		36.7%	36.7%	36.7%
Maximum Green (s)	33.0	33.0		33.0	33.0	33.0	17.0	17.0		17.0	17.0	17.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	Max
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	0
Act Effct Green (s)	32.3	32.3		32.3	32.3	32.3	17.0	17.0		17.0	17.0	17.0
Actuated g/C Ratio	0.54	0.54		0.54	0.54	0.54	0.29	0.29		0.29	0.29	0.29
v/c Ratio	0.95	0.84		0.38	0.31	0.26	0.73	0.65		0.72	0.38	0.75
Control Delay	53.6	18.6		15.7	7.9	6.6	38.2	21.4		55.7	18.5	18.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	53.6	18.7		15.7	7.9	6.6	38.2	21.4		55.7	18.5	18.1
LOS	D	B		B	A	A	D	C		E	B	B
Approach Delay		27.1			8.2			25.0			21.8	
Approach LOS		C			A			C			C	
Intersection Summary												
Area Type:	Other											
Cycle Length: 60												
Actuated Cycle Length: 59.3												
Natural Cycle: 60												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.95												
Intersection Signal Delay: 21.5							Intersection LOS: C					
Intersection Capacity Utilization 82.3%							ICU Level of Service E					
Analysis Period (min) 15												

Splits and Phases: 11: S Figueroa St & W Torrance Blvd



Lanes, Volumes, Timings

12: S Main St & W Torrance Blvd/E Torrance Blvd

1/3/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		↰		↰	↰		↰	↰	↰
Volume (vph)	337	24	262	10	77	36	401	717	9	12	572	314
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12	12	16	12	12	12	12
Storage Length (ft)	0		0	0		0	190		0	145		45
Storage Lanes	0		1	0		0	2		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.961			0.998				0.850
Flt Protected		0.955			0.996		0.950			0.950		
Satd. Flow (prot)	0	1779	1583	0	2021	0	3433	4003	0	1770	3539	1583
Flt Permitted		0.704			0.959		0.391			0.299		
Satd. Flow (perm)	0	1311	1583	0	1946	0	1413	4003	0	557	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			168		39			3				339
Link Speed (mph)		40			40			40				45
Link Distance (ft)		1713			375			2482			971	
Travel Time (s)		29.2			6.4			42.3			14.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	366	26	285	11	84	39	436	779	10	13	622	341
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	392	285	0	134	0	436	789	0	13	622	341
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		6

Lanes, Volumes, Timings

12: S Main St & W Torrance Blvd/E Torrance Blvd

1/3/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0	21.0		21.0	21.0	21.0
Total Split (s)	26.0	26.0	26.0	26.0	26.0		29.0	29.0		29.0	29.0	29.0
Total Split (%)	47.3%	47.3%	47.3%	47.3%	47.3%		52.7%	52.7%		52.7%	52.7%	52.7%
Maximum Green (s)	21.0	21.0	21.0	21.0	21.0		24.0	24.0		24.0	24.0	24.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		Max	Max		Max	Max	Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	0
Act Effect Green (s)		18.9	18.9		18.9		24.1	24.1		24.1	24.1	24.1
Actuated g/C Ratio		0.36	0.36		0.36		0.45	0.45		0.45	0.45	0.45
v/c Ratio		0.84	0.42		0.19		0.68	0.43		0.05	0.39	0.38
Control Delay		34.4	7.6		9.3		19.4	11.2		9.8	11.0	2.8
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		34.4	7.6		9.3		19.4	11.2		9.8	11.0	2.8
LOS		C	A		A		B	B		A	B	A
Approach Delay		23.1			9.3			14.1			8.1	
Approach LOS		C			A			B			A	

Intersection Summary

Area Type: Other

Cycle Length: 55

Actuated Cycle Length: 53

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 14.0

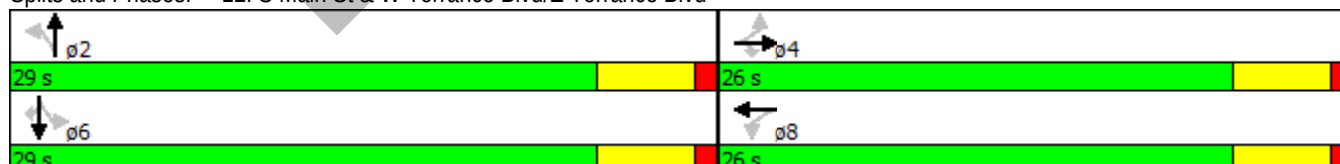
Intersection LOS: B

Intersection Capacity Utilization 66.3%

ICU Level of Service C

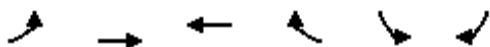
Analysis Period (min) 15

Splits and Phases: 12: S Main St & W Torrance Blvd/E Torrance Blvd



Lanes, Volumes, Timings
13: Lenardo Rd/I-405 SB Ramps

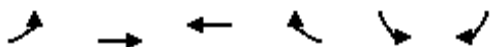
1/3/2019



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	35	70	12	353	1165	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			0	0	0
Storage Lanes	1			1	2	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	1863	1583	3433	1583
Flt Permitted	0.749				0.950	
Satd. Flow (perm)	1395	3539	1863	1583	3433	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				384		64
Link Speed (mph)		35	40		40	
Link Distance (ft)		701	533		434	
Travel Time (s)		13.7	9.1		7.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	76	13	384	1266	64
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	76	13	384	1266	64
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		24	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		12	12		12	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm	NA	NA	Perm	Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4			8		6
Detector Phase	4	4	8	8	6	6

Lanes, Volumes, Timings 13: Lenardo Rd/I-405 SB Ramps

1/3/2019



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	21.0	21.0	21.0	21.0	29.0	29.0
Total Split (%)	42.0%	42.0%	42.0%	42.0%	58.0%	58.0%
Maximum Green (s)	16.0	16.0	16.0	16.0	24.0	24.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	Max	Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effect Green (s)	7.9	7.9	7.9	7.9	24.9	24.9
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.58	0.58
v/c Ratio	0.15	0.12	0.04	0.63	0.63	0.07
Control Delay	14.9	13.9	13.2	7.4	8.6	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.9	13.9	13.2	7.4	8.6	2.3
LOS	B	B	B	A	A	A
Approach Delay		14.3	7.6		8.3	
Approach LOS		B	A		A	

Intersection Summary

Area Type: Other
 Cycle Length: 50
 Actuated Cycle Length: 42.9
 Natural Cycle: 50
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 8.5
 Intersection Capacity Utilization 50.2%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 13: Lenardo Rd/I-405 SB Ramps



Lanes, Volumes, Timings
14: S Avalon Blvd & I-405 SB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	686	73	520	0	0	0	86	1293	158	0	888	488
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		150	0		0	160		0	0		120
Storage Lanes	0		1	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850					0.984				0.850
Flt Protected	0.950						0.950					
Satd. Flow (prot)	3433	3539	1583	0	0	0	1770	3483	0	0	3539	1583
Flt Permitted	0.950						0.228					
Satd. Flow (perm)	3433	3539	1583	0	0	0	425	3483	0	0	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			90					28				530
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		533			422			1230			386	
Travel Time (s)		9.1			7.2			24.0			7.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	746	79	565	0	0	0	93	1405	172	0	965	530
Shared Lane Traffic (%)												
Lane Group Flow (vph)	746	79	565	0	0	0	93	1577	0	0	965	530
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1				1	2			2	1
Detector Template	Left	Thru	Right				Left	Thru			Thru	Right
Leading Detector (ft)	20	100	20				20	100			100	20
Trailing Detector (ft)	0	0	0				0	0			0	0
Detector 1 Position(ft)	0	0	0				0	0			0	0
Detector 1 Size(ft)	20	6	20				20	6			6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex				Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm				Perm	NA			NA	Perm
Protected Phases		4						2			6	
Permitted Phases	4		4				2					6
Detector Phase	4	4	4				2	2			6	6

Lanes, Volumes, Timings
14: S Avalon Blvd & I-405 SB Ramps

1/3/2019

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0				4.0	4.0			4.0	4.0
Minimum Split (s)	21.0	21.0	21.0				21.0	21.0			21.0	21.0
Total Split (s)	29.0	29.0	29.0				41.0	41.0			41.0	41.0
Total Split (%)	41.4%	41.4%	41.4%				58.6%	58.6%			58.6%	58.6%
Maximum Green (s)	24.0	24.0	24.0				36.0	36.0			36.0	36.0
Yellow Time (s)	4.0	4.0	4.0				4.0	4.0			4.0	4.0
All-Red Time (s)	1.0	1.0	1.0				1.0	1.0			1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0				5.0	5.0			5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0				3.0	3.0			3.0	3.0
Recall Mode	None	None	None				Max	Max			Max	Max
Walk Time (s)	5.0	5.0	5.0				5.0	5.0			5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0				11.0	11.0			11.0	11.0
Pedestrian Calls (#/hr)	0	0	0				0	0			0	0
Act Effect Green (s)	23.8	23.8	23.8				36.0	36.0			36.0	36.0
Actuated g/C Ratio	0.34	0.34	0.34				0.52	0.52			0.52	0.52
v/c Ratio	0.64	0.07	0.94				0.42	0.87			0.53	0.49
Control Delay	22.4	15.7	46.8				18.2	21.7			12.6	2.8
Queue Delay	0.0	0.0	0.0				0.0	0.0			0.5	0.2
Total Delay	22.4	15.7	46.8				18.2	21.7			13.1	3.0
LOS	C	B	D				B	C			B	A
Approach Delay		31.9						21.5			9.5	
Approach LOS		C						C			A	

Intersection Summary

Area Type: Other
 Cycle Length: 70
 Actuated Cycle Length: 69.8
 Natural Cycle: 70
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.94
 Intersection Signal Delay: 20.7
 Intersection Capacity Utilization 68.7%
 Analysis Period (min) 15

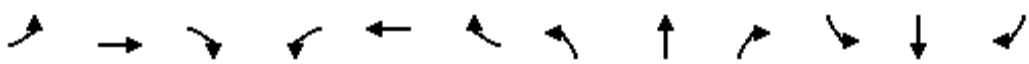
Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 14: S Avalon Blvd & I-405 SB Ramps

 p2 41 s	 p4 29 s
 p6 41 s	

Lanes, Volumes, Timings
15: S Avalon Blvd & I-405 NB Ramps

1/3/2019

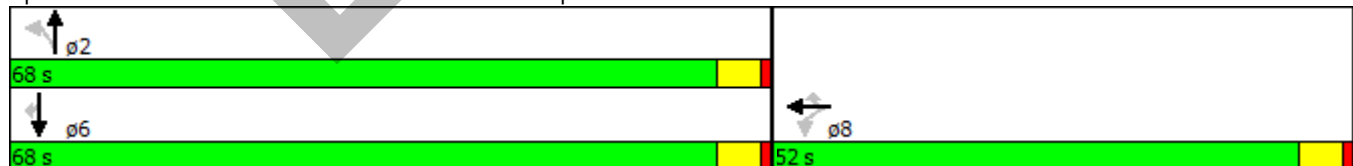
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	186	2	883	459	1283	0	0	1123	282
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		0	0		0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.953		0.950					
Satd. Flow (prot)	0	0	0	1681	1686	1583	3433	3539	0	0	5085	1583
Flt Permitted				0.950	0.953		0.170					
Satd. Flow (perm)	0	0	0	1681	1686	1583	614	3539	0	0	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						30						307
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		346			390			386			2946	
Travel Time (s)		5.9			6.6			7.5			57.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	202	2	960	499	1395	0	0	1221	307
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	101	103	960	499	1395	0	0	1221	307
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	Perm	NA			NA	Perm
Protected Phases					8			2			6	
Permitted Phases				8		8	2					6
Detector Phase				8	8	8	2	2			6	6

Lanes, Volumes, Timings
15: S Avalon Blvd & I-405 NB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Minimum Split (s)				21.0	21.0	21.0	21.0	21.0			21.0	21.0
Total Split (s)				52.0	52.0	52.0	68.0	68.0			68.0	68.0
Total Split (%)				43.3%	43.3%	43.3%	56.7%	56.7%			56.7%	56.7%
Maximum Green (s)				47.0	47.0	47.0	63.0	63.0			63.0	63.0
Yellow Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
All-Red Time (s)				1.0	1.0	1.0	1.0	1.0			1.0	1.0
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	Max	Max			Max	Max
Walk Time (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
Flash Dont Walk (s)				11.0	11.0	11.0	11.0	11.0			11.0	11.0
Pedestrian Calls (#/hr)				0	0	0	0	0			0	0
Act Effect Green (s)				47.0	47.0	47.0	63.0	63.0			63.0	63.0
Actuated g/C Ratio				0.39	0.39	0.39	0.52	0.52			0.52	0.52
v/c Ratio				0.15	0.16	1.50	1.55	0.75			0.46	0.31
Control Delay				24.5	24.5	264.0	287.8	25.6			18.5	2.5
Queue Delay				0.0	0.0	0.0	0.0	48.6			0.0	0.0
Total Delay				24.5	24.5	264.0	287.8	74.2			18.5	2.5
LOS				C	C	F	F	E			B	A
Approach Delay					222.0			130.5			15.3	
Approach LOS					F			F			B	
Intersection Summary												
Area Type:	Other											
Cycle Length: 120												
Actuated Cycle Length: 120												
Natural Cycle: 130												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 1.55												
Intersection Signal Delay: 115.3							Intersection LOS: F					
Intersection Capacity Utilization 98.5%							ICU Level of Service F					
Analysis Period (min) 15												

Splits and Phases: 15: S Avalon Blvd & I-405 NB Ramps



Lanes, Volumes, Timings
16: S Main St & E 213th St

1/3/2019

	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖		↑↗		↘	↑↑
Volume (vph)	301	334	788	166	124	660
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	12	12
Storage Length (ft)	0	0		0	90	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.929		0.974			
Flt Protected	0.977				0.950	
Satd. Flow (prot)	1916	0	3907	0	1770	3539
Flt Permitted	0.977				0.197	
Satd. Flow (perm)	1916	0	3907	0	367	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	102		57			
Link Speed (mph)	30		35			45
Link Distance (ft)	4544		1360			2482
Travel Time (s)	103.3		26.5			37.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	327	363	857	180	135	717
Shared Lane Traffic (%)						
Lane Group Flow (vph)	690	0	1037	0	135	717
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	28		24			24
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	12		12			12
Two way Left Turn Lane						
Headway Factor	0.85	0.85	0.85	0.85	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1		2		1	2
Detector Template	Left		Thru		Left	Thru
Leading Detector (ft)	20		100		20	100
Trailing Detector (ft)	0		0		0	0
Detector 1 Position(ft)	0		0		0	0
Detector 1 Size(ft)	20		6		20	6
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0		0.0	0.0
Detector 1 Queue (s)	0.0		0.0		0.0	0.0
Detector 1 Delay (s)	0.0		0.0		0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Perm		NA		Perm	NA
Protected Phases			2			6
Permitted Phases	8				6	

Lanes, Volumes, Timings
16: S Main St & E 213th St

1/3/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8		2		6	6
Switch Phase						
Minimum Initial (s)	4.0		4.0		4.0	4.0
Minimum Split (s)	21.0		21.0		21.0	21.0
Total Split (s)	26.0		34.0		34.0	34.0
Total Split (%)	43.3%		56.7%		56.7%	56.7%
Maximum Green (s)	21.0		29.0		29.0	29.0
Yellow Time (s)	4.0		4.0		4.0	4.0
All-Red Time (s)	1.0		1.0		1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	5.0		5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		Max		Max	Max
Walk Time (s)	5.0		5.0		5.0	5.0
Flash Dont Walk (s)	11.0		11.0		11.0	11.0
Pedestrian Calls (#/hr)	0		0		0	0
Act Effct Green (s)	20.6		29.0		29.0	29.0
Actuated g/C Ratio	0.35		0.49		0.49	0.49
v/c Ratio	0.95		0.54		0.76	0.42
Control Delay	41.7		11.3		44.9	10.9
Queue Delay	0.0		0.0		0.0	0.0
Total Delay	41.7		11.3		44.9	10.9
LOS	D		B		D	B
Approach Delay	41.7		11.3			16.3
Approach LOS	D		B			B
Intersection Summary						
Area Type:	Other					
Cycle Length: 60						
Actuated Cycle Length: 59.6						
Natural Cycle: 60						
Control Type: Actuated-Uncoordinated						
Maximum v/c Ratio: 0.95						
Intersection Signal Delay: 21.1				Intersection LOS: C		
Intersection Capacity Utilization 83.6%				ICU Level of Service E		
Analysis Period (min) 15						

Splits and Phases: 16: S Main St & E 213th St



Lanes, Volumes, Timings
17: S Avalon Blvd & E 213th St

1/3/2019

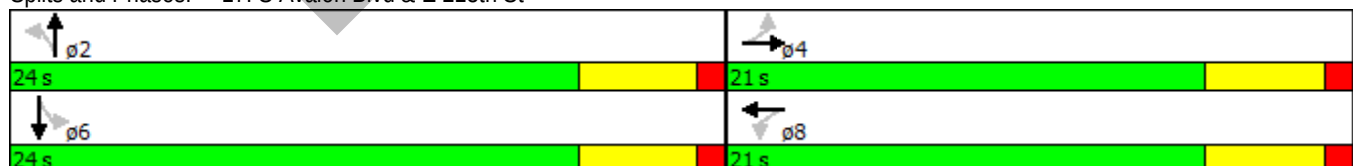
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	244	208	88	149	265	220	108	1039	149	62	1130	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	16	12	16	16	12	16	16	12	16	16
Storage Length (ft)	100		0	100		0	70		0	120		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.955			0.932			0.981			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	2016	0	1770	3738	0	1770	5654	0	1770	5648	0
Flt Permitted	0.448			0.517			0.211			0.211		
Satd. Flow (perm)	835	2016	0	963	3738	0	393	5654	0	393	5648	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			29			72			81	
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		4544			967			1397			1230	
Travel Time (s)		103.3			22.0			27.2			24.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	265	226	96	162	288	239	117	1129	162	67	1228	193
Shared Lane Traffic (%)												
Lane Group Flow (vph)	265	322	0	162	527	0	117	1291	0	67	1421	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	0.85	1.00	0.85	0.85	1.00	0.85	0.85	1.00	0.85	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lanes, Volumes, Timings
17: S Avalon Blvd & E 213th St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	21.0	21.0		21.0	21.0		24.0	24.0		24.0	24.0	
Total Split (%)	46.7%	46.7%		46.7%	46.7%		53.3%	53.3%		53.3%	53.3%	
Maximum Green (s)	16.0	16.0		16.0	16.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	15.5	15.5		15.5	15.5		19.0	19.0		19.0	19.0	
Actuated g/C Ratio	0.35	0.35		0.35	0.35		0.43	0.43		0.43	0.43	
v/c Ratio	0.91	0.45		0.48	0.40		0.70	0.53		0.40	0.58	
Control Delay	55.3	12.8		17.2	11.4		40.1	9.9		18.0	10.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	55.3	12.8		17.2	11.4		40.1	9.9		18.0	10.4	
LOS	E	B		B	B		D	A		B	B	
Approach Delay		32.0			12.7			12.4			10.7	
Approach LOS		C			B			B			B	
Intersection Summary												
Area Type:	Other											
Cycle Length: 45												
Actuated Cycle Length: 44.5												
Natural Cycle: 45												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.91												
Intersection Signal Delay: 14.6	Intersection LOS: B											
Intersection Capacity Utilization 76.4%	ICU Level of Service D											
Analysis Period (min) 15												

Splits and Phases: 17: S Avalon Blvd & E 213th St



Lanes, Volumes, Timings
18: S Figueroa St & W Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	149	442	459	38	476	47	361	550	154	45	389	323
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	213		75	152		0	230		0	240		0
Storage Lanes	1		0	1		0	2		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	0.97	0.95	0.95	0.97	0.95	0.95
Frt			0.850		0.987			0.967			0.932	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3493	0	3433	3422	0	3433	3299	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3493	0	3433	3422	0	3433	3299	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			333		15			55			227	
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		1243			2441			713			3767	
Travel Time (s)		24.2			47.6			12.2			64.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	162	480	499	41	517	51	392	598	167	49	423	351
Shared Lane Traffic (%)												
Lane Group Flow (vph)	162	480	499	41	568	0	392	765	0	49	774	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Detector Phase	7	4	4	3	8		5	2		1	6	

Lanes, Volumes, Timings
18: S Figueroa St & W Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	21.0	21.0	9.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	11.0	23.0	23.0	9.0	21.0		12.0	24.0		9.0	21.0	
Total Split (%)	16.9%	35.4%	35.4%	13.8%	32.3%		18.5%	36.9%		13.8%	32.3%	
Maximum Green (s)	6.0	18.0	18.0	4.0	16.0		7.0	19.0		4.0	16.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)		5.0	5.0		5.0			5.0			5.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effect Green (s)	6.0	20.1	20.1	4.0	14.4		7.0	22.8		4.0	16.0	
Actuated g/C Ratio	0.09	0.32	0.32	0.06	0.23		0.11	0.36		0.06	0.25	
v/c Ratio	0.97	0.43	0.68	0.37	0.71		1.03	0.61		0.23	0.77	
Control Delay	97.2	19.6	13.1	39.0	27.3		88.1	19.4		31.6	22.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	97.2	19.6	13.1	39.0	27.3		88.1	19.4		31.6	22.1	
LOS	F	B	B	D	C		F	B		C	C	
Approach Delay		27.8			28.1			42.7			22.7	
Approach LOS		C			C			D			C	

Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 63.4

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 31.3

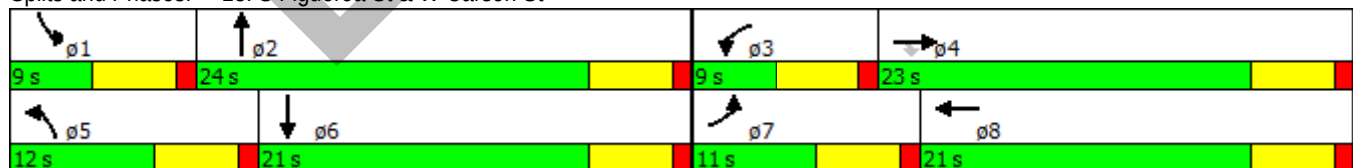
Intersection LOS: C

Intersection Capacity Utilization 71.0%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 18: S Figueroa St & W Carson St



Lanes, Volumes, Timings
19: S Main St & W Carson St/E Carson St

1/3/2019

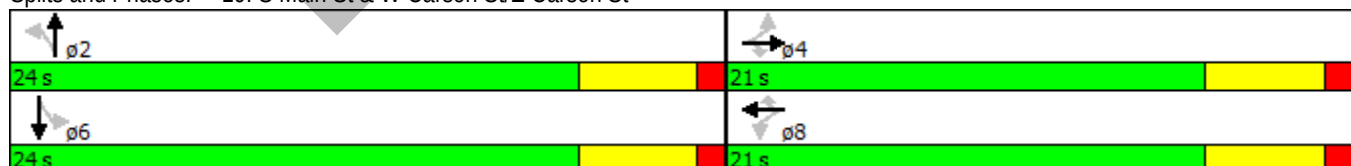
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			  			  	
Volume (vph)	105	376	126	123	414	60	140	801	129	66	612	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	16	12	12	16
Storage Length (ft)	210		70	220		70	115		0	175		500
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt			0.850			0.850		0.979			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	4979	0	1770	4973	0
Flt Permitted	0.492			0.512			0.345			0.263		
Satd. Flow (perm)	916	3539	1583	954	3539	1583	643	4979	0	490	4973	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			137			65		84			91	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		2441			4293			978			1360	
Travel Time (s)		47.6			83.6			19.1			26.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	114	409	137	134	450	65	152	871	140	72	665	113
Shared Lane Traffic (%)												
Lane Group Flow (vph)	114	409	137	134	450	65	152	1011	0	72	778	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.85	1.00	1.00	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		

Lanes, Volumes, Timings
19: S Main St & W Carson St/E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0		21.0	21.0	
Total Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	24.0	24.0		24.0	24.0	
Total Split (%)	46.7%	46.7%	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%		53.3%	53.3%	
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0	16.0	19.0	19.0		19.0	19.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	Max	Max		Max	Max	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	
Act Effct Green (s)	11.6	11.6	11.6	11.6	11.6	11.6	19.1	19.1		19.1	19.1	
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.28	0.28	0.47	0.47		0.47	0.47	
v/c Ratio	0.44	0.41	0.25	0.49	0.45	0.13	0.50	0.43		0.31	0.33	
Control Delay	17.3	12.8	3.9	18.6	13.1	4.2	17.6	7.8		13.0	7.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	17.3	12.8	3.9	18.6	13.1	4.2	17.6	7.8		13.0	7.0	
LOS	B	B	A	B	B	A	B	A		B	A	
Approach Delay		11.7			13.4			9.1			7.5	
Approach LOS		B			B			A			A	
Intersection Summary												
Area Type:	Other											
Cycle Length: 45												
Actuated Cycle Length: 40.8												
Natural Cycle: 45												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.50												
Intersection Signal Delay: 10.1							Intersection LOS: B					
Intersection Capacity Utilization 55.9%							ICU Level of Service B					
Analysis Period (min) 15												

Splits and Phases: 19: S Main St & W Carson St/E Carson St



Lanes, Volumes, Timings
20: S Avalon Blvd & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	119	515	68	505	408	111	68	1056	518	142	966	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	16	12	12	16	12	12	16
Storage Length (ft)	225		0	215		0	140		0	150		0
Storage Lanes	2		0	2		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	0.95	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.982			0.968			0.951			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3476	0	3433	3426	0	1770	4836	0	1770	5040	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3476	0	3433	3426	0	1770	4836	0	1770	5040	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			38			150			11	
Link Speed (mph)		35			40			35			35	
Link Distance (ft)		4293			2121			702			1397	
Travel Time (s)		83.6			36.2			13.7			27.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	129	560	74	549	443	121	74	1148	563	154	1050	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	634	0	549	564	0	74	1711	0	154	1114	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												

Lanes, Volumes, Timings
20: S Avalon Blvd & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	21.0		9.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	12.0	21.0		20.0	29.0		14.0	36.0		13.0	35.0	
Total Split (%)	13.3%	23.3%		22.2%	32.2%		15.6%	40.0%		14.4%	38.9%	
Maximum Green (s)	7.0	16.0		15.0	24.0		9.0	31.0		8.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		5.0			5.0			5.0			5.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	6.9	16.0		15.0	24.1		8.1	31.0		8.0	33.1	
Actuated g/C Ratio	0.08	0.18		0.17	0.27		0.09	0.34		0.09	0.37	
v/c Ratio	0.49	1.01		0.96	0.60		0.47	0.97		0.98	0.60	
Control Delay	46.6	75.4		67.6	29.8		48.5	42.7		111.0	25.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	46.6	75.4		67.6	29.8		48.5	42.7		111.0	25.4	
LOS	D	E		E	C		D	D		F	C	
Approach Delay		70.6			48.4			43.0			35.8	
Approach LOS		E			D			D			D	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.01
 Intersection Signal Delay: 46.6
 Intersection Capacity Utilization 87.3%
 Analysis Period (min) 15

Intersection LOS: D
 ICU Level of Service E

Splits and Phases: 20: S Avalon Blvd & E Carson St

 p1	 p2	 p3	 p4
13 s	36 s	20 s	21 s
 p5	 p6	 p7	 p8
14 s	35 s	12 s	29 s

Lanes, Volumes, Timings
21: I-405 SB Ramps & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	681	773	124	1247	0	173	0	260	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		180	0		0	150		0	0		0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1593	3185	1425	1593	4577	0	1593	0	1425	0	0	1676
Flt Permitted	0.167			0.359			0.950					
Satd. Flow (perm)	280	3185	1425	602	4577	0	1593	0	1425	0	0	1676
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			840						197			
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		2121			469			428			162	
Travel Time (s)		36.2			8.0			7.3			2.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	740	840	135	1355	0	188	0	283	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	8	740	840	135	1355	0	188	0	283	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1		1			1
Detector Template	Left	Thru	Right	Left	Thru		Left		Right			Right
Leading Detector (ft)	20	100	20	20	100		20		20			20
Trailing Detector (ft)	0	0	0	0	0		0		0			0
Detector 1 Position(ft)	0	0	0	0	0		0		0			0
Detector 1 Size(ft)	20	6	20	20	6		20		20			20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex			Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			0.0
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA	Perm	Perm	NA		Perm		Perm			Perm
Protected Phases		4			8							
Permitted Phases	4		4	8			2		2			6
Detector Phase	4	4	4	8	8		2		2			6

Lanes, Volumes, Timings
21: I-405 SB Ramps & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0		4.0			4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0		21.0			21.0
Total Split (s)	39.0	39.0	39.0	39.0	39.0		21.0		21.0			21.0
Total Split (%)	65.0%	65.0%	65.0%	65.0%	65.0%		35.0%		35.0%			35.0%
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		16.0		16.0			16.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0		4.0			4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0		1.0			1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0		5.0			5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0		3.0			3.0
Recall Mode	None	None	None	None	None		Min		Min			Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0		5.0			5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0		11.0			11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0		0			0
Act Effect Green (s)	24.0	24.0	24.0	24.0	24.0		10.8		10.8			
Actuated g/C Ratio	0.53	0.53	0.53	0.53	0.53		0.24		0.24			
v/c Ratio	0.05	0.44	0.73	0.42	0.56		0.50		0.58			
Control Delay	6.7	7.5	5.1	11.8	8.2		21.8		11.6			
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0		0.0			
Total Delay	6.7	7.5	5.1	11.8	8.2		21.8		11.6			
LOS	A	A	A	B	A		C		B			
Approach Delay		6.2			8.5							
Approach LOS		A			A							

Intersection Summary

Area Type: CBD
 Cycle Length: 60
 Actuated Cycle Length: 45.4
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 8.4
 Intersection Capacity Utilization 69.1%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service C

Splits and Phases: 21: I-405 SB Ramps & E Carson St

 p2	 p4
21 s	39 s
 p6	 p8
21 s	39 s

Lanes, Volumes, Timings

22: Recreation Rd/I-405 NB Ramps & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	166	750	40	14	829	269	7	4	4	55	15	553
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	12	12	12	12	12	12	12
Storage Length (ft)	70		0	100		180	0		0	0		0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992				0.850			0.850			0.850
Flt Protected	0.950			0.950				0.968			0.962	
Satd. Flow (prot)	1770	3511	0	1770	3539	1583	0	1803	1583	0	1792	1583
Flt Permitted	0.230			0.249				0.898			0.814	
Satd. Flow (perm)	428	3511	0	464	3539	1583	0	1673	1583	0	1516	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10				292			31			86
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		469			2039			158			364	
Travel Time (s)		8.0			34.8			2.7			6.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	180	815	43	15	901	292	8	4	4	60	16	601
Shared Lane Traffic (%)												
Lane Group Flow (vph)	180	858	0	15	901	292	0	12	4	0	76	601
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2		2	6		6

Lanes, Volumes, Timings

22: Recreation Rd/I-405 NB Ramps & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	38.0	38.0		38.0	38.0	38.0	32.0	32.0	32.0	32.0	32.0	32.0
Total Split (%)	54.3%	54.3%		54.3%	54.3%	54.3%	45.7%	45.7%	45.7%	45.7%	45.7%	45.7%
Maximum Green (s)	33.0	33.0		33.0	33.0	33.0	27.0	27.0	27.0	27.0	27.0	27.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max	Max	Max	Max	Max
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0	0	0	0
Act Effct Green (s)	30.4	30.4		30.4	30.4	30.4		27.2	27.2		27.2	27.2
Actuated g/C Ratio	0.45	0.45		0.45	0.45	0.45		0.40	0.40		0.40	0.40
v/c Ratio	0.94	0.54		0.07	0.57	0.34		0.02	0.01		0.12	0.87
Control Delay	74.2	14.7		11.4	15.2	2.7		13.5	0.0		14.7	33.7
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	74.2	14.7		11.4	15.2	2.7		13.5	0.0		14.7	33.7
LOS	E	B		B	B	A		B	A		B	C
Approach Delay		25.0			12.1			10.2			31.5	
Approach LOS		C			B			B			C	
Intersection Summary												
Area Type:	Other											
Cycle Length: 70												
Actuated Cycle Length: 67.6												
Natural Cycle: 70												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.94												
Intersection Signal Delay: 21.1							Intersection LOS: C					
Intersection Capacity Utilization 73.0%							ICU Level of Service C					
Analysis Period (min) 15												

Splits and Phases: 22: Recreation Rd/I-405 NB Ramps & E Carson St

 2	 4
32 s	38 s
 6	 8
32 s	38 s

Lanes, Volumes, Timings
1: S Figueroa St & I-405 SB Ramps

1/3/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	0	0	785	118	610	1230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	220	
Storage Lanes	0	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt			0.980			
Flt Protected					0.950	
Satd. Flow (prot)	0	0	3468	0	1770	3539
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	3468	0	1770	3539
Link Speed (mph)	40		40			40
Link Distance (ft)	607		2451			246
Travel Time (s)	10.3		41.8			4.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	853	128	663	1337
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	981	0	663	1337
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	12		12			12
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Yield		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	65.9%			ICU Level of Service C		
Analysis Period (min)	15					

Lanes, Volumes, Timings
2: S Figueroa St & I-405 NB Ramps

1/3/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Volume (vph)	79	135	794	0	0	1745
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1770	1583	3539	0	0	3539
Flt Permitted	0.950					
Satd. Flow (perm)	1770	1583	3539	0	0	3539
Link Speed (mph)	40		40			40
Link Distance (ft)	724		246			1243
Travel Time (s)	12.3		4.2			21.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	86	147	863	0	0	1897
Shared Lane Traffic (%)						
Lane Group Flow (vph)	86	147	863	0	0	1897
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	12		12			12
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	65.9%			ICU Level of Service C		
Analysis Period (min)	15					

Lanes, Volumes, Timings
3: S Main St & I-405 SB Ramps

1/3/2019

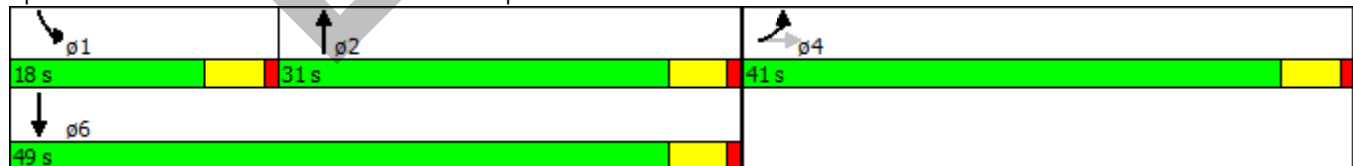
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	18	655	46	0	0	0	0	775	140	236	1136	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	250		0
Storage Lanes	1		0	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.990						0.977				
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	1844	0	0	0	0	0	3458	0	1770	3539	0
Flt Permitted	0.950									0.950		
Satd. Flow (perm)	1770	1844	0	0	0	0	0	3458	0	1770	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5						23				
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		607			169			2341			290	
Travel Time (s)		10.3			2.9			35.5			4.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	712	50	0	0	0	0	842	152	257	1235	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	762	0	0	0	0	0	994	0	257	1235	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2						2		1	2	
Detector Template	Left	Thru						Thru		Left	Thru	
Leading Detector (ft)	20	100						100		20	100	
Trailing Detector (ft)	0	0						0		0	0	
Detector 1 Position(ft)	0	0						0		0	0	
Detector 1 Size(ft)	20	6						6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex						Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0						0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0						0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0						0.0		0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Prot	NA						NA		Prot	NA	
Protected Phases	4							2		1	6	
Permitted Phases		4										
Detector Phase	4	4						2		1	6	

Lanes, Volumes, Timings 3: S Main St & I-405 SB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0						4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0						21.0		9.0	21.0	
Total Split (s)	41.0	41.0						31.0		18.0	49.0	
Total Split (%)	45.6%	45.6%						34.4%		20.0%	54.4%	
Maximum Green (s)	36.0	36.0						26.0		13.0	44.0	
Yellow Time (s)	4.0	4.0						4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0						1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0						0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0						5.0		5.0	5.0	
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Recall Mode	None	None						Max		None	Max	
Walk Time (s)	5.0	5.0						5.0			5.0	
Flash Dont Walk (s)	11.0	11.0						11.0			11.0	
Pedestrian Calls (#/hr)	0	0						0			0	
Act Effct Green (s)	36.0	36.0						26.0		13.0	44.0	
Actuated g/C Ratio	0.40	0.40						0.29		0.14	0.49	
v/c Ratio	0.03	1.03						0.98		1.01	0.71	
Control Delay	16.7	69.3						55.9		99.2	21.0	
Queue Delay	0.0	0.0						0.0		0.0	49.3	
Total Delay	16.7	69.3						55.9		99.2	70.3	
LOS	B	E						E		F	E	
Approach Delay		68.0						55.9			75.3	
Approach LOS		E						E			E	
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 90												
Natural Cycle: 90												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 1.03												
Intersection Signal Delay: 67.6							Intersection LOS: E					
Intersection Capacity Utilization 88.7%							ICU Level of Service E					
Analysis Period (min) 15												

Splits and Phases: 3: S Main St & I-405 SB Ramps



Lanes, Volumes, Timings
4: S Main St & I-405 NB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕↕		↕	↕↕			↕↕	
Volume (vph)	0	0	0	93	124	243	25	769	0	0	1483	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt					0.921						0.994	
Flt Protected					0.990		0.950					
Satd. Flow (prot)	0	0	0	0	3227	0	1770	3539	0	0	3518	0
Flt Permitted					0.990		0.117					
Satd. Flow (perm)	0	0	0	0	3227	0	218	3539	0	0	3518	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					157						11	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		724			336			290			724	
Travel Time (s)		12.3			5.7			4.4			11.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	101	135	264	27	836	0	0	1612	67
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	500	0	27	836	0	0	1679	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	2		1	2			2	
Detector Template				Left	Thru		Left	Thru			Thru	
Leading Detector (ft)				20	100		20	100			100	
Trailing Detector (ft)				0	0		0	0			0	
Detector 1 Position(ft)				0	0		0	0			0	
Detector 1 Size(ft)				20	6		20	6			6	
Detector 1 Type				Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0		0.0	0.0			0.0	
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Detector Phase				8	8		2	2			6	
Switch Phase												
Minimum Initial (s)				4.0	4.0		4.0	4.0			4.0	
Minimum Split (s)				21.0	21.0		21.0	21.0			21.0	

Lanes, Volumes, Timings
4: S Main St & I-405 NB Ramps

1/3/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)				21.0	21.0		39.0	39.0			39.0	
Total Split (%)				35.0%	35.0%		65.0%	65.0%			65.0%	
Maximum Green (s)				16.0	16.0		34.0	34.0			34.0	
Yellow Time (s)				4.0	4.0		4.0	4.0			4.0	
All-Red Time (s)				1.0	1.0		1.0	1.0			1.0	
Lost Time Adjust (s)					0.0		0.0	0.0			0.0	
Total Lost Time (s)					5.0		5.0	5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0	3.0			3.0	
Recall Mode				None	None		Max	Max			Max	
Walk Time (s)				5.0	5.0		5.0	5.0			5.0	
Flash Dont Walk (s)				11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)				0	0		0	0			0	
Act Effect Green (s)					11.5		34.1	34.1			34.1	
Actuated g/C Ratio					0.21		0.61	0.61			0.61	
v/c Ratio					0.63		0.20	0.39			0.78	
Control Delay					17.2		10.6	6.6			12.2	
Queue Delay					0.0		0.0	0.5			0.0	
Total Delay					17.2		10.6	7.1			12.2	
LOS					B		B	A			B	
Approach Delay					17.2			7.2			12.2	
Approach LOS					B			A			B	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 55.7

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 11.6

Intersection LOS: B

Intersection Capacity Utilization 88.7%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 4: S Main St & I-405 NB Ramps



Lanes, Volumes, Timings
5: S Figueroa St & W Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Volume (vph)	61	1361	169	675	1213	137	55	458	521	220	597	233
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	60		0	240		240	240		0	245		245
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.983				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4999	0	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	4999	0	1770	3539	1583	1770	3539	1583	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14				124			520			182
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		519			1251			791			2451	
Travel Time (s)		7.9			19.0			13.5			41.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	66	1479	184	734	1318	149	60	498	566	239	649	253
Shared Lane Traffic (%)												
Lane Group Flow (vph)	66	1663	0	734	1318	149	60	498	566	239	649	253
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6

Lanes, Volumes, Timings
5: S Figueroa St & W Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	21.0		9.0	21.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	17.0	45.0		56.0	84.0	84.0	11.0	27.0	27.0	22.0	38.0	38.0
Total Split (%)	11.3%	30.0%		37.3%	56.0%	56.0%	7.3%	18.0%	18.0%	14.7%	25.3%	25.3%
Maximum Green (s)	12.0	40.0		51.0	79.0	79.0	6.0	22.0	22.0	17.0	33.0	33.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)		5.0			5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0			11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0	0		0	0		0	0
Act Effect Green (s)	10.2	40.0		51.0	83.2	83.2	6.0	22.0	22.0	17.0	33.0	33.0
Actuated g/C Ratio	0.07	0.27		0.34	0.55	0.55	0.04	0.15	0.15	0.11	0.22	0.22
v/c Ratio	0.55	1.24		1.22	0.67	0.16	0.86	0.96	0.84	1.20	0.83	0.52
Control Delay	84.6	158.6		156.0	26.7	4.7	142.2	93.5	19.5	180.3	66.4	19.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.6	158.6		156.0	26.7	4.7	142.2	93.5	19.5	180.3	66.4	19.1
LOS	F	F		F	C	A	F	F	B	F	E	B
Approach Delay		155.8			68.3			58.8			79.8	
Approach LOS		F			E			E			E	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.24

Intersection Signal Delay: 93.1

Intersection LOS: F

Intersection Capacity Utilization 109.0%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 5: S Figueroa St & W Del Amo Blvd

 ø1	 ø2	 ø3	 ø4
22 s	27 s	56 s	45 s
 ø5	 ø6	 ø7	 ø8
11 s	38 s	17 s	84 s

Lanes, Volumes, Timings

6: S Main St & W Del Amo Blvd/E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Volume (vph)	248	1654	343	256	1212	108	357	501	310	168	838	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		0	195		0	150		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.974			0.988			0.943			0.962	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4953	0	1770	5024	0	1770	3337	0	1770	3405	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	4953	0	1770	5024	0	1770	3337	0	1770	3405	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31			10			93			31	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1251			1668			534			2341	
Travel Time (s)		19.0			25.3			8.1			35.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	270	1798	373	278	1317	117	388	545	337	183	911	310
Shared Lane Traffic (%)												
Lane Group Flow (vph)	270	2171	0	278	1434	0	388	882	0	183	1221	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Detector Phase	7	4		3	8		5	2		1	6	

Lanes, Volumes, Timings

6: S Main St & W Del Amo Blvd/E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	21.0		9.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	27.0	53.0		21.0	47.0		28.0	52.0		24.0	48.0	
Total Split (%)	18.0%	35.3%		14.0%	31.3%		18.7%	34.7%		16.0%	32.0%	
Maximum Green (s)	22.0	48.0		16.0	42.0		23.0	47.0		19.0	43.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		5.0			5.0			5.0			5.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effect Green (s)	22.0	48.0		16.0	42.0		23.0	47.9		18.1	43.0	
Actuated g/C Ratio	0.15	0.32		0.11	0.28		0.15	0.32		0.12	0.29	
v/c Ratio	1.04	1.35		1.48	1.01		1.43	0.78		0.86	1.22	
Control Delay	127.7	201.4		285.4	80.1		257.8	47.2		97.8	153.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	2.1		0.0	0.0	
Total Delay	127.7	201.4		285.4	80.1		257.8	49.3		97.8	153.2	
LOS	F	F		F	F		F	D		F	F	
Approach Delay		193.3			113.5			113.0			146.0	
Approach LOS		F			F			F			F	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.48

Intersection Signal Delay: 148.6

Intersection LOS: F

Intersection Capacity Utilization 122.5%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 6: S Main St & W Del Amo Blvd/E Del Amo Blvd

 p1	 p2	 p3	 p4
24 s	52 s	21 s	53 s
 p5	 p6	 p7	 p8
28 s	48 s	27 s	47 s

Lanes, Volumes, Timings
7: Stamps Dr & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1754	228	73	1269	0	316	0	197	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	155		0	0		0	0		0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Frt			0.850						0.850			
Flt Protected				0.950			0.950	0.950				
Satd. Flow (prot)	1863	3539	1583	1770	3539	0	1681	1681	1583	1863	1770	1770
Flt Permitted				0.075			0.950	0.950				
Satd. Flow (perm)	1863	3539	1583	140	3539	0	1681	1681	1583	1863	1770	1770
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			208						214			
Link Speed (mph)		45			45			25			50	
Link Distance (ft)		1668			3009			694			308	
Travel Time (s)		25.3			45.6			18.9			4.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1907	248	79	1379	0	343	0	214	0	0	0
Shared Lane Traffic (%)							50%					0%
Lane Group Flow (vph)	0	1907	248	79	1379	0	171	172	214	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Split	NA	Perm	Perm		Perm
Protected Phases		4			8		2	2			6	
Permitted Phases	4		4	8					2	6		6
Detector Phase	4	4	4	8	8		2	2	2	6	6	6

Lanes, Volumes, Timings
7: Stamps Dr & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	58.0	58.0	58.0	58.0	58.0		21.0	21.0	21.0	21.0	21.0	21.0
Total Split (%)	58.0%	58.0%	58.0%	58.0%	58.0%		21.0%	21.0%	21.0%	21.0%	21.0%	21.0%
Maximum Green (s)	53.0	53.0	53.0	53.0	53.0		16.0	16.0	16.0	16.0	16.0	16.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		Max	Max	Max	Max	Max	Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0	0	0	0	0
Act Effect Green (s)		53.0	53.0	53.0	53.0		16.0	16.0	16.0			
Actuated g/C Ratio		0.53	0.53	0.53	0.53		0.16	0.16	0.16			
v/c Ratio		1.02	0.26	1.07	0.74		0.64	0.64	0.49			
Control Delay		49.5	3.5	154.9	21.1		51.2	51.4	9.6			
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0	0.0			
Total Delay		49.5	3.5	154.9	21.1		51.2	51.4	9.6			
LOS		D	A	F	C		D	D	A			
Approach Delay		44.2			28.3			35.3				
Approach LOS		D			C			D				
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 100												
Natural Cycle: 100												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 1.07												
Intersection Signal Delay: 37.5							Intersection LOS: D					
Intersection Capacity Utilization 73.8%							ICU Level of Service D					
Analysis Period (min) 15												

Splits and Phases: 7: Stamps Dr & E Del Amo Blvd

 p2	 p6	 p4
21 s	21 s	58 s
		 p8
		58 s

Lanes, Volumes, Timings
8: S Avalon Blvd & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	459	1060	410	301	739	147	232	1330	233	347	1049	601
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		160	195		195	180		310	100		0
Storage Lanes	1		0	0		1	1		1	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	0.97	0.91	0.91
Frt			0.850			0.850			0.850		0.945	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	3433	4806	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	5085	1583	3433	4806	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			182			124			245		106	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		3009			3520			2946			3936	
Travel Time (s)		45.6			53.3			57.4			76.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	499	1152	446	327	803	160	252	1446	253	377	1140	653
Shared Lane Traffic (%)												
Lane Group Flow (vph)	499	1152	446	327	803	160	252	1446	253	377	1793	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	

Lanes, Volumes, Timings
8: S Avalon Blvd & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	21.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	38.0	46.0	46.0	25.0	33.0	33.0	21.0	61.0	61.0	18.0	58.0	58.0
Total Split (%)	25.3%	30.7%	30.7%	16.7%	22.0%	22.0%	14.0%	40.7%	40.7%	12.0%	38.7%	38.7%
Maximum Green (s)	33.0	41.0	41.0	20.0	28.0	28.0	16.0	56.0	56.0	13.0	53.0	53.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (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
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effect Green (s)	33.0	41.0	41.0	20.0	28.0	28.0	16.0	56.0	56.0	13.0	53.0	53.0
Actuated g/C Ratio	0.22	0.27	0.27	0.13	0.19	0.19	0.11	0.37	0.37	0.09	0.35	0.35
v/c Ratio	1.28	1.19	0.79	1.39	1.22	0.40	1.34	0.76	0.34	1.27	1.04dr	1.04dr
Control Delay	191.3	142.8	40.6	243.3	160.8	17.7	232.8	44.4	5.3	197.3	70.0	70.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	191.3	142.8	40.6	243.3	160.8	17.7	232.8	44.4	5.3	197.3	70.0	70.0
LOS	F	F	D	F	F	B	F	D	A	F	E	E
Approach Delay		132.6			164.0			63.7			92.1	
Approach LOS		F			F			E			F	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Natural Cycle: 130

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.39

Intersection Signal Delay: 108.4

Intersection LOS: F

Intersection Capacity Utilization 109.2%

ICU Level of Service H

Analysis Period (min) 15

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 8: S Avalon Blvd & E Del Amo Blvd

			
18 s	61 s	25 s	46 s
			
21 s	58 s	38 s	33 s

Lanes, Volumes, Timings
9: S Figueroa St & I-110 NB Ramps

1/3/2019

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	483	223	699	507	789	648
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	235			250
Storage Lanes	2	0	2			1
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	0.95	0.97	0.95	0.95	1.00
Frt	0.953					0.850
Flt Protected	0.967		0.950			
Satd. Flow (prot)	3330	0	3433	3539	3539	1583
Flt Permitted	0.967		0.305			
Satd. Flow (perm)	3330	0	1102	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	97					704
Link Speed (mph)	40			40	40	
Link Distance (ft)	170			828	791	
Travel Time (s)	2.9			14.1	13.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	525	242	760	551	858	704
Shared Lane Traffic (%)						
Lane Group Flow (vph)	767	0	760	551	858	704
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	12			12	12	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1		1	2	2	1
Detector Template	Left		Left	Thru	Thru	Right
Leading Detector (ft)	20		20	100	100	20
Trailing Detector (ft)	0		0	0	0	0
Detector 1 Position(ft)	0		0	0	0	0
Detector 1 Size(ft)	20		20	6	6	20
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Detector Phase	4		2	2	6	6

Lanes, Volumes, Timings
9: S Figueroa St & I-110 NB Ramps

1/3/2019



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	21.0		21.0	21.0	21.0	21.0
Total Split (s)	21.0		54.0	54.0	54.0	54.0
Total Split (%)	28.0%		72.0%	72.0%	72.0%	72.0%
Maximum Green (s)	16.0		49.0	49.0	49.0	49.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		Max	Max	Max	Max
Walk Time (s)	5.0		5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effect Green (s)	16.0		49.0	49.0	49.0	49.0
Actuated g/C Ratio	0.21		0.65	0.65	0.65	0.65
v/c Ratio	0.98		1.06	0.24	0.37	0.55
Control Delay	54.4		66.5	5.6	6.5	2.3
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	54.4		66.5	5.6	6.5	2.3
LOS	D		E	A	A	A
Approach Delay	54.4			40.9	4.6	
Approach LOS	D			D	A	

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 75
 Natural Cycle: 75
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.06
 Intersection Signal Delay: 28.2
 Intersection Capacity Utilization 75.0%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service D

Splits and Phases: 9: S Figueroa St & I-110 NB Ramps

ø2 54 s	ø4 21 s
ø6 54 s	

Lanes, Volumes, Timings
10: S Main St & Lenardo Rd

1/3/2019

	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↑↓		↖	↑↑
Volume (vph)	138	178	857	191	182	1292
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	145	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.973			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3444	0	1770	3539
Flt Permitted	0.950				0.220	
Satd. Flow (perm)	1770	1583	3444	0	410	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		155	73			
Link Speed (mph)	25		45			45
Link Distance (ft)	479		971			534
Travel Time (s)	13.1		14.7			8.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	150	193	932	208	198	1404
Shared Lane Traffic (%)						
Lane Group Flow (vph)	150	193	1140	0	198	1404
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	12		12			12
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (ft)	20	20	100		20	100
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	20	6		20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6

Lanes, Volumes, Timings
10: S Main St & Lenardo Rd

1/3/2019

	WBL	WBR	NBT	NBR	SBL	SBT
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	21.0	21.0	21.0		21.0	21.0
Total Split (s)	21.0	21.0	49.0		49.0	49.0
Total Split (%)	30.0%	30.0%	70.0%		70.0%	70.0%
Maximum Green (s)	16.0	16.0	44.0		44.0	44.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		Max	Max
Walk Time (s)	5.0	5.0	5.0		5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effect Green (s)	11.0	11.0	46.7		46.7	46.7
Actuated g/C Ratio	0.16	0.16	0.69		0.69	0.69
v/c Ratio	0.52	0.50	0.48		0.70	0.58
Control Delay	31.7	11.8	5.7		25.6	7.1
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	31.7	11.8	5.7		25.6	7.1
LOS	C	B	A		C	A
Approach Delay	20.5		5.7			9.4
Approach LOS	C		A			A

Intersection Summary

Area Type: Other
 Cycle Length: 70
 Actuated Cycle Length: 67.7
 Natural Cycle: 70
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.70
 Intersection Signal Delay: 9.2
 Intersection Capacity Utilization 60.0%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service B

Splits and Phases: 10: S Main St & Lenardo Rd



Lanes, Volumes, Timings
11: S Figueroa St & W Torrance Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	639	857	163	49	513	219	88	358	52	156	477	383
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12	12	16	12	12	12	12
Storage Length (ft)	180		0	115		0	255		0	185		185
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.91	0.91	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.982				0.850		0.981				0.850
Flt Protected	0.950	0.989		0.950			0.950			0.950		
Satd. Flow (prot)	1610	3732	0	1770	3539	1583	1770	3935	0	1770	3539	1583
Flt Permitted	0.440	0.701		0.107			0.367			0.433		
Satd. Flow (perm)	746	2645	0	199	3539	1583	684	3935	0	807	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		39				154		24				316
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		368			1713			3767			828	
Travel Time (s)		6.3			29.2			64.2			14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	695	932	177	53	558	238	96	389	57	170	518	416
Shared Lane Traffic (%)	47%											
Lane Group Flow (vph)	368	1436	0	53	558	238	96	446	0	170	518	416
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	1.00	1.00	1.00	1.00	1.00	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		6

Lanes, Volumes, Timings
11: S Figueroa St & W Torrance Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	21.0	21.0		21.0	21.0	21.0
Total Split (s)	43.0	43.0		43.0	43.0	43.0	22.0	22.0		22.0	22.0	22.0
Total Split (%)	66.2%	66.2%		66.2%	66.2%	66.2%	33.8%	33.8%		33.8%	33.8%	33.8%
Maximum Green (s)	38.0	38.0		38.0	38.0	38.0	17.0	17.0		17.0	17.0	17.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	Max
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	0
Act Effct Green (s)	37.3	37.3		37.3	37.3	37.3	17.0	17.0		17.0	17.0	17.0
Actuated g/C Ratio	0.58	0.58		0.58	0.58	0.58	0.26	0.26		0.26	0.26	0.26
v/c Ratio	0.85	0.93		0.46	0.27	0.24	0.53	0.42		0.80	0.55	0.64
Control Delay	33.5	24.5		24.3	7.1	3.2	33.8	20.1		52.6	23.2	10.9
Queue Delay	0.0	8.4		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	33.5	33.0		24.3	7.1	3.2	33.8	20.1		52.6	23.2	10.9
LOS	C	C		C	A	A	C	C		D	C	B
Approach Delay		33.1			7.1			22.5			23.1	
Approach LOS		C			A			C			C	
Intersection Summary												
Area Type:	Other											
Cycle Length: 65												
Actuated Cycle Length: 64.3												
Natural Cycle: 65												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.93												
Intersection Signal Delay: 24.1							Intersection LOS: C					
Intersection Capacity Utilization 82.7%							ICU Level of Service E					
Analysis Period (min) 15												

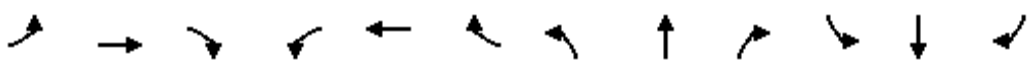
Splits and Phases: 11: S Figueroa St & W Torrance Blvd



Lanes, Volumes, Timings

12: S Main St & W Torrance Blvd/E Torrance Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		↰		↰	↰		↰	↰	↰
Volume (vph)	418	72	554	11	44	26	297	602	9	46	932	443
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12	12	16	12	12	12	12
Storage Length (ft)	0		0	0		0	190		0	145		45
Storage Lanes	0		1	0		0	2		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.957			0.998				0.850
Flt Protected		0.959			0.993		0.950			0.950		
Satd. Flow (prot)	0	1786	1583	0	2006	0	3433	4003	0	1770	3539	1583
Flt Permitted		0.722			0.925		0.195			0.347		
Satd. Flow (perm)	0	1345	1583	0	1869	0	705	4003	0	646	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			73		28			2				203
Link Speed (mph)		40			40			40			45	
Link Distance (ft)		1713			375			2482			971	
Travel Time (s)		29.2			6.4			42.3			14.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	454	78	602	12	48	28	323	654	10	50	1013	482
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	532	602	0	88	0	323	664	0	50	1013	482
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		6

Lanes, Volumes, Timings

12: S Main St & W Torrance Blvd/E Torrance Blvd

1/3/2019

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0	21.0		21.0	21.0	21.0
Total Split (s)	40.0	40.0	40.0	40.0	40.0		50.0	50.0		50.0	50.0	50.0
Total Split (%)	44.4%	44.4%	44.4%	44.4%	44.4%		55.6%	55.6%		55.6%	55.6%	55.6%
Maximum Green (s)	35.0	35.0	35.0	35.0	35.0		45.0	45.0		45.0	45.0	45.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		Max	Max		Max	Max	Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	0
Act Effect Green (s)		35.0	35.0		35.0		45.0	45.0		45.0	45.0	45.0
Actuated g/C Ratio		0.39	0.39		0.39		0.50	0.50		0.50	0.50	0.50
v/c Ratio		1.02	0.91		0.12		0.92	0.33		0.15	0.57	0.54
Control Delay		73.3	43.5		13.1		55.0	14.0		13.8	17.4	11.0
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		73.3	43.5		13.1		55.0	14.0		13.8	17.4	11.0
LOS		E	D		B		E	B		B	B	B
Approach Delay		57.5			13.1			27.4			15.3	
Approach LOS		E			B			C			B	
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 90												
Natural Cycle: 90												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 1.02												
Intersection Signal Delay: 31.2	Intersection LOS: C											
Intersection Capacity Utilization 80.3%	ICU Level of Service D											
Analysis Period (min) 15												

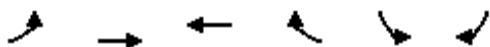
Splits and Phases: 12: S Main St & W Torrance Blvd/E Torrance Blvd



Lanes, Volumes, Timings

13: Lenardo Rd/I-405 SB Ramps

1/3/2019

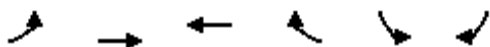


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	←	↑↑	↑	←	←	←
Volume (vph)	197	385	37	478	1009	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			0	0	0
Storage Lanes	1			1	2	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	1863	1583	3433	1583
Flt Permitted	0.731				0.950	
Satd. Flow (perm)	1362	3539	1863	1583	3433	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				520		198
Link Speed (mph)		35	40		40	
Link Distance (ft)		701	533		434	
Travel Time (s)		13.7	9.1		7.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	214	418	40	520	1097	198
Shared Lane Traffic (%)						
Lane Group Flow (vph)	214	418	40	520	1097	198
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		24	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		12	12		12	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm	NA	NA	Perm	Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4			8		6
Detector Phase	4	4	8	8	6	6

Lanes, Volumes, Timings

13: Lenardo Rd/I-405 SB Ramps

1/3/2019



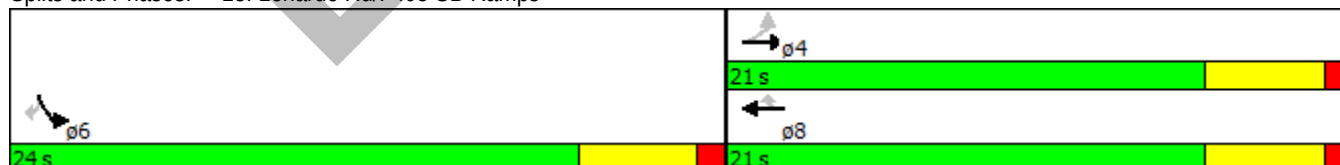
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	21.0	21.0	21.0	21.0	24.0	24.0
Total Split (%)	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%
Maximum Green (s)	16.0	16.0	16.0	16.0	19.0	19.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	Max	Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effect Green (s)	11.9	11.9	11.9	11.9	19.1	19.1
Actuated g/C Ratio	0.29	0.29	0.29	0.29	0.46	0.46
v/c Ratio	0.54	0.41	0.07	0.63	0.69	0.23
Control Delay	17.7	12.7	10.3	5.3	12.4	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.7	12.7	10.3	5.3	12.4	2.6
LOS	B	B	B	A	B	A
Approach Delay		14.4	5.7		10.9	
Approach LOS		B	A		B	

Intersection Summary

Area Type: Other
 Cycle Length: 45
 Actuated Cycle Length: 41.1
 Natural Cycle: 45
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 10.6
 Intersection Capacity Utilization 54.7%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 13: Lenardo Rd/I-405 SB Ramps



Lanes, Volumes, Timings
14: S Avalon Blvd & I-405 SB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	702	517	398	0	0	0	96	1393	221	0	1310	916
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		150	0		0	160		0	0		120
Storage Lanes	0		1	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850					0.979				0.850
Flt Protected	0.950						0.950					
Satd. Flow (prot)	3433	3539	1583	0	0	0	1770	3465	0	0	3539	1583
Flt Permitted	0.950						0.116					
Satd. Flow (perm)	3433	3539	1583	0	0	0	216	3465	0	0	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			41					44				996
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		533			422			1230			386	
Travel Time (s)		9.1			7.2			24.0			7.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	763	562	433	0	0	0	104	1514	240	0	1424	996
Shared Lane Traffic (%)												
Lane Group Flow (vph)	763	562	433	0	0	0	104	1754	0	0	1424	996
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1				1	2			2	1
Detector Template	Left	Thru	Right				Left	Thru			Thru	Right
Leading Detector (ft)	20	100	20				20	100			100	20
Trailing Detector (ft)	0	0	0				0	0			0	0
Detector 1 Position(ft)	0	0	0				0	0			0	0
Detector 1 Size(ft)	20	6	20				20	6			6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex				Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm				Perm	NA			NA	Perm
Protected Phases		4						2			6	
Permitted Phases	4		4				2					6
Detector Phase	4	4	4				2	2			6	6

Lanes, Volumes, Timings
14: S Avalon Blvd & I-405 SB Ramps

1/3/2019

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0				4.0	4.0			4.0	4.0
Minimum Split (s)	21.0	21.0	21.0				21.0	21.0			21.0	21.0
Total Split (s)	24.0	24.0	24.0				46.0	46.0			46.0	46.0
Total Split (%)	34.3%	34.3%	34.3%				65.7%	65.7%			65.7%	65.7%
Maximum Green (s)	19.0	19.0	19.0				41.0	41.0			41.0	41.0
Yellow Time (s)	4.0	4.0	4.0				4.0	4.0			4.0	4.0
All-Red Time (s)	1.0	1.0	1.0				1.0	1.0			1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0				0.0	0.0			0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0				5.0	5.0			5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0				3.0	3.0			3.0	3.0
Recall Mode	None	None	None				Max	Max			Max	Max
Walk Time (s)	5.0	5.0	5.0				5.0	5.0			5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0				11.0	11.0			11.0	11.0
Pedestrian Calls (#/hr)	0	0	0				0	0			0	0
Act Effect Green (s)	19.0	19.0	19.0				41.0	41.0			41.0	41.0
Actuated g/C Ratio	0.27	0.27	0.27				0.59	0.59			0.59	0.59
v/c Ratio	0.82	0.59	0.94				0.83	0.86			0.69	0.74
Control Delay	32.9	25.0	55.7				64.1	17.4			12.2	4.7
Queue Delay	0.0	0.0	0.0				0.0	0.0			2.1	0.6
Total Delay	32.9	25.0	55.7				64.1	17.4			14.3	5.2
LOS	C	C	E				E	B			B	A
Approach Delay		36.0						20.0			10.6	
Approach LOS		D						C			B	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 20.9

Intersection LOS: C

Intersection Capacity Utilization 74.1%

ICU Level of Service D

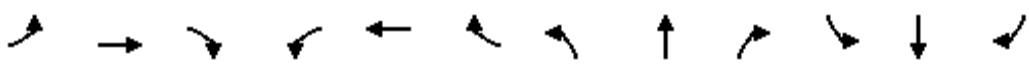
Analysis Period (min) 15

Splits and Phases: 14: S Avalon Blvd & I-405 SB Ramps

 ø2	 ø4
46 s	24 s
 ø6	
46 s	

Lanes, Volumes, Timings
15: S Avalon Blvd & I-405 NB Ramps

1/3/2019

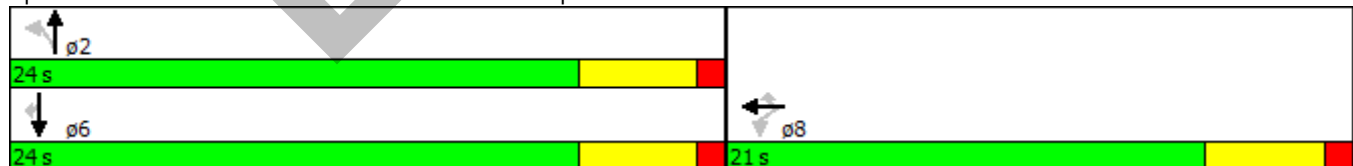
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	363	0	870	636	1020	0	0	1869	631
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		0	0		0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00
Frt						0.850						0.850
Flt Protected				0.950	0.950		0.950					
Satd. Flow (prot)	0	0	0	1681	1681	1583	3433	3539	0	0	5085	1583
Flt Permitted				0.950	0.950		0.211					
Satd. Flow (perm)	0	0	0	1681	1681	1583	762	3539	0	0	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						48						686
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		346			390			386			2946	
Travel Time (s)		5.9			6.6			7.5			57.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	395	0	946	691	1109	0	0	2032	686
Shared Lane Traffic (%)				50%								
Lane Group Flow (vph)	0	0	0	197	198	946	691	1109	0	0	2032	686
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	2	1	1	2			2	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	100	20	20	100			100	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	6	20	20	6			6	20
Detector 1 Type				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Perm	NA	Perm	Perm	NA			NA	Perm
Protected Phases					8			2			6	
Permitted Phases				8		8	2					6
Detector Phase				8	8	8	2	2			6	6

Lanes, Volumes, Timings
15: S Avalon Blvd & I-405 NB Ramps

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Minimum Split (s)				21.0	21.0	21.0	21.0	21.0			21.0	21.0
Total Split (s)				21.0	21.0	21.0	24.0	24.0			24.0	24.0
Total Split (%)				46.7%	46.7%	46.7%	53.3%	53.3%			53.3%	53.3%
Maximum Green (s)				16.0	16.0	16.0	19.0	19.0			19.0	19.0
Yellow Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
All-Red Time (s)				1.0	1.0	1.0	1.0	1.0			1.0	1.0
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Recall Mode				None	None	None	Max	Max			Max	Max
Walk Time (s)				5.0	5.0	5.0	5.0	5.0			5.0	5.0
Flash Dont Walk (s)				11.0	11.0	11.0	11.0	11.0			11.0	11.0
Pedestrian Calls (#/hr)				0	0	0	0	0			0	0
Act Effect Green (s)				16.0	16.0	16.0	19.0	19.0			19.0	19.0
Actuated g/C Ratio				0.36	0.36	0.36	0.42	0.42			0.42	0.42
v/c Ratio				0.33	0.33	1.60	2.15	0.74			0.95	0.64
Control Delay				12.5	12.6	295.0	546.7	14.7			25.0	4.3
Queue Delay				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay				12.5	12.6	295.0	546.7	14.7			25.0	4.3
LOS				B	B	F	F	B			C	A
Approach Delay					211.8			218.9			19.8	
Approach LOS					F			F			B	
Intersection Summary												
Area Type:	Other											
Cycle Length: 45												
Actuated Cycle Length: 45												
Natural Cycle: 45												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 2.15												
Intersection Signal Delay: 124.9							Intersection LOS: F					
Intersection Capacity Utilization 90.4%							ICU Level of Service E					
Analysis Period (min) 15												

Splits and Phases: 15: S Avalon Blvd & I-405 NB Ramps



Lanes, Volumes, Timings
16: S Main St & E 213th St

1/3/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	235	188	677	271	371	1081
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	12	12
Storage Length (ft)	0	0		0	90	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.940		0.957			
Flt Protected	0.973				0.950	
Satd. Flow (prot)	1931	0	3839	0	1770	3539
Flt Permitted	0.973				0.246	
Satd. Flow (perm)	1931	0	3839	0	458	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	45		165			
Link Speed (mph)	30		35			45
Link Distance (ft)	4544		1360			2482
Travel Time (s)	103.3		26.5			37.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	255	204	736	295	403	1175
Shared Lane Traffic (%)						
Lane Group Flow (vph)	459	0	1031	0	403	1175
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	28		24			24
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	12		12			12
Two way Left Turn Lane						
Headway Factor	0.85	0.85	0.85	0.85	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1		2		1	2
Detector Template	Left		Thru		Left	Thru
Leading Detector (ft)	20		100		20	100
Trailing Detector (ft)	0		0		0	0
Detector 1 Position(ft)	0		0		0	0
Detector 1 Size(ft)	20		6		20	6
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0		0.0	0.0
Detector 1 Queue (s)	0.0		0.0		0.0	0.0
Detector 1 Delay (s)	0.0		0.0		0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Perm		NA		Perm	NA
Protected Phases			2			6
Permitted Phases	8				6	

Lanes, Volumes, Timings
16: S Main St & E 213th St

1/3/2019

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8		2		6	6
Switch Phase						
Minimum Initial (s)	4.0		4.0		4.0	4.0
Minimum Split (s)	21.0		21.0		21.0	21.0
Total Split (s)	21.0		59.0		59.0	59.0
Total Split (%)	26.3%		73.8%		73.8%	73.8%
Maximum Green (s)	16.0		54.0		54.0	54.0
Yellow Time (s)	4.0		4.0		4.0	4.0
All-Red Time (s)	1.0		1.0		1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	5.0		5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		Max		Max	Max
Walk Time (s)	5.0		5.0		5.0	5.0
Flash Dont Walk (s)	11.0		11.0		11.0	11.0
Pedestrian Calls (#/hr)	0		0		0	0
Act Effct Green (s)	16.0		54.0		54.0	54.0
Actuated g/C Ratio	0.20		0.68		0.68	0.68
v/c Ratio	1.09		0.39		1.30	0.49
Control Delay	99.8		5.2		177.9	7.2
Queue Delay	0.0		0.0		0.0	0.0
Total Delay	99.8		5.2		177.9	7.2
LOS	F		A		F	A
Approach Delay	99.8		5.2			50.8
Approach LOS	F		A			D
Intersection Summary						
Area Type:	Other					
Cycle Length: 80						
Actuated Cycle Length: 80						
Natural Cycle: 80						
Control Type: Actuated-Uncoordinated						
Maximum v/c Ratio: 1.30						
Intersection Signal Delay: 42.8				Intersection LOS: D		
Intersection Capacity Utilization 85.0%				ICU Level of Service E		
Analysis Period (min) 15						

Splits and Phases: 16: S Main St & E 213th St



Lanes, Volumes, Timings
17: S Avalon Blvd & E 213th St

1/3/2019

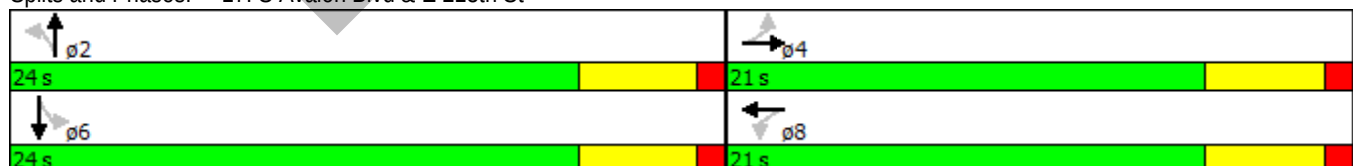
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	263	304	113	143	229	202	148	1317	165	103	1377	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	16	12	16	16	12	16	16	12	16	16
Storage Length (ft)	100		0	100		0	70		0	120		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.959			0.930			0.983			0.982	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	2025	0	1770	3730	0	1770	5665	0	1770	5660	0
Flt Permitted	0.483			0.348			0.211			0.211		
Satd. Flow (perm)	900	2025	0	648	3730	0	393	5665	0	393	5660	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			10			60			68	
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		4544			967			1397			1230	
Travel Time (s)		103.3			22.0			27.2			24.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	286	330	123	155	249	220	161	1432	179	112	1497	205
Shared Lane Traffic (%)												
Lane Group Flow (vph)	286	453	0	155	469	0	161	1611	0	112	1702	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	0.85	1.00	0.85	0.85	1.00	0.85	0.85	1.00	0.85	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lanes, Volumes, Timings
17: S Avalon Blvd & E 213th St

1/3/2019

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Detector Phase	4	4		8	8		2	2		6	6		
Switch Phase													
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0		
Total Split (s)	21.0	21.0		21.0	21.0		24.0	24.0		24.0	24.0		
Total Split (%)	46.7%	46.7%		46.7%	46.7%		53.3%	53.3%		53.3%	53.3%		
Maximum Green (s)	16.0	16.0		16.0	16.0		19.0	19.0		19.0	19.0		
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0		
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0		
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		
Recall Mode	None	None		None	None		Max	Max		Max	Max		
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0		
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0		
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0		
Act Effct Green (s)	15.6	15.6		15.6	15.6		19.0	19.0		19.0	19.0		
Actuated g/C Ratio	0.35	0.35		0.35	0.35		0.43	0.43		0.43	0.43		
v/c Ratio	0.91	0.64		0.69	0.36		0.96	0.66		0.67	0.69		
Control Delay	52.7	16.7		33.2	11.5		85.1	11.4		37.1	11.9		
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Total Delay	52.7	16.7		33.2	11.5		85.1	11.4		37.1	11.9		
LOS	D	B		C	B		F	B		D	B		
Approach Delay		30.7			16.8			18.1			13.5		
Approach LOS		C			B			B			B		
Intersection Summary													
Area Type:	Other												
Cycle Length: 45													
Actuated Cycle Length: 44.6													
Natural Cycle: 45													
Control Type: Actuated-Uncoordinated													
Maximum v/c Ratio: 0.96													
Intersection Signal Delay: 18.1							Intersection LOS: B						
Intersection Capacity Utilization 86.5%							ICU Level of Service E						
Analysis Period (min) 15													

Splits and Phases: 17: S Avalon Blvd & E 213th St



Lanes, Volumes, Timings
18: S Figueroa St & W Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	135	653	522	62	557	34	239	357	125	91	468	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	213		75	152		0	230		0	240		0
Storage Lanes	1		0	1		0	2		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	0.97	0.95	0.95	0.97	0.95	0.95
Frt			0.850		0.991			0.961			0.959	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3507	0	3433	3401	0	3433	3394	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1770	3507	0	3433	3401	0	3433	3394	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			289		10			79			87	
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		1243			2441			713			3767	
Travel Time (s)		24.2			47.6			12.2			64.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	147	710	567	67	605	37	260	388	136	99	509	189
Shared Lane Traffic (%)												
Lane Group Flow (vph)	147	710	567	67	642	0	260	524	0	99	698	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Detector Phase	7	4	4	3	8		5	2		1	6	

Lanes, Volumes, Timings
18: S Figueroa St & W Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	21.0	21.0	9.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	9.0	21.0	21.0	9.0	21.0		9.0	21.0		9.0	21.0	
Total Split (%)	15.0%	35.0%	35.0%	15.0%	35.0%		15.0%	35.0%		15.0%	35.0%	
Maximum Green (s)	4.0	16.0	16.0	4.0	16.0		4.0	16.0		4.0	16.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)		5.0	5.0		5.0			5.0			5.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effect Green (s)	4.0	18.4	18.4	4.0	14.7		4.0	17.9		4.0	16.0	
Actuated g/C Ratio	0.07	0.31	0.31	0.07	0.25		0.07	0.30		0.07	0.27	
v/c Ratio	1.23	0.64	0.82	0.56	0.73		1.12	0.48		0.42	0.71	
Control Delay	185.0	21.8	22.7	47.6	25.2		125.1	16.9		32.8	21.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	185.0	21.8	22.7	47.6	25.2		125.1	16.9		32.8	21.6	
LOS	F	C	C	D	C		F	B		C	C	
Approach Delay		39.0			27.3			52.8			23.0	
Approach LOS		D			C			D			C	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 58.8

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.23

Intersection Signal Delay: 36.3

Intersection LOS: D

Intersection Capacity Utilization 66.8%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 18: S Figueroa St & W Carson St

 ø1	 ø2	 ø3	 ø4
9 s	21 s	9 s	21 s
 ø5	 ø6	 ø7	 ø8
9 s	21 s	9 s	21 s

Lanes, Volumes, Timings
19: S Main St & W Carson St/E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	133	508	47	116	475	59	189	642	175	175	883	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	16	12	12	16
Storage Length (ft)	210		70	220		70	115		0	175		500
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt			0.850			0.850		0.968			0.974	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	4923	0	1770	4953	0
Flt Permitted	0.398			0.366			0.212			0.305		
Satd. Flow (perm)	741	3539	1583	682	3539	1583	395	4923	0	568	4953	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			51			64		88			104	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		2441			4293			978			1360	
Travel Time (s)		47.6			83.6			19.1			26.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	145	552	51	126	516	64	205	698	190	190	960	201
Shared Lane Traffic (%)												
Lane Group Flow (vph)	145	552	51	126	516	64	205	888	0	190	1161	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.85	1.00	1.00	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		

Lanes, Volumes, Timings
19: S Main St & W Carson St/E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0		21.0	21.0	
Total Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	34.0	34.0		34.0	34.0	
Total Split (%)	38.2%	38.2%	38.2%	38.2%	38.2%	38.2%	61.8%	61.8%		61.8%	61.8%	
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0	16.0	29.0	29.0		29.0	29.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	Max	Max		Max	Max	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	
Act Effct Green (s)	14.1	14.1	14.1	14.1	14.1	14.1	29.1	29.1		29.1	29.1	
Actuated g/C Ratio	0.27	0.27	0.27	0.27	0.27	0.27	0.55	0.55		0.55	0.55	
v/c Ratio	0.74	0.59	0.11	0.70	0.55	0.14	0.95	0.33		0.61	0.42	
Control Delay	43.7	19.8	5.9	41.5	19.2	5.6	71.0	6.6		20.9	7.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	43.7	19.8	5.9	41.5	19.2	5.6	71.0	6.6		20.9	7.3	
LOS	D	B	A	D	B	A	E	A		C	A	
Approach Delay		23.5			21.9			18.7			9.2	
Approach LOS		C			C			B			A	
Intersection Summary												
Area Type:	Other											
Cycle Length: 55												
Actuated Cycle Length: 53.2												
Natural Cycle: 55												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.95												
Intersection Signal Delay: 16.9							Intersection LOS: B					
Intersection Capacity Utilization 68.8%							ICU Level of Service C					
Analysis Period (min) 15												

Splits and Phases: 19: S Main St & W Carson St/E Carson St

34 s	21 s
34 s	21 s

Lanes, Volumes, Timings
20: S Avalon Blvd & E Carson St

1/3/2019

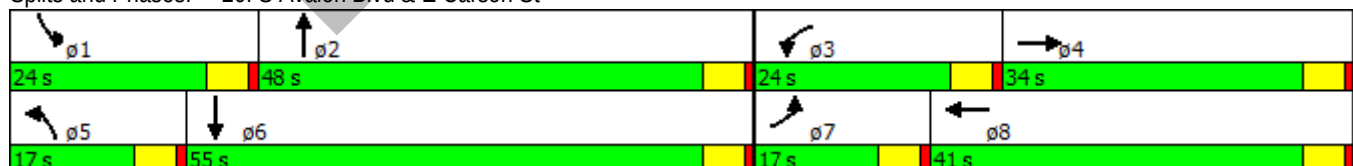
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	172	734	74	501	403	123	78	1108	478	254	1155	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	16	12	12	16	12	12	16
Storage Length (ft)	225		0	215		0	140		0	150		0
Storage Lanes	2		0	2		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	0.95	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.986			0.965			0.955			0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3490	0	3433	3415	0	1770	4856	0	1770	5014	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3490	0	3433	3415	0	1770	4856	0	1770	5014	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			31			90			16	
Link Speed (mph)		35			40			35			35	
Link Distance (ft)		4293			2121			702			1397	
Travel Time (s)		83.6			36.2			13.7			27.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	187	798	80	545	438	134	85	1204	520	276	1255	134
Shared Lane Traffic (%)												
Lane Group Flow (vph)	187	878	0	545	572	0	85	1724	0	276	1389	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												

Lanes, Volumes, Timings
20: S Avalon Blvd & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	21.0		9.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	17.0	34.0		24.0	41.0		17.0	48.0		24.0	55.0	
Total Split (%)	13.1%	26.2%		18.5%	31.5%		13.1%	36.9%		18.5%	42.3%	
Maximum Green (s)	12.0	29.0		19.0	36.0		12.0	43.0		19.0	50.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		5.0			5.0			5.0			5.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	11.2	29.0		19.0	36.8		10.5	43.0		19.0	51.5	
Actuated g/C Ratio	0.09	0.22		0.15	0.28		0.08	0.33		0.15	0.40	
v/c Ratio	0.63	1.12		1.09	0.58		0.60	1.03		1.07	0.70	
Control Delay	67.4	116.5		117.3	40.6		74.7	71.9		127.7	34.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	67.4	116.5		117.3	40.6		74.7	71.9		127.7	34.8	
LOS	E	F		F	D		E	E		F	C	
Approach Delay		107.8			78.0			72.0			50.2	
Approach LOS		F			E			E			D	
Intersection Summary												
Area Type:	Other											
Cycle Length: 130												
Actuated Cycle Length: 130												
Natural Cycle: 130												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 1.12												
Intersection Signal Delay: 73.5	Intersection LOS: E											
Intersection Capacity Utilization 99.8%	ICU Level of Service F											
Analysis Period (min) 15												

Splits and Phases: 20: S Avalon Blvd & E Carson St



Lanes, Volumes, Timings
21: I-405 SB Ramps & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	1150	986	135	1158	0	124	0	71	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		180	0		0	150		0	0		0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1593	3185	1425	1593	4577	0	1593	0	1425	0	0	1676
Flt Permitted	0.198			0.184			0.950					
Satd. Flow (perm)	332	3185	1425	308	4577	0	1593	0	1425	0	0	1676
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			1072						77			
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		2121			469			428			162	
Travel Time (s)		36.2			8.0			7.3			2.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	1250	1072	147	1259	0	135	0	77	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	1250	1072	147	1259	0	135	0	77	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1		1			1
Detector Template	Left	Thru	Right	Left	Thru		Left		Right			Right
Leading Detector (ft)	20	100	20	20	100		20		20			20
Trailing Detector (ft)	0	0	0	0	0		0		0			0
Detector 1 Position(ft)	0	0	0	0	0		0		0			0
Detector 1 Size(ft)	20	6	20	20	6		20		20			20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex			Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			0.0
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA	Perm	Perm	NA		Perm		Perm			Perm
Protected Phases		4			8							
Permitted Phases	4		4	8			2		2			6
Detector Phase	4	4	4	8	8		2		2			6

Lanes, Volumes, Timings
21: I-405 SB Ramps & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0		4.0			4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0		21.0			21.0
Total Split (s)	49.0	49.0	49.0	49.0	49.0		21.0		21.0			21.0
Total Split (%)	70.0%	70.0%	70.0%	70.0%	70.0%		30.0%		30.0%			30.0%
Maximum Green (s)	44.0	44.0	44.0	44.0	44.0		16.0		16.0			16.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0		4.0			4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0		1.0			1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0		5.0			5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0		3.0			3.0
Recall Mode	None	None	None	None	None		Min		Min			Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0		5.0			5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0		11.0			11.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0		0			0
Act Effect Green (s)	38.9	38.9	38.9	38.9	38.9		10.5		10.5			
Actuated g/C Ratio	0.65	0.65	0.65	0.65	0.65		0.18		0.18			
v/c Ratio	0.08	0.60	0.82	0.73	0.42		0.48		0.25			
Control Delay	5.6	7.8	7.6	35.2	5.7		30.0		8.5			
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0		0.0			
Total Delay	5.6	7.8	7.6	35.2	5.7		30.0		8.5			
LOS	A	A	A	D	A		C		A			
Approach Delay		7.7			8.8							
Approach LOS		A			A							
Intersection Summary												
Area Type:	CBD											
Cycle Length: 70												
Actuated Cycle Length: 59.8												
Natural Cycle: 70												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.82												
Intersection Signal Delay: 8.8							Intersection LOS: A					
Intersection Capacity Utilization 84.5%							ICU Level of Service E					
Analysis Period (min) 15												

Splits and Phases: 21: I-405 SB Ramps & E Carson St

 p2	 p4
21 s	49 s
 p6	 p8
21 s	49 s

Lanes, Volumes, Timings

22: Recreation Rd/I-405 NB Ramps & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	194	1018	36	23	749	417	36	20	20	53	8	494
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	12	12	12	12	12	12	12
Storage Length (ft)	70		0	100		180	0		0	0		0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995				0.850			0.850			0.850
Flt Protected	0.950			0.950				0.969			0.959	
Satd. Flow (prot)	1770	3522	0	1770	3539	1583	0	1805	1583	0	1786	1583
Flt Permitted	0.283			0.151				0.834			0.771	
Satd. Flow (perm)	527	3522	0	281	3539	1583	0	1554	1583	0	1436	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8				453			36			118
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		469			2039			158			364	
Travel Time (s)		8.0			34.8			2.7			6.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	211	1107	39	25	814	453	39	22	22	58	9	537
Shared Lane Traffic (%)												
Lane Group Flow (vph)	211	1146	0	25	814	453	0	61	22	0	67	537
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2		2	6		6

Lanes, Volumes, Timings

22: Recreation Rd/I-405 NB Ramps & E Carson St

1/3/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	34.0	34.0		34.0	34.0	34.0	26.0	26.0	26.0	26.0	26.0	26.0
Total Split (%)	56.7%	56.7%		56.7%	56.7%	56.7%	43.3%	43.3%	43.3%	43.3%	43.3%	43.3%
Maximum Green (s)	29.0	29.0		29.0	29.0	29.0	21.0	21.0	21.0	21.0	21.0	21.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0		5.0	5.0		5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max	Max	Max	Max	Max
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0	0	0	0
Act Effect Green (s)	26.5	26.5		26.5	26.5	26.5		21.2	21.2		21.2	21.2
Actuated g/C Ratio	0.46	0.46		0.46	0.46	0.46		0.37	0.37		0.37	0.37
v/c Ratio	0.88	0.71		0.20	0.50	0.47		0.11	0.04		0.13	0.82
Control Delay	52.2	15.1		13.4	12.0	2.9		13.9	3.8		14.2	27.0
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	52.2	15.1		13.4	12.0	2.9		13.9	3.8		14.2	27.0
LOS	D	B		B	B	A		B	A		B	C
Approach Delay		20.8			8.8			11.2			25.6	
Approach LOS		C			A			B			C	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 57.7

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 16.8

Intersection LOS: B

Intersection Capacity Utilization 67.1%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 22: Recreation Rd/I-405 NB Ramps & E Carson St

26 s	34 s	26 s	34 s
26 s	34 s	26 s	34 s

Future (Year 2023) + Development + Mitigation

Lanes, Volumes, Timings
5: S Figueroa St & W Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	154	414	101	327	1205	172	202	748	506	58	390	450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	60		0	240		240	240		0	245		245
Storage Lanes	1		0	2		0	1		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	0.97	0.95	0.95	1.00	0.95	1.00	0.97	0.95	1.00
Frt		0.971			0.981				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4938	0	3433	3472	0	1770	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	4938	0	3433	3472	0	1770	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		63			19				390			240
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		519			1251			791			2451	
Travel Time (s)		7.9			19.0			13.5			41.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	167	450	110	355	1310	187	220	813	550	63	424	489
Shared Lane Traffic (%)												
Lane Group Flow (vph)	167	560	0	355	1497	0	220	813	550	63	424	489
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	7	4		3	8		5	2	2	1	6	6

Lanes, Volumes, Timings
5: S Figueroa St & W Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	21.0		9.0	21.0		9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	15.0	39.0		21.0	45.0		17.0	31.0	31.0	9.0	23.0	23.0
Total Split (%)	15.0%	39.0%		21.0%	45.0%		17.0%	31.0%	31.0%	9.0%	23.0%	23.0%
Maximum Green (s)	10.0	34.0		16.0	40.0		12.0	26.0	26.0	4.0	18.0	18.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	Max	Max	None	Max	Max
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0			11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
Act Effect Green (s)	10.0	35.5		14.5	40.0		12.0	27.8	27.8	4.0	18.0	18.0
Actuated g/C Ratio	0.10	0.36		0.14	0.40		0.12	0.28	0.28	0.04	0.18	0.18
v/c Ratio	0.94	0.31		0.71	1.07		1.04	0.83	0.76	0.46	0.67	1.02
Control Delay	100.9	21.5		49.0	74.8		116.6	43.0	18.0	58.0	44.0	67.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	100.9	21.5		49.0	74.8		116.6	43.0	18.0	58.0	44.0	67.5
LOS	F	C		D	E		F	D	B	E	D	E
Approach Delay		39.7			69.9			44.5			56.7	
Approach LOS		D			E			D			E	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 55.3

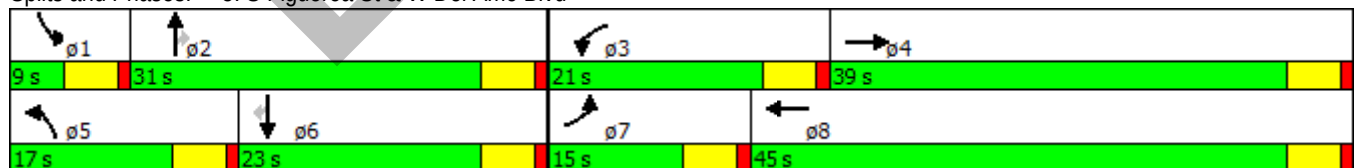
Intersection LOS: E

Intersection Capacity Utilization 90.3%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 5: S Figueroa St & W Del Amo Blvd



Lanes, Volumes, Timings

6: S Main St & W Del Amo Blvd/E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  		 	 		 	  	
Volume (vph)	203	899	212	237	1294	74	178	595	254	72	538	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		0	195		0	150		0	150		0
Storage Lanes	1		1	2		0	2		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	0.91	0.97	0.95	1.00	1.00	0.91	0.91
Frt			0.850		0.992				0.850		0.961	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	3433	5045	0	3433	3539	1583	1770	4887	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	5085	1583	3433	5045	0	3433	3539	1583	1770	4887	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			208		10				276		94	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1251			1668			534			2341	
Travel Time (s)		19.0			25.3			8.1			35.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	221	977	230	258	1407	80	193	647	276	78	585	207
Shared Lane Traffic (%)												
Lane Group Flow (vph)	221	977	230	258	1487	0	193	647	276	78	792	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4						2			
Detector Phase	7	4	4	3	8		5	2	2	1	6	

Lanes, Volumes, Timings

6: S Main St & W Del Amo Blvd/E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	9.0	21.0	21.0	9.0	21.0		9.0	21.0	21.0	9.0	21.0	
Total Split (s)	17.0	28.0	28.0	20.0	31.0		15.0	32.0	32.0	10.0	27.0	
Total Split (%)	18.9%	31.1%	31.1%	22.2%	34.4%		16.7%	35.6%	35.6%	11.1%	30.0%	
Maximum Green (s)	12.0	23.0	23.0	15.0	26.0		10.0	27.0	27.0	5.0	22.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	
Walk Time (s)		5.0	5.0		5.0			5.0	5.0		5.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effect Green (s)	12.0	26.1	26.1	11.9	26.0		9.3	28.5	28.5	5.0	22.2	
Actuated g/C Ratio	0.13	0.29	0.29	0.13	0.29		0.10	0.32	0.32	0.06	0.25	
v/c Ratio	0.93	0.66	0.38	0.57	1.01		0.54	0.57	0.40	0.79	0.62	
Control Delay	83.8	30.9	7.3	41.1	58.4		44.0	28.5	5.0	91.2	28.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	83.8	30.9	7.3	41.1	58.4		44.0	28.5	5.0	91.2	28.7	
LOS	F	C	A	D	E		D	C	A	F	C	
Approach Delay		35.3			55.9			25.4			34.3	
Approach LOS		D			E			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 89.5

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 40.0

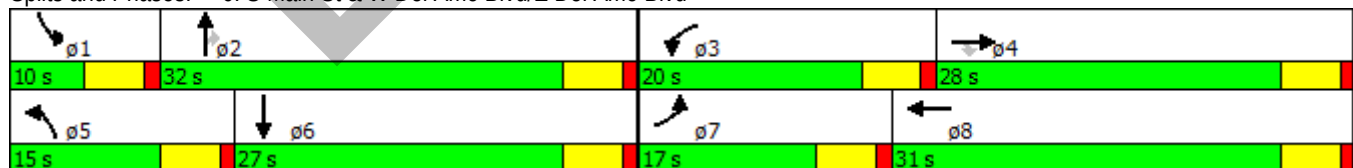
Intersection LOS: D

Intersection Capacity Utilization 75.0%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 6: S Main St & W Del Amo Blvd/E Del Amo Blvd



Lanes, Volumes, Timings
8: S Avalon Blvd & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	394	659	119	186	871	101	311	1131	301	171	709	391
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		160	195		195	180		310	100		0
Storage Lanes	2		0	0		0	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	0.95	0.97	0.91	1.00	0.97	0.95	1.00
Frt			0.850		0.984				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3483	0	3433	5085	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3483	0	3433	5085	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			145		14				277			246
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		3009			3520			2946			3936	
Travel Time (s)		45.6			53.3			57.4			76.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	428	716	129	202	947	110	338	1229	327	186	771	425
Shared Lane Traffic (%)												
Lane Group Flow (vph)	428	716	129	202	1057	0	338	1229	327	186	771	425
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4						2			6
Detector Phase	7	4	4	3	8		5	2	2	1	6	6

Lanes, Volumes, Timings
8: S Avalon Blvd & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	21.0	21.0	9.0	21.0		9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	17.0	35.0	35.0	14.0	32.0		15.0	30.0	30.0	11.0	26.0	26.0
Total Split (%)	18.9%	38.9%	38.9%	15.6%	35.6%		16.7%	33.3%	33.3%	12.2%	28.9%	28.9%
Maximum Green (s)	12.0	30.0	30.0	9.0	27.0		10.0	25.0	25.0	6.0	21.0	21.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	Max
Walk Time (s)		5.0	5.0		5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0	11.0		11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effect Green (s)	12.0	30.3	30.3	8.7	27.0		10.0	25.0	25.0	6.0	21.0	21.0
Actuated g/C Ratio	0.13	0.34	0.34	0.10	0.30		0.11	0.28	0.28	0.07	0.23	0.23
v/c Ratio	0.94	0.60	0.21	0.61	1.00		0.89	0.87	0.51	0.82	0.93	0.76
Control Delay	69.0	27.5	3.9	47.2	60.7		65.8	39.1	8.7	69.4	53.9	23.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.0	27.5	3.9	47.2	60.7		65.8	39.1	8.7	69.4	53.9	23.6
LOS	E	C	A	D	E		E	D	A	E	D	C
Approach Delay		39.1			58.6			38.6			46.7	
Approach LOS		D			E			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 45.0

Intersection LOS: D

Intersection Capacity Utilization 83.7%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 8: S Avalon Blvd & E Del Amo Blvd

			
ø1	ø2	ø3	ø4
11 s	30 s	14 s	35 s
			
ø5	ø6	ø7	ø8
15 s	26 s	17 s	32 s

Lanes, Volumes, Timings
20: S Avalon Blvd & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 	 			 		 	 	 
Volume (vph)	119	515	68	505	408	111	68	1056	518	142	966	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	16	12	12	16	12	12	16
Storage Length (ft)	225		0	215		0	140		0	150		0
Storage Lanes	1		0	2		0	1		1	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	0.97	0.95	0.95	1.00	0.95	1.00	0.97	0.95	0.95
Frt		0.982			0.968				0.850		0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4994	0	3433	3426	0	1770	3539	1794	3433	3507	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	4994	0	3433	3426	0	1770	3539	1794	3433	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			38				354			7
Link Speed (mph)		35			40			35			35	
Link Distance (ft)		4293			2121			702			1397	
Travel Time (s)		83.6			36.2			13.7			27.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	129	560	74	549	443	121	74	1148	563	154	1050	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	634	0	549	564	0	74	1148	563	154	1114	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			

Lanes, Volumes, Timings
20: S Avalon Blvd & E Carson St

1/3/2019

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	9.0	21.0		9.0	21.0		9.0	21.0	21.0	9.0	21.0	
Total Split (s)	12.0	21.0		20.0	29.0		14.0	36.0	36.0	13.0	35.0	
Total Split (%)	13.3%	23.3%		22.2%	32.2%		15.6%	40.0%	40.0%	14.4%	38.9%	
Maximum Green (s)	7.0	16.0		15.0	24.0		9.0	31.0	31.0	8.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Max	Max	None	Max	
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	
Flash Dont Walk (s)		11.0			11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0			0			0	0		0	
Act Effect Green (s)	7.0	15.1		15.0	23.1		8.0	31.0	31.0	7.7	32.9	
Actuated g/C Ratio	0.08	0.17		0.17	0.26		0.09	0.35	0.35	0.09	0.37	
v/c Ratio	0.93	0.73		0.95	0.61		0.46	0.93	0.66	0.52	0.85	
Control Delay	103.7	39.2		64.7	30.2		48.2	42.7	13.0	45.6	35.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	103.7	39.2		64.7	30.2		48.2	42.7	13.0	45.6	35.3	
LOS	F	D		E	C		D	D	B	D	D	
Approach Delay		50.1			47.2			33.6			36.6	
Approach LOS		D			D			C			D	
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 88.9												
Natural Cycle: 80												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.95												
Intersection Signal Delay: 40.0	Intersection LOS: D											
Intersection Capacity Utilization 75.8%	ICU Level of Service D											
Analysis Period (min) 15												

Splits and Phases: 20: S Avalon Blvd & E Carson St

 ø1	 ø2	 ø3	 ø4
13 s	36 s	20 s	21 s
 ø5	 ø6	 ø7	 ø8
14 s	35 s	12 s	29 s

Lanes, Volumes, Timings
5: S Figueroa St & W Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	1361	169	675	1213	137	55	458	521	220	597	233
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	60		0	240		240	240		0	245		245
Storage Lanes	1		0	2		0	1		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	0.97	0.95	0.95	1.00	0.95	1.00	0.97	0.95	1.00
Frt		0.983			0.985				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4999	0	3433	3486	0	1770	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	4999	0	3433	3486	0	1770	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			16				337			185
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		519			1251			791			2451	
Travel Time (s)		7.9			19.0			13.5			41.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	66	1479	184	734	1318	149	60	498	566	239	649	253
Shared Lane Traffic (%)												
Lane Group Flow (vph)	66	1663	0	734	1467	0	60	498	566	239	649	253
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	7	4		3	8		5	2	2	1	6	6

Lanes, Volumes, Timings
5: S Figueroa St & W Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	21.0		9.0	21.0		9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	11.0	36.0		26.0	51.0		10.0	26.0	26.0	12.0	28.0	28.0
Total Split (%)	11.0%	36.0%		26.0%	51.0%		10.0%	26.0%	26.0%	12.0%	28.0%	28.0%
Maximum Green (s)	6.0	31.0		21.0	46.0		5.0	21.0	21.0	7.0	23.0	23.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	Max	Max	None	Max	Max
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0			11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
Act Effect Green (s)	6.0	31.0		21.0	48.2		5.0	21.0	21.0	7.0	25.0	25.0
Actuated g/C Ratio	0.06	0.31		0.21	0.48		0.05	0.21	0.21	0.07	0.25	0.25
v/c Ratio	0.62	1.06		1.02	0.87		0.68	0.67	0.95	1.00	0.73	0.47
Control Delay	71.7	75.2		78.5	30.6		83.6	41.5	42.7	105.1	41.0	13.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.7	75.2		78.5	30.6		83.6	41.5	42.7	105.1	41.0	13.3
LOS	E	E		E	C		F	D	D	F	D	B
Approach Delay		75.1			46.6			44.3			48.3	
Approach LOS		E			D			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.06

Intersection Signal Delay: 54.4

Intersection LOS: D

Intersection Capacity Utilization 85.8%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 5: S Figueroa St & W Del Amo Blvd

 p1	 p2	 p3	 p4
12 s	26 s	26 s	36 s
 p5	 p6	 p7	 p8
10 s	28 s	11 s	51 s

Lanes, Volumes, Timings

6: S Main St & W Del Amo Blvd/E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  		 	 			  	
Volume (vph)	248	1654	343	256	1212	108	357	501	310	168	838	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190		0	195		0	150		0	150		0
Storage Lanes	1		1	2		0	2		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	0.91	0.97	0.95	1.00	1.00	0.91	0.91
Frt			0.850		0.988				0.850		0.962	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	3433	5024	0	3433	3539	1583	1770	4892	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	5085	1583	3433	5024	0	3433	3539	1583	1770	4892	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			220		10				264		57	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1251			1668			534			2341	
Travel Time (s)		19.0			25.3			8.1			35.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	270	1798	373	278	1317	117	388	545	337	183	911	310
Shared Lane Traffic (%)												
Lane Group Flow (vph)	270	1798	373	278	1434	0	388	545	337	183	1221	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4						2			
Detector Phase	7	4	4	3	8		5	2	2	1	6	

Lanes, Volumes, Timings

6: S Main St & W Del Amo Blvd/E Del Amo Blvd

1/3/2019

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	9.0	21.0	21.0	9.0	21.0		9.0	21.0	21.0	9.0	21.0	
Total Split (s)	27.0	53.0	53.0	21.0	47.0		28.0	52.0	52.0	24.0	48.0	
Total Split (%)	18.0%	35.3%	35.3%	14.0%	31.3%		18.7%	34.7%	34.7%	16.0%	32.0%	
Maximum Green (s)	22.0	48.0	48.0	16.0	42.0		23.0	47.0	47.0	19.0	43.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	
Walk Time (s)		5.0	5.0		5.0			5.0	5.0		5.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effect Green (s)	22.0	48.7	48.7	15.3	42.0		20.8	47.0	47.0	18.0	44.2	
Actuated g/C Ratio	0.15	0.33	0.33	0.10	0.28		0.14	0.32	0.32	0.12	0.30	
v/c Ratio	1.03	1.08	0.56	0.79	1.01		0.81	0.49	0.50	0.86	0.82	
Control Delay	125.7	94.6	20.0	81.9	78.2		75.8	43.3	12.1	97.1	52.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.2	0.0	0.0	
Total Delay	125.7	94.6	20.0	81.9	78.2		75.8	43.3	12.3	97.1	52.1	
LOS	F	F	B	F	E		E	D	B	F	D	
Approach Delay		86.7			78.8			45.0			57.9	
Approach LOS		F			E			D			E	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 149

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 71.0

Intersection LOS: E

Intersection Capacity Utilization 89.0%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: S Main St & W Del Amo Blvd/E Del Amo Blvd

← ϕ1	↑ ϕ2	← ϕ3	→ ϕ4
24 s	52 s	21 s	53 s
← ϕ5	↓ ϕ6	← ϕ7	← ϕ8
28 s	48 s	27 s	47 s

Lanes, Volumes, Timings
8: S Avalon Blvd & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	459	1060	410	301	739	147	232	1330	233	347	1049	601
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		160	195		195	180		310	100		0
Storage Lanes	2		0	0		0	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	0.95	0.97	0.91	1.00	0.97	0.95	1.00
Frt			0.850		0.975				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3451	0	3433	5085	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3451	0	3433	5085	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			155		15				215			272
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		3009			3520			2946			3936	
Travel Time (s)		45.6			53.3			57.4			76.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	499	1152	446	327	803	160	252	1446	253	377	1140	653
Shared Lane Traffic (%)												
Lane Group Flow (vph)	499	1152	446	327	963	0	252	1446	253	377	1140	653
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4						2			6
Detector Phase	7	4	4	3	8		5	2	2	1	6	6

Lanes, Volumes, Timings
8: S Avalon Blvd & E Del Amo Blvd

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	21.0	21.0	9.0	21.0		9.0	21.0	21.0	9.0	21.0	21.0
Total Split (s)	25.0	49.0	49.0	18.0	42.0		15.0	54.0	54.0	29.0	68.0	68.0
Total Split (%)	16.7%	32.7%	32.7%	12.0%	28.0%		10.0%	36.0%	36.0%	19.3%	45.3%	45.3%
Maximum Green (s)	20.0	44.0	44.0	13.0	37.0		10.0	49.0	49.0	24.0	63.0	63.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	Max
Walk Time (s)		5.0	5.0		5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0	11.0		11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effect Green (s)	20.0	44.0	44.0	13.0	37.0		10.0	52.0	52.0	21.0	63.0	63.0
Actuated g/C Ratio	0.13	0.29	0.29	0.09	0.25		0.07	0.35	0.35	0.14	0.42	0.42
v/c Ratio	1.09	1.11	0.78	1.10	1.12		1.11	0.82	0.37	0.78	0.77	0.79
Control Delay	127.9	111.3	41.6	142.8	118.0		152.2	49.9	8.9	74.1	41.5	29.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	127.9	111.3	41.6	142.8	118.0		152.2	49.9	8.9	74.1	41.5	29.6
LOS	F	F	D	F	F		F	D	A	E	D	C
Approach Delay		100.4			124.3			57.8			43.6	
Approach LOS		F			F			E			D	

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.12

Intersection Signal Delay: 77.0

Intersection LOS: E

Intersection Capacity Utilization 90.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 8: S Avalon Blvd & E Del Amo Blvd

			
29 s	54 s	18 s	49 s
			
15 s	68 s	25 s	42 s

Lanes, Volumes, Timings
20: S Avalon Blvd & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	172	734	74	501	403	123	78	1108	478	254	1155	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	16	12	12	16	12	12	16
Storage Length (ft)	225		0	215		0	140		0	150		0
Storage Lanes	1		0	2		0	1		1	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	0.97	0.95	0.95	1.00	0.95	1.00	0.97	0.95	0.95
Frt		0.986			0.965				0.850		0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5014	0	3433	3415	0	1770	3539	1794	3433	3490	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	5014	0	3433	3415	0	1770	3539	1794	3433	3490	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			31				294		10	
Link Speed (mph)		35			40			35			35	
Link Distance (ft)		4293			2121			702			1397	
Travel Time (s)		83.6			36.2			13.7			27.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	187	798	80	545	438	134	85	1204	520	276	1255	134
Shared Lane Traffic (%)												
Lane Group Flow (vph)	187	878	0	545	572	0	85	1204	520	276	1389	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			12			12			12	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			

Lanes, Volumes, Timings
20: S Avalon Blvd & E Carson St

1/3/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	9.0	21.0		9.0	21.0		9.0	21.0	21.0	9.0	21.0	
Total Split (s)	17.0	34.0		24.0	41.0		17.0	48.0	48.0	24.0	55.0	
Total Split (%)	13.1%	26.2%		18.5%	31.5%		13.1%	36.9%	36.9%	18.5%	42.3%	
Maximum Green (s)	12.0	29.0		19.0	36.0		12.0	43.0	43.0	19.0	50.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Max	Max	None	Max	
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	
Flash Dont Walk (s)		11.0			11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0			0			0	0		0	
Act Effct Green (s)	12.0	26.9		19.0	33.9		10.3	45.2	45.2	15.3	50.1	
Actuated g/C Ratio	0.09	0.21		0.15	0.27		0.08	0.36	0.36	0.12	0.40	
v/c Ratio	1.11	0.82		1.06	0.61		0.59	0.95	0.63	0.67	1.00	
Control Delay	154.9	53.8		106.3	41.3		73.3	56.5	18.2	61.6	62.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	154.9	53.8		106.3	41.3		73.3	56.5	18.2	61.6	62.6	
LOS	F	D		F	D		E	E	B	E	E	
Approach Delay		71.5			73.1			46.3			62.4	
Approach LOS		E			E			D			E	
Intersection Summary												
Area Type:	Other											
Cycle Length: 130												
Actuated Cycle Length: 126.4												
Natural Cycle: 90												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 1.11												
Intersection Signal Delay: 61.1	Intersection LOS: E											
Intersection Capacity Utilization 87.0%	ICU Level of Service E											
Analysis Period (min) 15												

Splits and Phases: 20: S Avalon Blvd & E Carson St

