

**APPENDIX A**

**SCOPING AGREEMENT**

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**Exhibit F**

**Traffic Impact Study Scope - City of Corona**

Project Name:	<b>7-11 and Fast Food with Drive-Thru</b>
Project Address:	<b>N. of 2nd St. and west of Buena Vista</b>
Project Description:	<b>14 VFP Conv. Store with Gas Pumps and a 1,900 sf fast food restaurant w/drive-thru</b>
Case No.	

Name: **Scott Sato**  
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**Irvine, CA 92618**  
 Phone No: **(949) 359-3858**  
 Email: **atman.kadakia@greens.com**

**A. Trip Generation**

Proposed Land Use:	<b>GC</b>	Previous Land Use:	HDR & GC
Existing Zoning:	<b>C-3 &amp; MP</b>	Proposed Zoning:	<b>C-3</b>

	In	Out	Total
AM Trips	<b>138</b>	<b>137</b>	<b>275</b>
PM Trips	<b>145</b>	<b>143</b>	<b>288</b>

**B. Trip Geographic Distribution:** (See attached exhibit for detailed assignment).

**C. Background Traffic**

Project Opening Year	<b>2022</b>	Growth Rate:	<b>2.0</b> %
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**D. Study Intersections**

1 <b>Lincoln/Pomona</b>	6 <b>2nd/Buena Vista</b>
2 <b>Lincoln/WB 91 Ramps</b>	7 <b>2nd/Cardenas Dwy.</b>
3 <b>Lincoln/D-2nd</b>	8
4 <b>Lincoln/6th</b>	9
5 <b>2nd/EB 91 Ramps</b>	10

**E. Specific issues to be addressed in the Study**

<b>Existing</b>
<b>Existing+Project</b>
<b>Existing+Ambient Growth+Project</b>
<b>Existing+Ambient Growth+Project+Cumulative</b>
<b>Long Range 2040 with and without project</b>

Approved By:	<div style="border: 2px solid green; border-radius: 15px; padding: 10px; display: inline-block;"> <p style="margin: 0;"><b>APPROVED</b></p> <p style="margin: 0;"><i>By Rosalva Ureno at 3:12 pm, Nov 01, 2021</i></p> </div>
City of Corona Traffic Engineering	
Date	

**TABLE 1**

**TRIP GENERATION RATES<sup>1</sup>**

LAND USE	ITE CODE	QUANTITY	UNITS <sup>2</sup>	PEAK HOUR TRIP RATES						DAILY
				AM			PM			
				IN	OUT	TOTAL	IN	OUT	TOTAL	
Fast Food w/ Drive Thru	934	1.9	TSF	20.5	19.69	40.19	16.99	15.68	32.67	470.95
Convenience Mkt. w/Pumps	853	14	VFP	10.38	10.38	20.76	11.52	11.52	23.04	322.5

<sup>1</sup> Source: ITE (Institute of Transportation Engineers) Trip Generation Manual, 10th Edition, 2017.

<sup>2</sup> TSF = Thousand Square Feet; VFP = Vehicle Fueling Positions

**APPROVED**

*By Rosalva Ureno at 3:12 pm, Nov 01, 2021*

## TABLE 2

### TRIP GENERATION SUMMARY

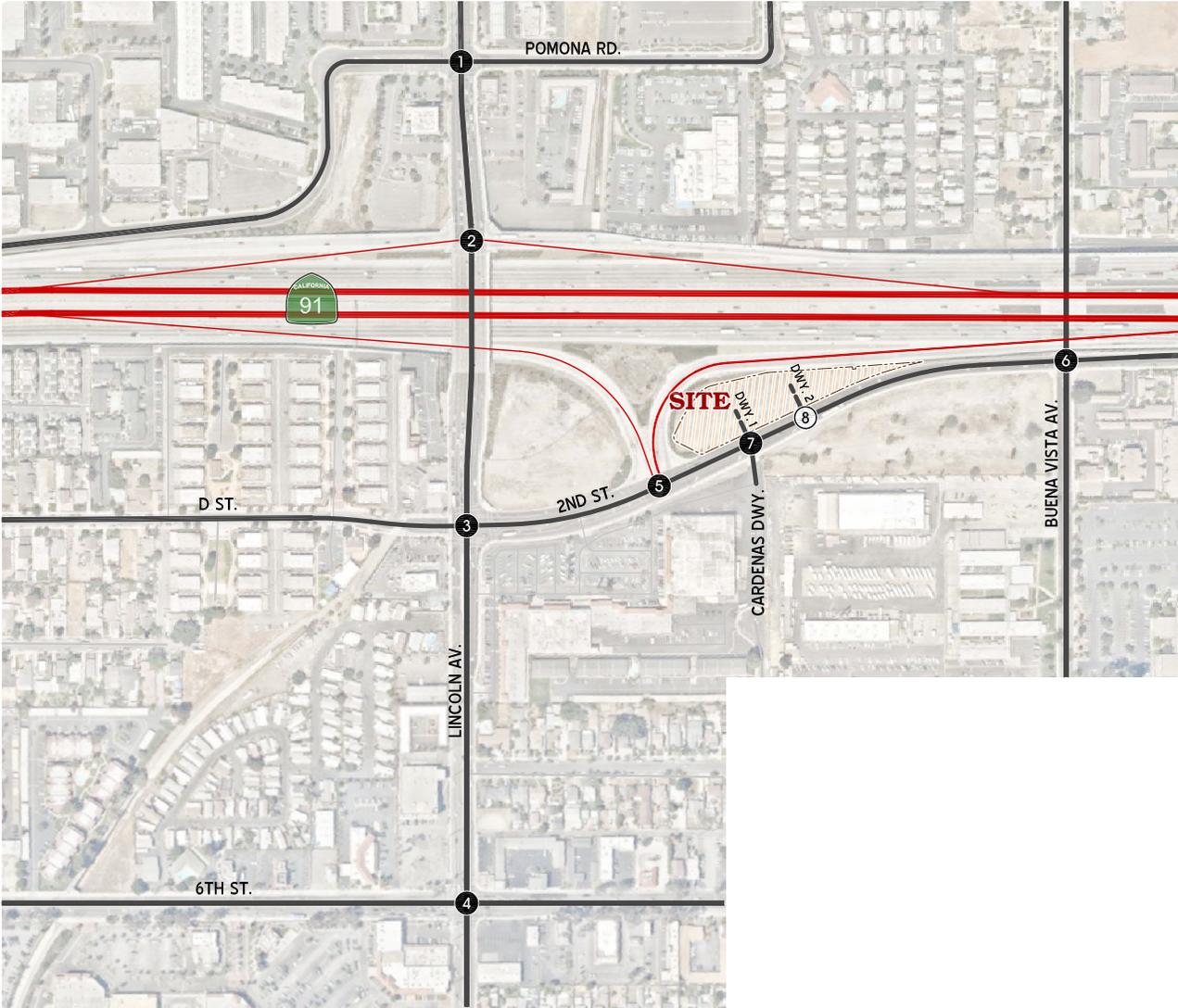
LAND USE	QUANTITY	UNITS <sup>1</sup>	PEAK HOUR						DAILY
			AM			PM			
			IN	OUT	TOTAL	IN	OUT	TOTAL	
Fast Food w/ Drive Thru	1.9	TSF	39	37	76	32	30	62	895
Pass-by	25%		-10	-9	-19	-8	-8	-16	-224
Convenience Mkt. w/Pumps	14	VFP	145	145	290	161	161	322	4,515
Pass-by	25%		-36	-36	-73	-40	-40	-81	-1,129
<b>Total</b>			<b>138</b>	<b>137</b>	<b>275</b>	<b>145</b>	<b>143</b>	<b>288</b>	<b>4,058</b>

<sup>1</sup> TSF = Thousand Square Feet; VFP = Vehicle Fueling Positions

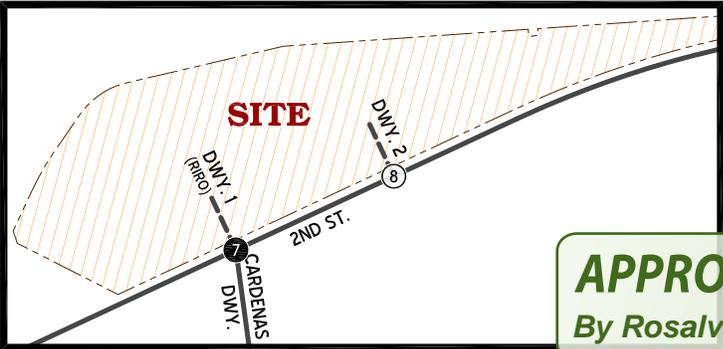
**APPROVED**

*By Rosalva Ureno at 3:12 pm, Nov 01, 2021*

# FIGURE 1 STUDY AREA



**ON-SITE STUDY AREA**



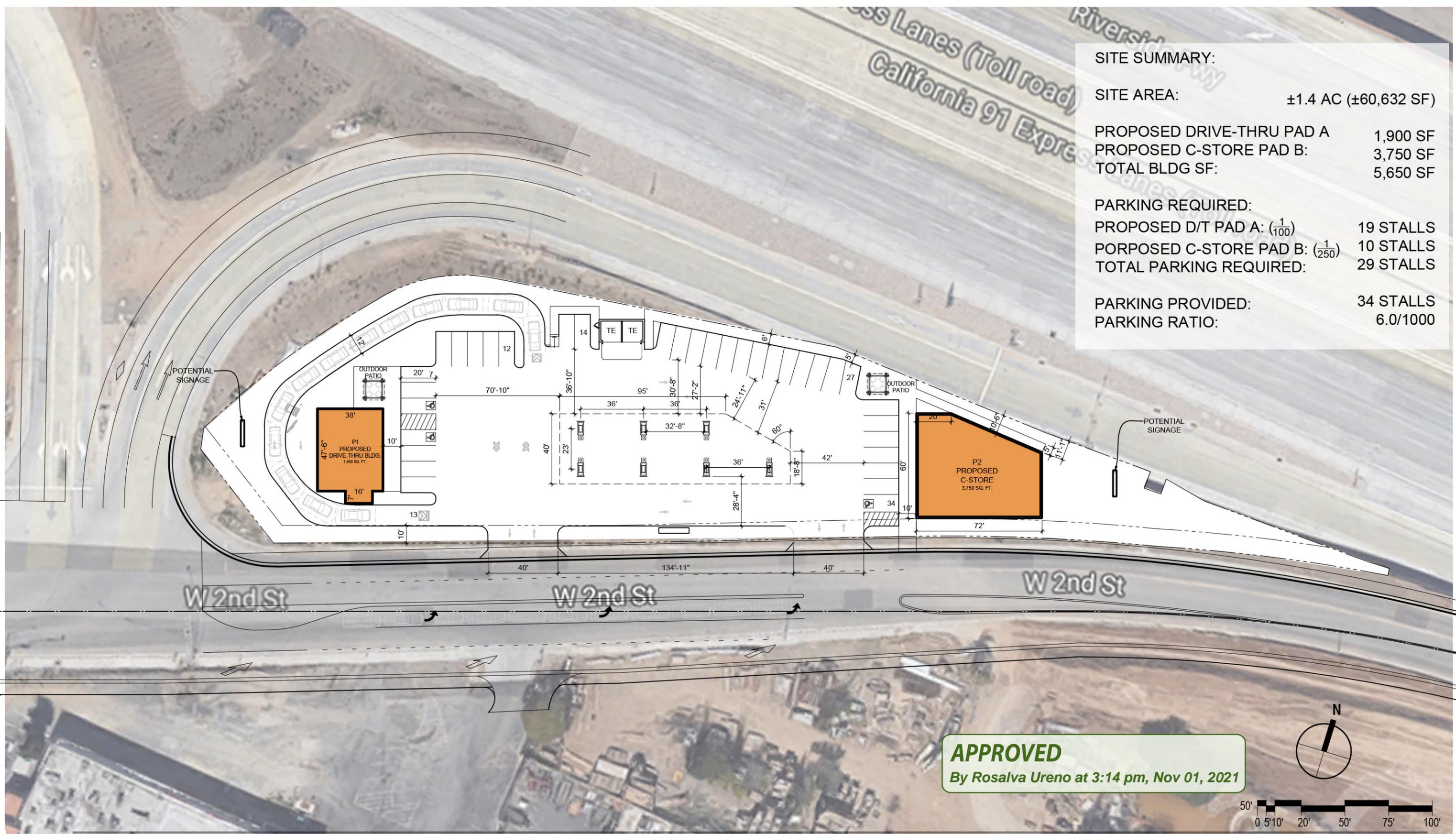
**LEGEND:**

- ⑦ = EXISTING INTERSECTION ANALYSIS LOCATION
- ① = FUTURE INTERSECTION ANALYSIS LOCATION
- = FUTURE ROADWAY / PROJECT DRIVEWAY
- (RIRO) = RIGHT-IN/RIGHT-OUT ACCESS ONLY

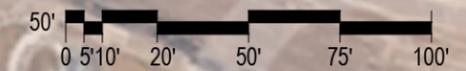
**APPROVED**  
By Rosalva Ureno at 3:12 pm, Nov 01, 2021



SITE SUMMARY:	
SITE AREA:	±1.4 AC (±60,632 SF)
PROPOSED DRIVE-THRU PAD A	1,900 SF
PROPOSED C-STORE PAD B:	3,750 SF
TOTAL BLDG SF:	5,650 SF
PARKING REQUIRED:	
PROPOSED D/T PAD A: ( $\frac{1}{100}$ )	19 STALLS
PROPOSED C-STORE PAD B: ( $\frac{1}{250}$ )	10 STALLS
TOTAL PARKING REQUIRED:	29 STALLS
PARKING PROVIDED:	34 STALLS
PARKING RATIO:	6.0/1000



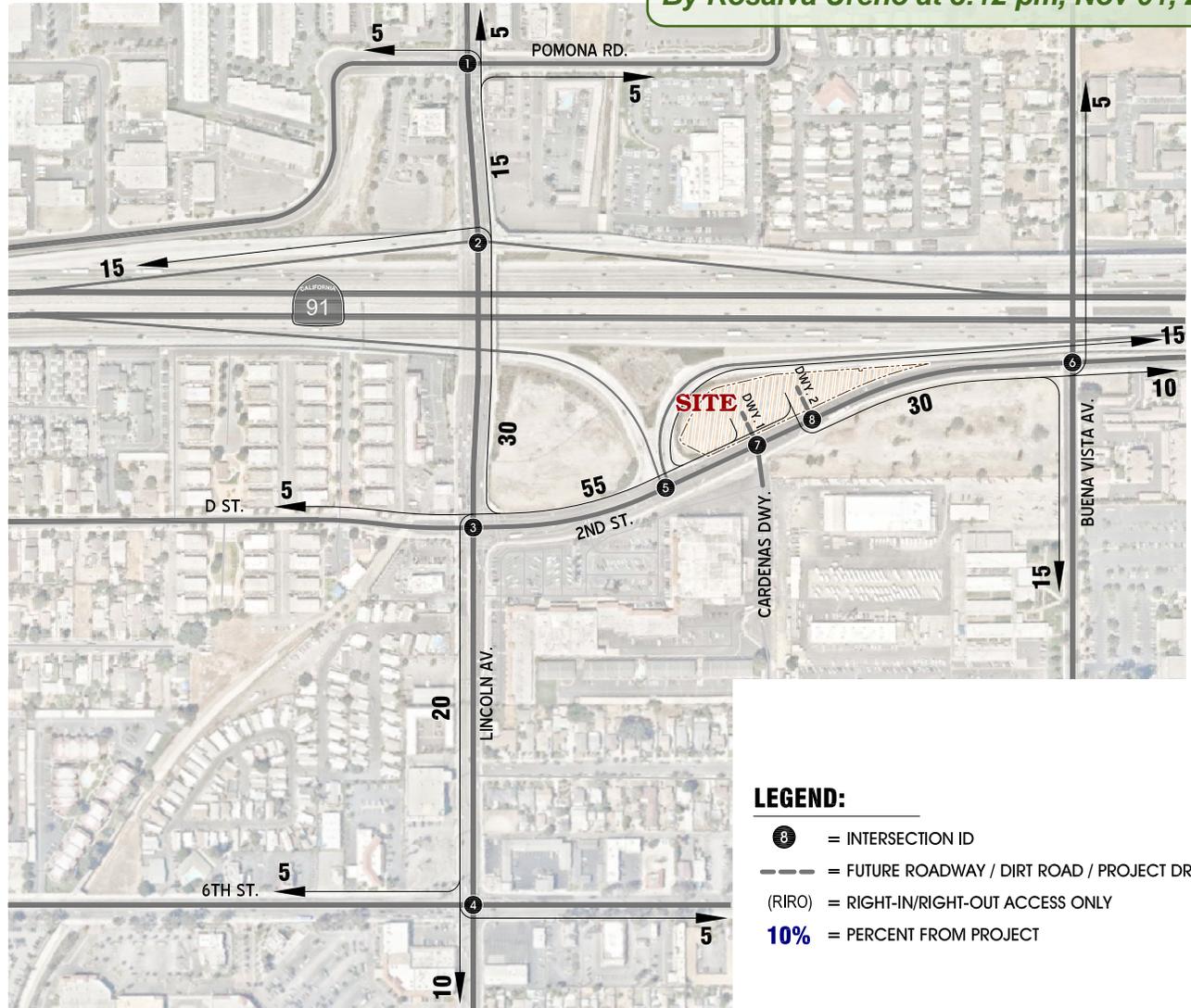
**APPROVED**  
 By Rosalva Ureno at 3:14 pm, Nov 01, 2021



# FIGURE 3 PROJECT TRIP DISTRIBUTION

**APPROVED**

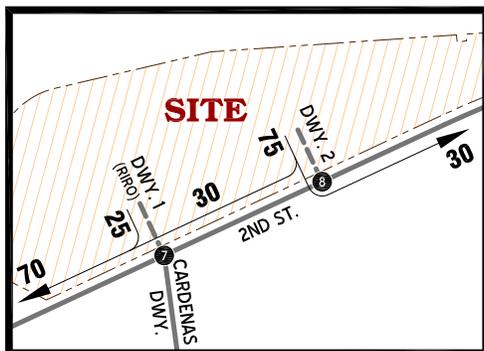
By Rosalva Ureno at 3:12 pm, Nov 01, 2021



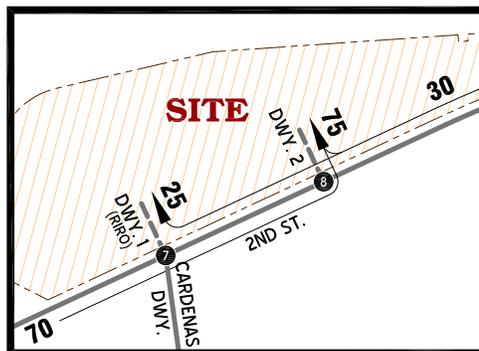
**LEGEND:**

- = INTERSECTION ID
- = FUTURE ROADWAY / DIRT ROAD / PROJECT DRIVEWAY
- (RIR) = RIGHT-IN/RIGHT-OUT ACCESS ONLY
- 10%** = PERCENT FROM PROJECT

**ON-SITE TRIP DISTRIBUTION (OUTBOUND)**



**ON-SITE TRIP DISTRIBUTION (INBOUND)**



**APPENDIX B**

**TRAFFIC COUNT WORKSHEETS**

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City of Corona  
 N/S: Lincoln Avenue  
 E/W: Pomona Road  
 Weather: Clear

File Name : 01\_COR\_Linc\_Pom AM  
 Site Code : 20123433  
 Start Date : 5/3/2023  
 Page No : 1

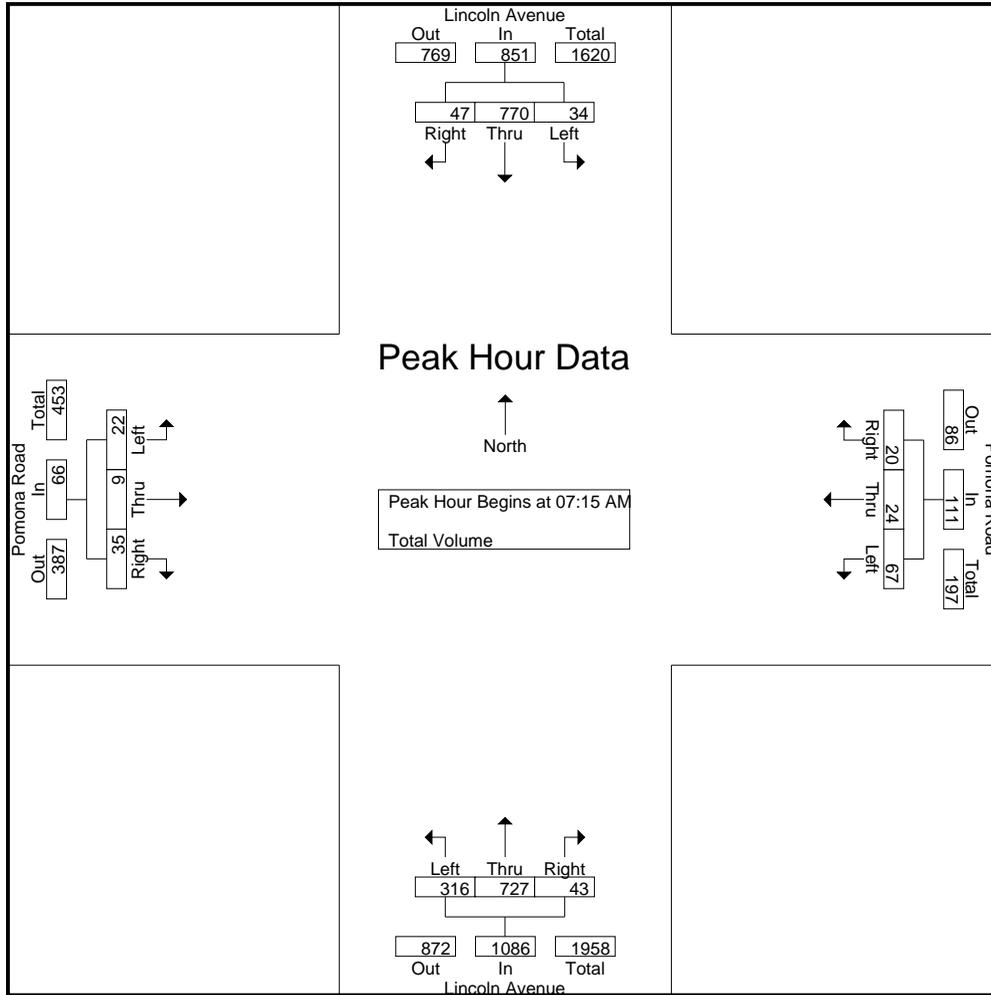
Groups Printed- Total Volume

Start Time	Lincoln Avenue Southbound				Pomona Road Westbound				Lincoln Avenue Northbound				Pomona Road Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	10	165	14	189	17	6	1	24	91	126	13	230	2	2	6	10	453
07:15 AM	9	193	6	208	16	5	2	23	68	149	9	226	3	1	6	10	467
07:30 AM	6	193	15	214	19	5	6	30	78	177	15	270	6	1	6	13	527
07:45 AM	8	179	16	203	18	6	9	33	80	241	8	329	7	4	9	20	585
Total	33	730	51	814	70	22	18	110	317	693	45	1055	18	8	27	53	2032
08:00 AM	11	205	10	226	14	8	3	25	90	160	11	261	6	3	14	23	535
08:15 AM	9	199	12	220	6	6	4	16	38	151	17	206	4	2	10	16	458
08:30 AM	13	172	8	193	20	4	3	27	38	152	16	206	1	1	7	9	435
08:45 AM	13	201	14	228	18	5	5	28	58	127	15	200	6	3	11	20	476
Total	46	777	44	867	58	23	15	96	224	590	59	873	17	9	42	68	1904
Grand Total	79	1507	95	1681	128	45	33	206	541	1283	104	1928	35	17	69	121	3936
Apprch %	4.7	89.6	5.7		62.1	21.8	16		28.1	66.5	5.4		28.9	14	57		
Total %	2	38.3	2.4	42.7	3.3	1.1	0.8	5.2	13.7	32.6	2.6	49	0.9	0.4	1.8	3.1	

Start Time	Lincoln Avenue Southbound				Pomona Road Westbound				Lincoln Avenue Northbound				Pomona Road Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	9	193	6	208	16	5	2	23	68	149	9	226	3	1	6	10	467
07:30 AM	6	193	15	214	19	5	6	30	78	177	15	270	6	1	6	13	527
07:45 AM	8	179	16	203	18	6	9	33	80	241	8	329	7	4	9	20	585
08:00 AM	11	205	10	226	14	8	3	25	90	160	11	261	6	3	14	23	535
Total Volume	34	770	47	851	67	24	20	111	316	727	43	1086	22	9	35	66	2114
% App. Total	4	90.5	5.5		60.4	21.6	18		29.1	66.9	4		33.3	13.6	53		
PHF	.773	.939	.734	.941	.882	.750	.556	.841	.878	.754	.717	.825	.786	.563	.625	.717	.903

City of Corona  
 N/S: Lincoln Avenue  
 E/W: Pomona Road  
 Weather: Clear

File Name : 01\_COR\_Linc\_Pom AM  
 Site Code : 20123433  
 Start Date : 5/3/2023  
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	08:00 AM				07:15 AM				07:30 AM							
+0 mins.	11	<b>205</b>	10	226	16	5	2	23	68	149	9	226	6	1	6	13
+15 mins.	9	199	12	220	<b>19</b>	5	6	30	78	177	<b>15</b>	270	<b>7</b>	<b>4</b>	9	20
+30 mins.	<b>13</b>	172	8	193	18	6	<b>9</b>	<b>33</b>	80	<b>241</b>	8	<b>329</b>	6	3	<b>14</b>	<b>23</b>
+45 mins.	13	201	<b>14</b>	<b>228</b>	14	<b>8</b>	3	25	<b>90</b>	160	11	261	4	2	10	16
Total Volume	46	777	44	867	67	24	20	111	316	727	43	1086	23	10	39	72
% App. Total	5.3	89.6	5.1		60.4	21.6	18		29.1	66.9	4		31.9	13.9	54.2	
PHF	.885	.948	.786	.951	.882	.750	.556	.841	.878	.754	.717	.825	.821	.625	.696	.783

City of Corona  
 N/S: Lincoln Avenue  
 E/W: Pomona Road  
 Weather: Clear

File Name : 01\_COR\_Linc\_Pom PM  
 Site Code : 20123433  
 Start Date : 5/3/2023  
 Page No : 1

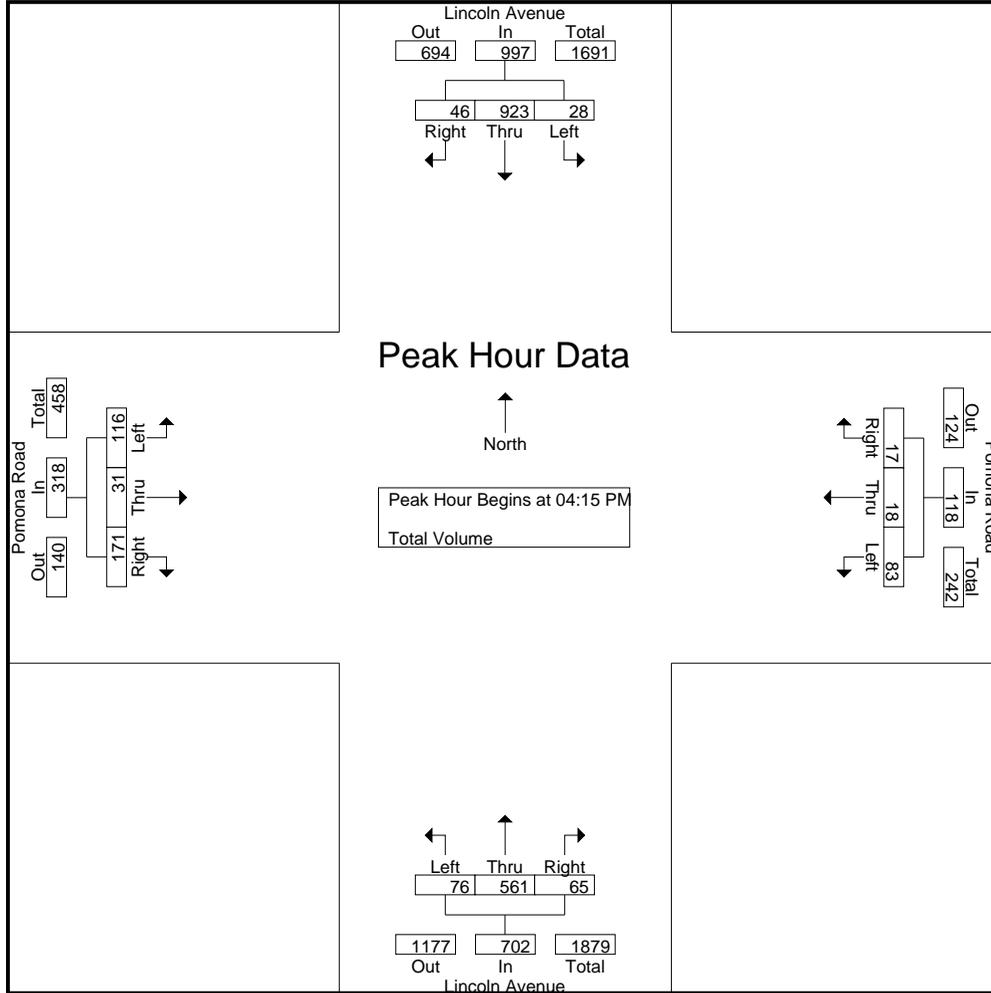
Groups Printed- Total Volume

Start Time	Lincoln Avenue Southbound				Pomona Road Westbound				Lincoln Avenue Northbound				Pomona Road Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	13	219	15	247	21	2	0	23	30	163	23	216	33	8	45	86	572
04:15 PM	5	235	14	254	26	5	1	32	31	138	15	184	28	8	32	68	538
04:30 PM	7	243	10	260	15	6	7	28	23	147	15	185	33	10	44	87	560
04:45 PM	10	190	7	207	23	5	2	30	9	123	14	146	22	7	36	65	448
Total	35	887	46	968	85	18	10	113	93	571	67	731	116	33	157	306	2118
05:00 PM	6	255	15	276	19	2	7	28	13	153	21	187	33	6	59	98	589
05:15 PM	10	203	16	229	22	5	2	29	10	184	19	213	19	4	29	52	523
05:30 PM	14	166	3	183	24	1	8	33	12	143	13	168	16	3	22	41	425
05:45 PM	5	171	14	190	13	4	6	23	8	168	17	193	14	4	30	48	454
Total	35	795	48	878	78	12	23	113	43	648	70	761	82	17	140	239	1991
Grand Total	70	1682	94	1846	163	30	33	226	136	1219	137	1492	198	50	297	545	4109
Apprch %	3.8	91.1	5.1		72.1	13.3	14.6		9.1	81.7	9.2		36.3	9.2	54.5		
Total %	1.7	40.9	2.3	44.9	4	0.7	0.8	5.5	3.3	29.7	3.3	36.3	4.8	1.2	7.2	13.3	

Start Time	Lincoln Avenue Southbound				Pomona Road Westbound				Lincoln Avenue Northbound				Pomona Road Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	5	235	14	254	<b>26</b>	5	1	<b>32</b>	<b>31</b>	138	15	184	28	8	32	68	538
04:30 PM	7	243	10	260	15	<b>6</b>	<b>7</b>	28	23	147	15	185	<b>33</b>	<b>10</b>	44	87	560
04:45 PM	<b>10</b>	190	7	207	23	5	2	30	9	123	14	146	22	7	36	65	448
05:00 PM	6	<b>255</b>	<b>15</b>	<b>276</b>	19	2	7	28	13	<b>153</b>	<b>21</b>	<b>187</b>	33	6	<b>59</b>	<b>98</b>	<b>589</b>
Total Volume	28	923	46	997	83	18	17	118	76	561	65	702	116	31	171	318	2135
% App. Total	2.8	92.6	4.6		70.3	15.3	14.4		10.8	79.9	9.3		36.5	9.7	53.8		
PHF	.700	.905	.767	.903	.798	.750	.607	.922	.613	.917	.774	.939	.879	.775	.725	.811	.906

City of Corona  
 N/S: Lincoln Avenue  
 E/W: Pomona Road  
 Weather: Clear

File Name : 01\_COR\_Linc\_Pom PM  
 Site Code : 20123433  
 Start Date : 5/3/2023  
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	04:15 PM				04:45 PM				05:00 PM				04:15 PM			
+0 mins.	5	235	14	254	23	<b>5</b>	2	30	<b>13</b>	153	<b>21</b>	187	28	8	32	68
+15 mins.	7	243	10	260	19	2	7	28	10	<b>184</b>	19	<b>213</b>	<b>33</b>	<b>10</b>	44	87
+30 mins.	<b>10</b>	190	7	207	22	5	2	29	12	143	13	168	22	7	36	65
+45 mins.	6	<b>255</b>	<b>15</b>	<b>276</b>	<b>24</b>	1	<b>8</b>	<b>33</b>	8	168	17	193	33	6	<b>59</b>	<b>98</b>
Total Volume	28	923	46	997	88	13	19	120	43	648	70	761	116	31	171	318
% App. Total	2.8	92.6	4.6		73.3	10.8	15.8		5.7	85.2	9.2		36.5	9.7	53.8	
PHF	.700	.905	.767	.903	.917	.650	.594	.909	.827	.880	.833	.893	.879	.775	.725	.811

City of Corona  
 N/S: Lincoln Avenue  
 E/W: SR-91 Westbound Ramps  
 Weather: Clear

File Name : 02\_COR\_Linc\_91W AM  
 Site Code : 20123433  
 Start Date : 5/3/2023  
 Page No : 1

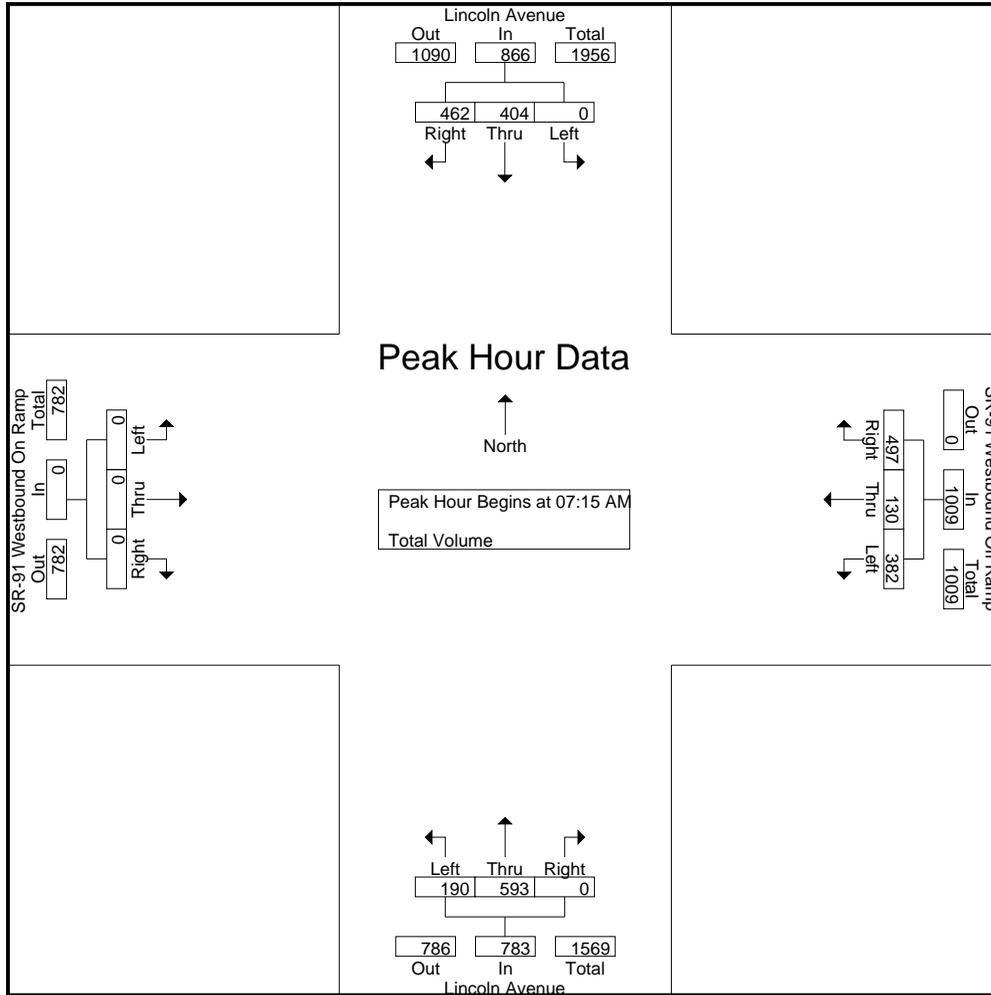
Groups Printed- Total Volume

Start Time	Lincoln Avenue Southbound				SR-91 Westbound Off Ramp Westbound				Lincoln Avenue Northbound				SR-91 Westbound On Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	63	110	173	78	49	118	245	39	94	0	133	0	0	0	0	551
07:15 AM	0	91	124	215	75	40	96	211	43	138	0	181	0	0	0	0	607
07:30 AM	0	116	105	221	111	31	124	266	54	142	0	196	0	0	0	0	683
07:45 AM	0	87	112	199	96	24	160	280	44	188	0	232	0	0	0	0	711
Total	0	357	451	808	360	144	498	1002	180	562	0	742	0	0	0	0	2552
08:00 AM	0	110	121	231	100	35	117	252	49	125	0	174	0	0	0	0	657
08:15 AM	0	74	117	191	81	28	93	202	55	121	0	176	0	0	0	0	569
08:30 AM	0	93	118	211	83	19	75	177	42	115	0	157	0	0	0	0	545
08:45 AM	0	91	113	204	111	19	69	199	48	118	0	166	0	0	0	0	569
Total	0	368	469	837	375	101	354	830	194	479	0	673	0	0	0	0	2340
Grand Total	0	725	920	1645	735	245	852	1832	374	1041	0	1415	0	0	0	0	4892
Apprch %	0	44.1	55.9		40.1	13.4	46.5		26.4	73.6	0		0	0	0		
Total %	0	14.8	18.8	33.6	15	5	17.4	37.4	7.6	21.3	0	28.9	0	0	0	0	

Start Time	Lincoln Avenue Southbound				SR-91 Westbound Off Ramp Westbound				Lincoln Avenue Northbound				SR-91 Westbound On Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	91	<b>124</b>	215	75	<b>40</b>	96	211	43	138	0	181	0	0	0	0	607
07:30 AM	0	<b>116</b>	105	221	<b>111</b>	31	124	266	<b>54</b>	142	0	196	0	0	0	0	683
07:45 AM	0	87	112	199	96	24	<b>160</b>	<b>280</b>	44	<b>188</b>	0	<b>232</b>	0	0	0	0	<b>711</b>
08:00 AM	0	110	121	<b>231</b>	100	35	117	252	49	125	0	174	0	0	0	0	657
Total Volume	0	404	462	866	382	130	497	1009	190	593	0	783	0	0	0	0	2658
% App. Total	0	46.7	53.3		37.9	12.9	49.3		24.3	75.7	0		0	0	0		
PHF	.000	.871	.931	.937	.860	.813	.777	.901	.880	.789	.000	.844	.000	.000	.000	.000	.935

City of Corona  
 N/S: Lincoln Avenue  
 E/W: SR-91 Westbound Ramps  
 Weather: Clear

File Name : 02\_COR\_Linc\_91W AM  
 Site Code : 20123433  
 Start Date : 5/3/2023  
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:00 AM			
+0 mins.	0	91	<b>124</b>	215	75	<b>40</b>	96	211	43	138	0	181	0	0	0	0
+15 mins.	0	<b>116</b>	105	221	<b>111</b>	31	124	266	<b>54</b>	142	0	196	0	0	0	0
+30 mins.	0	87	112	199	96	24	<b>160</b>	<b>280</b>	44	<b>188</b>	0	<b>232</b>	0	0	0	0
+45 mins.	0	110	121	<b>231</b>	100	35	117	252	49	125	0	174	0	0	0	0
Total Volume	0	404	462	866	382	130	497	1009	190	593	0	783	0	0	0	0
% App. Total	0	46.7	53.3		37.9	12.9	49.3		24.3	75.7	0		0	0	0	
PHF	.000	.871	.931	.937	.860	.813	.777	.901	.880	.789	.000	.844	.000	.000	.000	.000

City of Corona  
 N/S: Lincoln Avenue  
 E/W: SR-91 Westbound Ramps  
 Weather: Clear

File Name : 02\_COR\_Linc\_91W PM  
 Site Code : 20123433  
 Start Date : 5/3/2023  
 Page No : 1

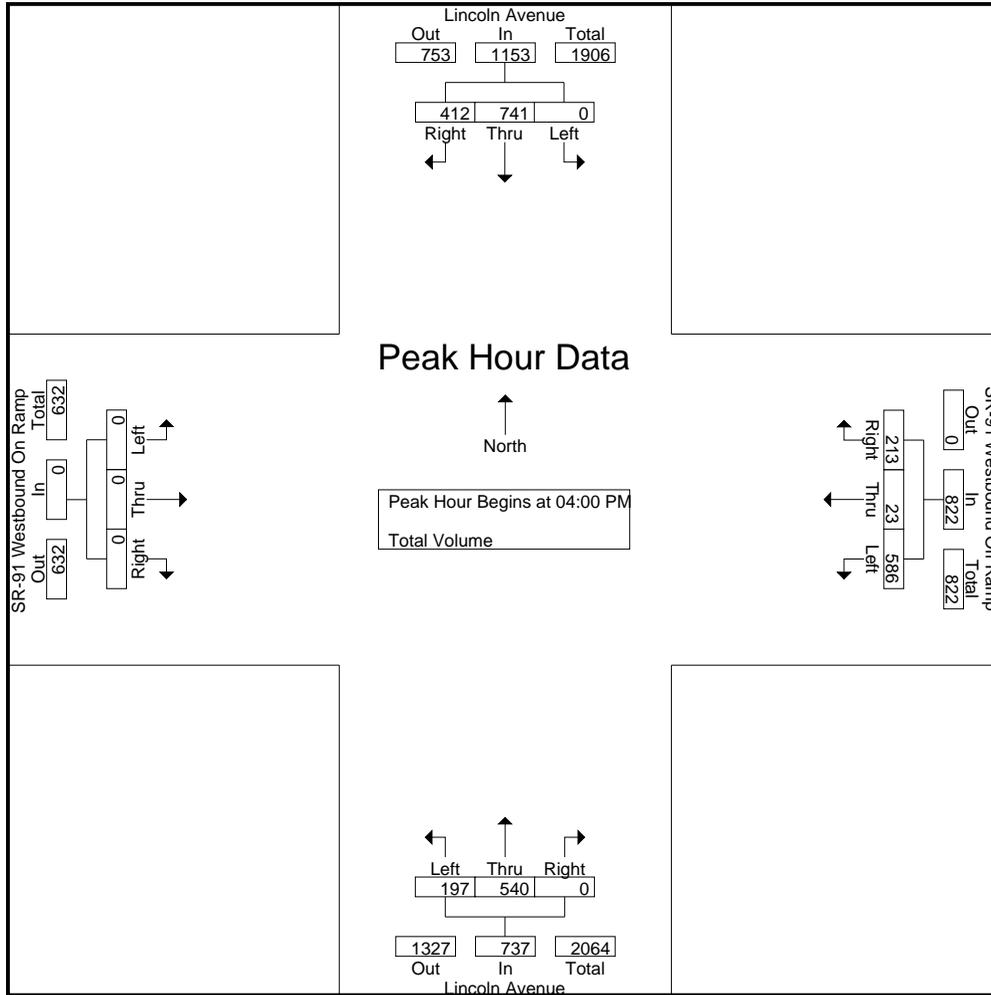
Groups Printed- Total Volume

Start Time	Lincoln Avenue Southbound				SR-91 Westbound Off Ramp Westbound				Lincoln Avenue Northbound				SR-91 Westbound On Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	0	196	102	298	154	8	60	222	64	151	0	215	0	0	0	0	735
04:15 PM	0	154	130	284	151	7	60	218	41	137	0	178	0	0	0	0	680
04:30 PM	0	208	98	306	147	8	51	206	44	127	0	171	0	0	0	0	683
04:45 PM	0	183	82	265	134	0	42	176	48	125	0	173	0	0	0	0	614
Total	0	741	412	1153	586	23	213	822	197	540	0	737	0	0	0	0	2712
05:00 PM	0	210	93	303	132	1	51	184	62	142	0	204	0	0	0	0	691
05:15 PM	0	173	88	261	162	0	44	206	52	155	0	207	0	0	0	0	674
05:30 PM	0	134	71	205	173	1	34	208	44	145	0	189	0	0	0	0	602
05:45 PM	0	117	68	185	150	0	39	189	44	132	0	176	0	0	0	0	550
Total	0	634	320	954	617	2	168	787	202	574	0	776	0	0	0	0	2517
Grand Total	0	1375	732	2107	1203	25	381	1609	399	1114	0	1513	0	0	0	0	5229
Apprch %	0	65.3	34.7		74.8	1.6	23.7		26.4	73.6	0		0	0	0		
Total %	0	26.3	14	40.3	23	0.5	7.3	30.8	7.6	21.3	0	28.9	0	0	0	0	

Start Time	Lincoln Avenue Southbound				SR-91 Westbound Off Ramp Westbound				Lincoln Avenue Northbound				SR-91 Westbound On Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	196	102	298	<b>154</b>	<b>8</b>	<b>60</b>	<b>222</b>	<b>64</b>	<b>151</b>	0	<b>215</b>	0	0	0	0	<b>735</b>
04:15 PM	0	154	<b>130</b>	284	151	7	60	218	41	137	0	178	0	0	0	0	680
04:30 PM	0	<b>208</b>	98	<b>306</b>	147	8	51	206	44	127	0	171	0	0	0	0	683
04:45 PM	0	183	82	265	134	0	42	176	48	125	0	173	0	0	0	0	614
Total Volume	0	741	412	1153	586	23	213	822	197	540	0	737	0	0	0	0	2712
% App. Total	0	64.3	35.7		71.3	2.8	25.9		26.7	73.3	0		0	0	0		
PHF	.000	.891	.792	.942	.951	.719	.888	.926	.770	.894	.000	.857	.000	.000	.000	.000	.922

City of Corona  
 N/S: Lincoln Avenue  
 E/W: SR-91 Westbound Ramps  
 Weather: Clear

File Name : 02\_COR\_Linc\_91W PM  
 Site Code : 20123433  
 Start Date : 5/3/2023  
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	04:15 PM				04:00 PM				05:00 PM				04:00 PM			
+0 mins.	0	154	130	284	154	8	60	222	62	142	0	204	0	0	0	0
+15 mins.	0	208	98	306	151	7	60	218	52	155	0	207	0	0	0	0
+30 mins.	0	183	82	265	147	8	51	206	44	145	0	189	0	0	0	0
+45 mins.	0	210	93	303	134	0	42	176	44	132	0	176	0	0	0	0
Total Volume	0	755	403	1158	586	23	213	822	202	574	0	776	0	0	0	0
% App. Total	0	65.2	34.8		71.3	2.8	25.9		26	74	0		0	0	0	
PHF	.000	.899	.775	.946	.951	.719	.888	.926	.815	.926	.000	.937	.000	.000	.000	.000

City of Corona  
 N/S: Lincoln Avenue  
 E/W: D Street/West 2nd Street  
 Weather: Clear

File Name : 03\_COR\_Linc\_W 2nd AM  
 Site Code : 20123433  
 Start Date : 5/3/2023  
 Page No : 1

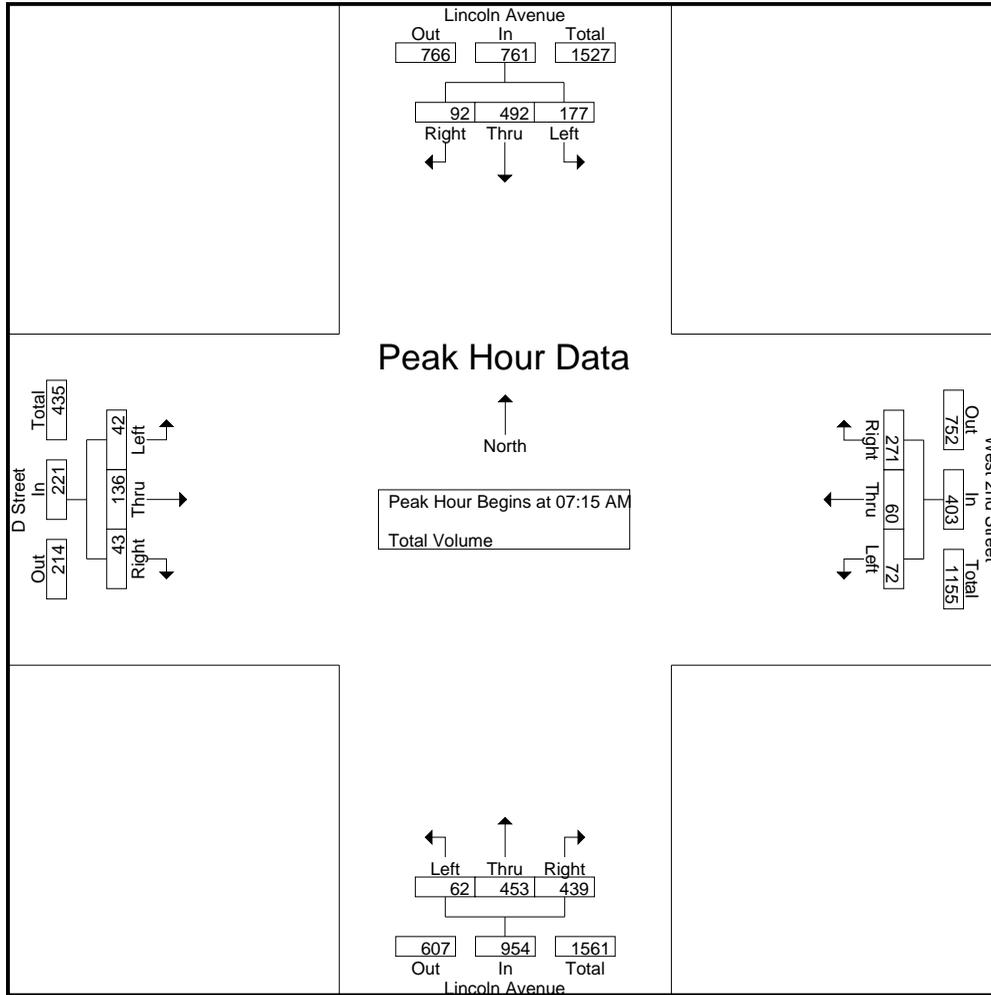
Groups Printed- Total Volume

Start Time	Lincoln Avenue Southbound				West 2nd Street Westbound				Lincoln Avenue Northbound				D Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	35	85	16	136	9	3	53	65	11	79	102	192	9	30	6	45	438
07:15 AM	38	107	18	163	15	17	72	104	10	97	113	220	11	26	5	42	529
07:30 AM	43	128	22	193	20	17	67	104	13	121	112	246	7	39	11	57	600
07:45 AM	38	123	26	187	23	15	72	110	18	133	111	262	11	31	11	53	612
Total	154	443	82	679	67	52	264	383	52	430	438	920	38	126	33	197	2179
08:00 AM	58	134	26	218	14	11	60	85	21	102	103	226	13	40	16	69	598
08:15 AM	46	107	16	169	16	9	54	79	11	92	92	195	15	26	11	52	495
08:30 AM	42	117	8	167	21	14	53	88	19	92	79	190	12	26	9	47	492
08:45 AM	48	136	16	200	16	11	55	82	17	100	105	222	15	26	4	45	549
Total	194	494	66	754	67	45	222	334	68	386	379	833	55	118	40	213	2134
Grand Total	348	937	148	1433	134	97	486	717	120	816	817	1753	93	244	73	410	4313
Apprch %	24.3	65.4	10.3		18.7	13.5	67.8		6.8	46.5	46.6		22.7	59.5	17.8		
Total %	8.1	21.7	3.4	33.2	3.1	2.2	11.3	16.6	2.8	18.9	18.9	40.6	2.2	5.7	1.7	9.5	

Start Time	Lincoln Avenue Southbound				West 2nd Street Westbound				Lincoln Avenue Northbound				D Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	38	107	18	163	15	<b>17</b>	<b>72</b>	104	10	97	<b>113</b>	220	11	26	5	42	529
07:30 AM	43	128	22	193	20	17	67	104	13	121	112	246	7	39	11	57	600
07:45 AM	38	123	<b>26</b>	187	<b>23</b>	15	72	<b>110</b>	18	<b>133</b>	111	<b>262</b>	11	31	11	53	<b>612</b>
08:00 AM	<b>58</b>	<b>134</b>	26	<b>218</b>	14	11	60	85	<b>21</b>	102	103	226	<b>13</b>	<b>40</b>	<b>16</b>	<b>69</b>	598
Total Volume	177	492	92	761	72	60	271	403	62	453	439	954	42	136	43	221	2339
% App. Total	23.3	64.7	12.1		17.9	14.9	67.2		6.5	47.5	46		19	61.5	19.5		
PHF	.763	.918	.885	.873	.783	.882	.941	.916	.738	.852	.971	.910	.808	.850	.672	.801	.955

City of Corona  
 N/S: Lincoln Avenue  
 E/W: D Street/West 2nd Street  
 Weather: Clear

File Name : 03\_COR\_Linc\_W 2nd AM  
 Site Code : 20123433  
 Start Date : 5/3/2023  
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	07:30 AM				07:15 AM				07:15 AM				07:30 AM			
+0 mins.	43	128	22	193	15	<b>17</b>	<b>72</b>	104	10	97	<b>113</b>	220	7	39	11	57
+15 mins.	38	123	<b>26</b>	187	20	17	67	104	13	121	112	246	11	31	11	53
+30 mins.	<b>58</b>	<b>134</b>	26	<b>218</b>	<b>23</b>	15	72	<b>110</b>	18	<b>133</b>	111	<b>262</b>	13	<b>40</b>	<b>16</b>	<b>69</b>
+45 mins.	46	107	16	169	14	11	60	85	<b>21</b>	102	103	226	<b>15</b>	26	11	52
Total Volume	185	492	90	767	72	60	271	403	62	453	439	954	46	136	49	231
% App. Total	24.1	64.1	11.7		17.9	14.9	67.2		6.5	47.5	46		19.9	58.9	21.2	
PHF	.797	.918	.865	.880	.783	.882	.941	.916	.738	.852	.971	.910	.767	.850	.766	.837

City of Corona  
 N/S: Lincoln Avenue  
 E/W: D Street/West 2nd Street  
 Weather: Clear

File Name : 03\_COR\_Linc\_W 2nd PM  
 Site Code : 20123433  
 Start Date : 5/3/2023  
 Page No : 1

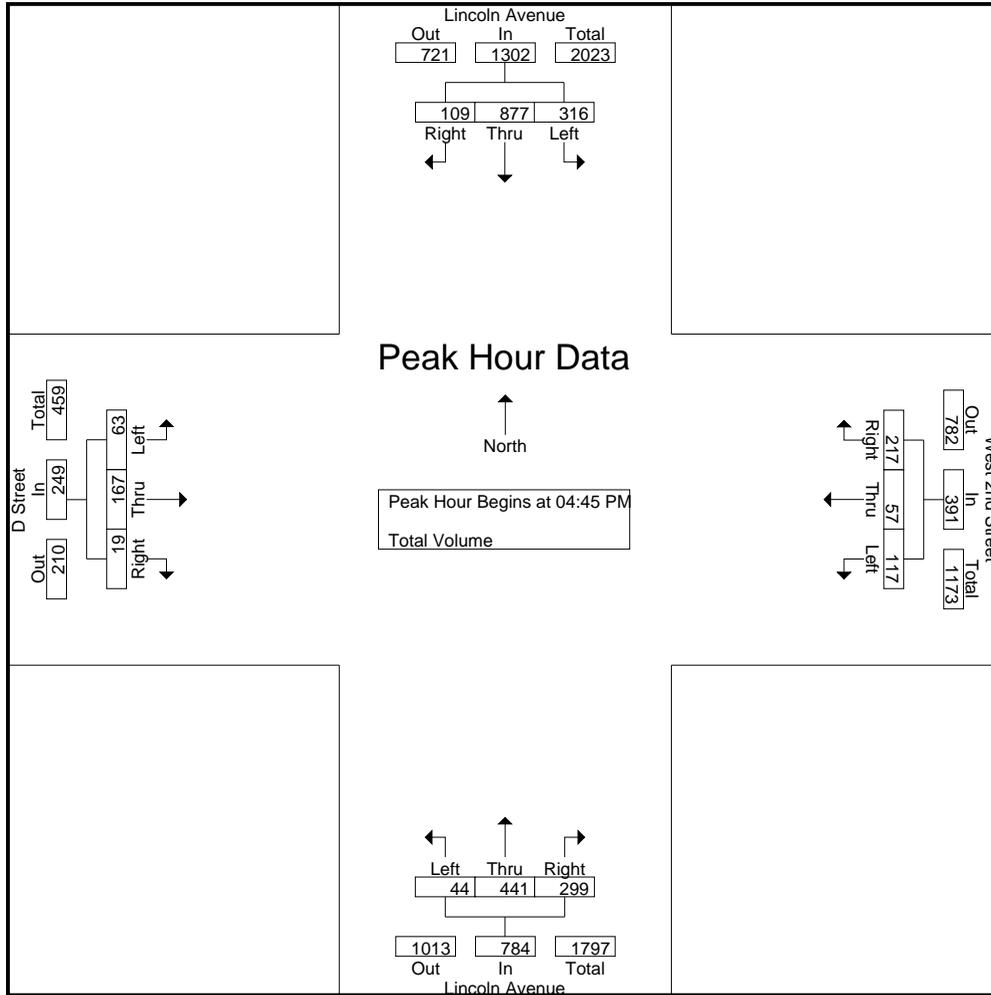
Groups Printed- Total Volume

Start Time	Lincoln Avenue Southbound				West 2nd Street Westbound				Lincoln Avenue Northbound				D Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	104	216	24	344	18	12	63	93	18	116	74	208	22	32	12	66	711
04:15 PM	71	214	44	329	27	19	52	98	12	110	79	201	18	25	2	45	673
04:30 PM	91	196	26	313	16	11	58	85	17	98	73	188	13	36	3	52	638
04:45 PM	81	231	23	335	27	7	42	76	11	117	71	199	6	42	5	53	663
Total	347	857	117	1321	88	49	215	352	58	441	297	796	59	135	22	216	2685
05:00 PM	98	218	19	335	31	17	74	122	9	106	81	196	17	42	3	62	715
05:15 PM	76	202	27	305	22	22	50	94	14	109	79	202	21	51	6	78	679
05:30 PM	61	226	40	327	37	11	51	99	10	109	68	187	19	32	5	56	669
05:45 PM	58	192	30	280	26	13	65	104	16	95	57	168	14	27	4	45	597
Total	293	838	116	1247	116	63	240	419	49	419	285	753	71	152	18	241	2660
Grand Total	640	1695	233	2568	204	112	455	771	107	860	582	1549	130	287	40	457	5345
Apprch %	24.9	66	9.1		26.5	14.5	59		6.9	55.5	37.6		28.4	62.8	8.8		
Total %	12	31.7	4.4	48	3.8	2.1	8.5	14.4	2	16.1	10.9	29	2.4	5.4	0.7	8.6	

Start Time	Lincoln Avenue Southbound				West 2nd Street Westbound				Lincoln Avenue Northbound				D Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	81	<b>231</b>	23	<b>335</b>	27	7	42	76	11	<b>117</b>	71	199	6	42	5	53	663
05:00 PM	<b>98</b>	218	19	335	31	17	<b>74</b>	<b>122</b>	9	106	<b>81</b>	196	17	42	3	62	<b>715</b>
05:15 PM	76	202	27	305	22	<b>22</b>	50	94	<b>14</b>	109	79	<b>202</b>	<b>21</b>	<b>51</b>	<b>6</b>	<b>78</b>	679
05:30 PM	61	226	<b>40</b>	327	<b>37</b>	11	51	99	10	109	68	187	19	32	5	56	669
Total Volume	316	877	109	1302	117	57	217	391	44	441	299	784	63	167	19	249	2726
% App. Total	24.3	67.4	8.4		29.9	14.6	55.5		5.6	56.2	38.1		25.3	67.1	7.6		
PHF	.806	.949	.681	.972	.791	.648	.733	.801	.786	.942	.923	.970	.750	.819	.792	.798	.953

City of Corona  
 N/S: Lincoln Avenue  
 E/W: D Street/West 2nd Street  
 Weather: Clear

File Name : 03\_COR\_Linc\_W 2nd PM  
 Site Code : 20123433  
 Start Date : 5/3/2023  
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	04:00 PM				05:00 PM				04:00 PM				04:45 PM			
+0 mins.	<b>104</b>	216	24	<b>344</b>	31	17	<b>74</b>	<b>122</b>	<b>18</b>	116	74	<b>208</b>	6	42	5	53
+15 mins.	71	214	<b>44</b>	329	22	<b>22</b>	50	94	12	110	<b>79</b>	201	17	42	3	62
+30 mins.	91	196	26	313	<b>37</b>	11	51	99	17	98	73	188	<b>21</b>	<b>51</b>	<b>6</b>	<b>78</b>
+45 mins.	81	<b>231</b>	23	335	26	13	65	104	11	<b>117</b>	71	199	19	32	5	56
Total Volume	347	857	117	1321	116	63	240	419	58	441	297	796	63	167	19	249
% App. Total	26.3	64.9	8.9		27.7	15	57.3		7.3	55.4	37.3		25.3	67.1	7.6	
PHF	.834	.927	.665	.960	.784	.716	.811	.859	.806	.942	.940	.957	.750	.819	.792	.798

City of Corona  
 N/S: Lincoln Avenue  
 E/W: West 6th Street  
 Weather: Clear

File Name : 04\_COR\_Linc\_W 6th AM  
 Site Code : 20123433  
 Start Date : 5/3/2023  
 Page No : 1

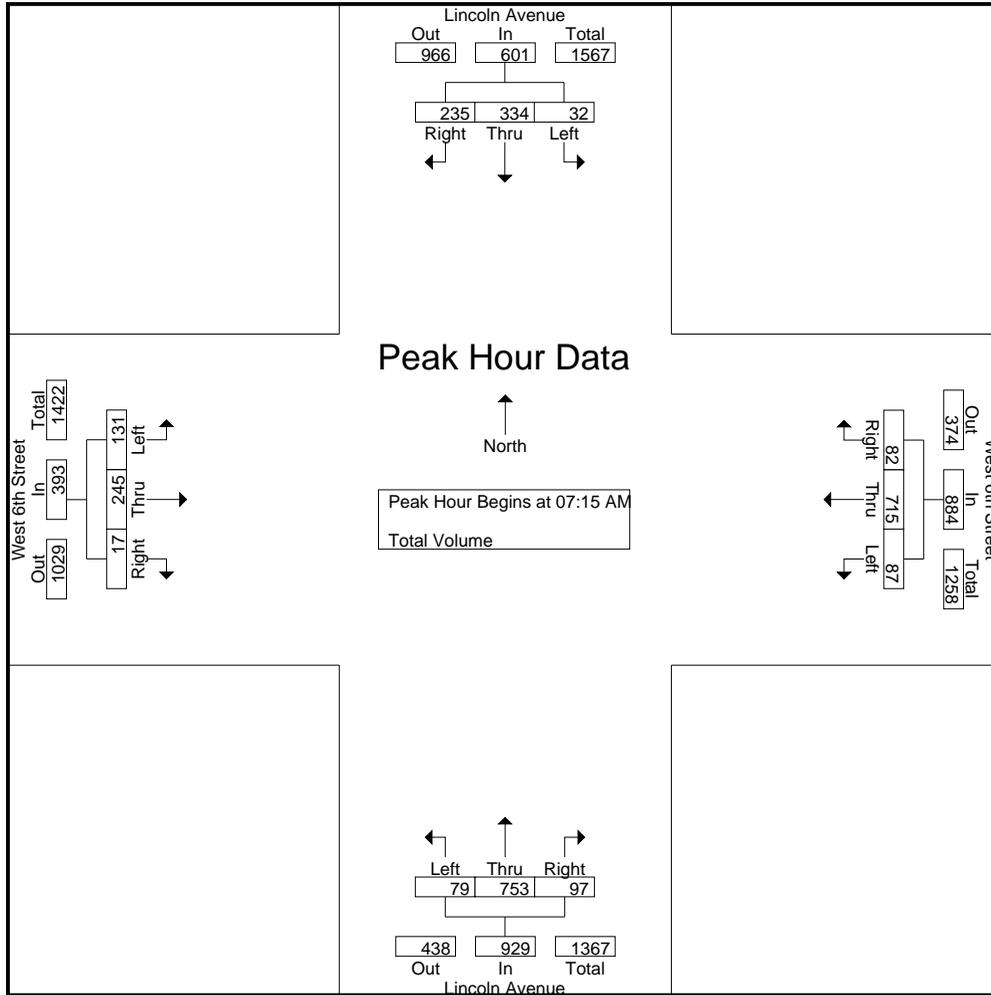
Groups Printed- Total Volume

Start Time	Lincoln Avenue Southbound				West 6th Street Westbound				Lincoln Avenue Northbound				West 6th Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	5	48	48	101	14	144	13	171	17	153	10	180	20	34	6	60	512
07:15 AM	6	64	43	113	16	159	13	188	22	158	20	200	36	49	4	89	590
07:30 AM	4	97	60	161	24	224	22	270	25	211	24	260	24	57	4	85	776
07:45 AM	13	76	70	159	32	190	30	252	12	194	33	239	36	77	8	121	771
Total	28	285	221	534	86	717	78	881	76	716	87	879	116	217	22	355	2649
08:00 AM	9	97	62	168	15	142	17	174	20	190	20	230	35	62	1	98	670
08:15 AM	17	77	43	137	14	127	12	153	4	134	20	158	31	67	7	105	553
08:30 AM	21	86	50	157	26	136	19	181	19	148	25	192	32	56	7	95	625
08:45 AM	9	84	53	146	30	106	23	159	19	185	34	238	37	78	8	123	666
Total	56	344	208	608	85	511	71	667	62	657	99	818	135	263	23	421	2514
Grand Total	84	629	429	1142	171	1228	149	1548	138	1373	186	1697	251	480	45	776	5163
Apprch %	7.4	55.1	37.6		11	79.3	9.6		8.1	80.9	11		32.3	61.9	5.8		
Total %	1.6	12.2	8.3	22.1	3.3	23.8	2.9	30	2.7	26.6	3.6	32.9	4.9	9.3	0.9	15	

Start Time	Lincoln Avenue Southbound				West 6th Street Westbound				Lincoln Avenue Northbound				West 6th Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	6	64	43	113	16	159	13	188	22	158	20	200	<b>36</b>	49	4	89	590
07:30 AM	4	<b>97</b>	60	161	24	<b>224</b>	22	<b>270</b>	<b>25</b>	<b>211</b>	24	<b>260</b>	24	57	4	85	<b>776</b>
07:45 AM	<b>13</b>	76	<b>70</b>	159	<b>32</b>	190	<b>30</b>	252	12	194	<b>33</b>	239	36	<b>77</b>	<b>8</b>	<b>121</b>	771
08:00 AM	9	97	62	<b>168</b>	15	142	17	174	20	190	20	230	35	62	1	98	670
Total Volume	32	334	235	601	87	715	82	884	79	753	97	929	131	245	17	393	2807
% App. Total	5.3	55.6	39.1		9.8	80.9	9.3		8.5	81.1	10.4		33.3	62.3	4.3		
PHF	.615	.861	.839	.894	.680	.798	.683	.819	.790	.892	.735	.893	.910	.795	.531	.812	.904

City of Corona  
 N/S: Lincoln Avenue  
 E/W: West 6th Street  
 Weather: Clear

File Name : 04\_COR\_Linc\_W 6th AM  
 Site Code : 20123433  
 Start Date : 5/3/2023  
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	07:30 AM				07:15 AM				07:15 AM				08:00 AM			
+0 mins.	4	<b>97</b>	60	161	16	159	13	188	22	158	20	200	35	62	1	98
+15 mins.	13	76	<b>70</b>	159	24	<b>224</b>	22	<b>270</b>	<b>25</b>	<b>211</b>	24	<b>260</b>	31	67	7	105
+30 mins.	9	97	62	<b>168</b>	<b>32</b>	190	<b>30</b>	252	12	194	<b>33</b>	239	32	56	7	95
+45 mins.	<b>17</b>	77	43	137	15	142	17	174	20	190	20	230	<b>37</b>	<b>78</b>	<b>8</b>	<b>123</b>
Total Volume	43	347	235	625	87	715	82	884	79	753	97	929	135	263	23	421
% App. Total	6.9	55.5	37.6		9.8	80.9	9.3		8.5	81.1	10.4		32.1	62.5	5.5	
PHF	.632	.894	.839	.930	.680	.798	.683	.819	.790	.892	.735	.893	.912	.843	.719	.856

City of Corona  
 N/S: Lincoln Avenue  
 E/W: West 6th Street  
 Weather: Clear

File Name : 04\_COR\_Linc\_W 6th PM  
 Site Code : 20123433  
 Start Date : 5/3/2023  
 Page No : 1

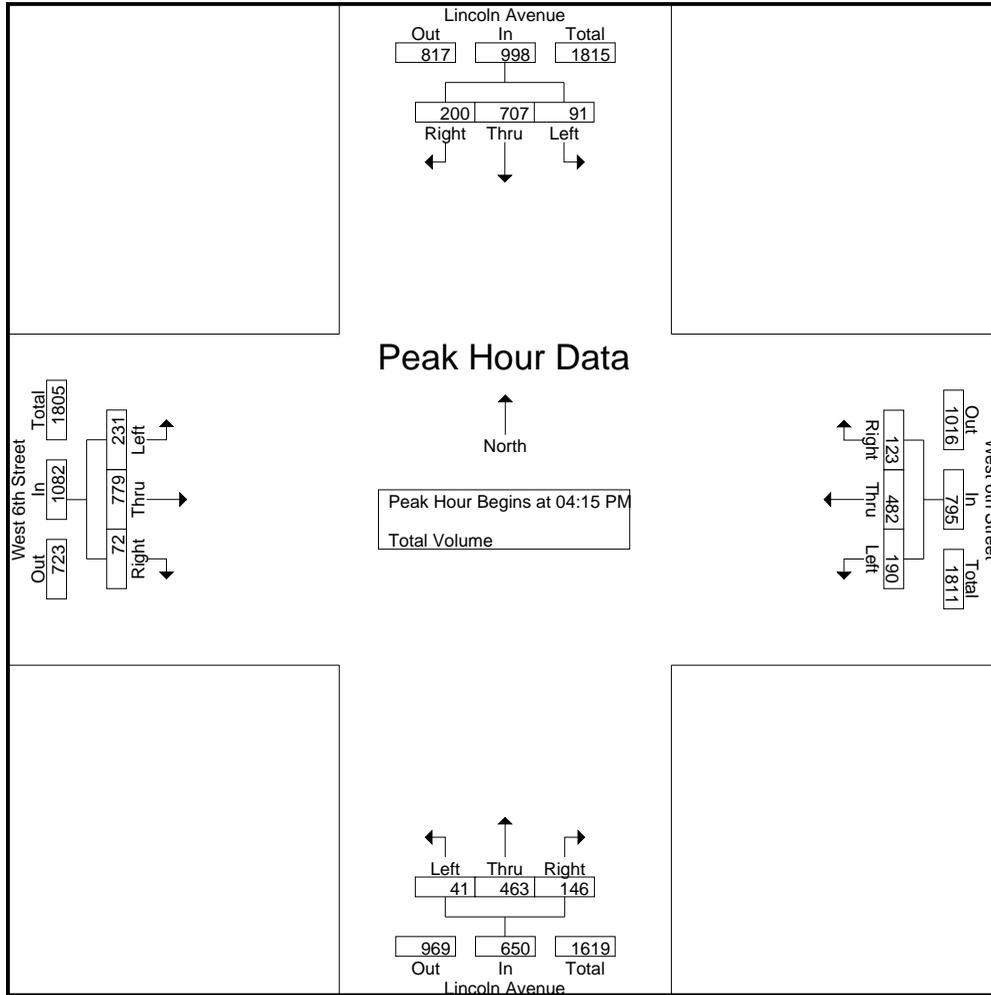
Groups Printed- Total Volume

Start Time	Lincoln Avenue Southbound				West 6th Street Westbound				Lincoln Avenue Northbound				West 6th Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	25	181	47	253	48	111	30	189	14	118	38	170	63	152	22	237	849
04:15 PM	14	174	54	242	48	141	32	221	12	112	38	162	71	184	19	274	899
04:30 PM	22	181	43	246	50	125	30	205	8	125	34	167	52	189	17	258	876
04:45 PM	24	169	56	249	33	107	28	168	6	113	34	153	60	208	20	288	858
Total	85	705	200	990	179	484	120	783	40	468	144	652	246	733	78	1057	3482
05:00 PM	31	183	47	261	59	109	33	201	15	113	40	168	48	198	16	262	892
05:15 PM	30	190	38	258	44	100	27	171	16	117	25	158	71	172	23	266	853
05:30 PM	25	190	46	261	56	99	29	184	13	107	35	155	46	168	16	230	830
05:45 PM	14	154	37	205	41	83	21	145	17	109	23	149	56	168	18	242	741
Total	100	717	168	985	200	391	110	701	61	446	123	630	221	706	73	1000	3316
Grand Total	185	1422	368	1975	379	875	230	1484	101	914	267	1282	467	1439	151	2057	6798
Apprch %	9.4	72	18.6		25.5	59	15.5		7.9	71.3	20.8		22.7	70	7.3		
Total %	2.7	20.9	5.4	29.1	5.6	12.9	3.4	21.8	1.5	13.4	3.9	18.9	6.9	21.2	2.2	30.3	

Start Time	Lincoln Avenue Southbound				West 6th Street Westbound				Lincoln Avenue Northbound				West 6th Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	14	174	54	242	48	<b>141</b>	32	<b>221</b>	12	112	38	162	<b>71</b>	184	19	274	<b>899</b>
04:30 PM	22	181	43	246	50	125	30	205	8	<b>125</b>	34	167	52	189	17	258	876
04:45 PM	24	169	<b>56</b>	249	33	107	28	168	6	113	34	153	60	<b>208</b>	<b>20</b>	<b>288</b>	858
05:00 PM	<b>31</b>	<b>183</b>	47	<b>261</b>	<b>59</b>	109	<b>33</b>	201	<b>15</b>	113	<b>40</b>	<b>168</b>	48	198	16	262	892
Total Volume	91	707	200	998	190	482	123	795	41	463	146	650	231	779	72	1082	3525
% App. Total	9.1	70.8	20		23.9	60.6	15.5		6.3	71.2	22.5		21.3	72	6.7		
PHF	.734	.966	.893	.956	.805	.855	.932	.899	.683	.926	.913	.967	.813	.936	.900	.939	.980

City of Corona  
 N/S: Lincoln Avenue  
 E/W: West 6th Street  
 Weather: Clear

File Name : 04\_COR\_Linc\_W 6th PM  
 Site Code : 20123433  
 Start Date : 5/3/2023  
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	04:45 PM				04:15 PM				04:00 PM				04:15 PM			
+0 mins.	24	169	<b>56</b>	249	48	<b>141</b>	32	<b>221</b>	<b>14</b>	118	<b>38</b>	<b>170</b>	<b>71</b>	184	19	274
+15 mins.	<b>31</b>	183	47	<b>261</b>	50	125	30	205	12	112	38	162	52	189	17	258
+30 mins.	30	<b>190</b>	38	258	33	107	28	168	8	<b>125</b>	34	167	60	<b>208</b>	<b>20</b>	<b>288</b>
+45 mins.	25	190	46	261	<b>59</b>	109	<b>33</b>	201	6	113	34	153	48	198	16	262
Total Volume	110	732	187	1029	190	482	123	795	40	468	144	652	231	779	72	1082
% App. Total	10.7	71.1	18.2		23.9	60.6	15.5		6.1	71.8	22.1		21.3	72	6.7	
PHF	.887	.963	.835	.986	.805	.855	.932	.899	.714	.936	.947	.959	.813	.936	.900	.939

City of Corona  
 N/S: SR-91 Eastbound Ramps  
 E/W: West 2nd Street  
 Weather: Clear

File Name : 05\_COR\_91E\_W 2nd AM  
 Site Code : 20123433  
 Start Date : 5/3/2023  
 Page No : 1

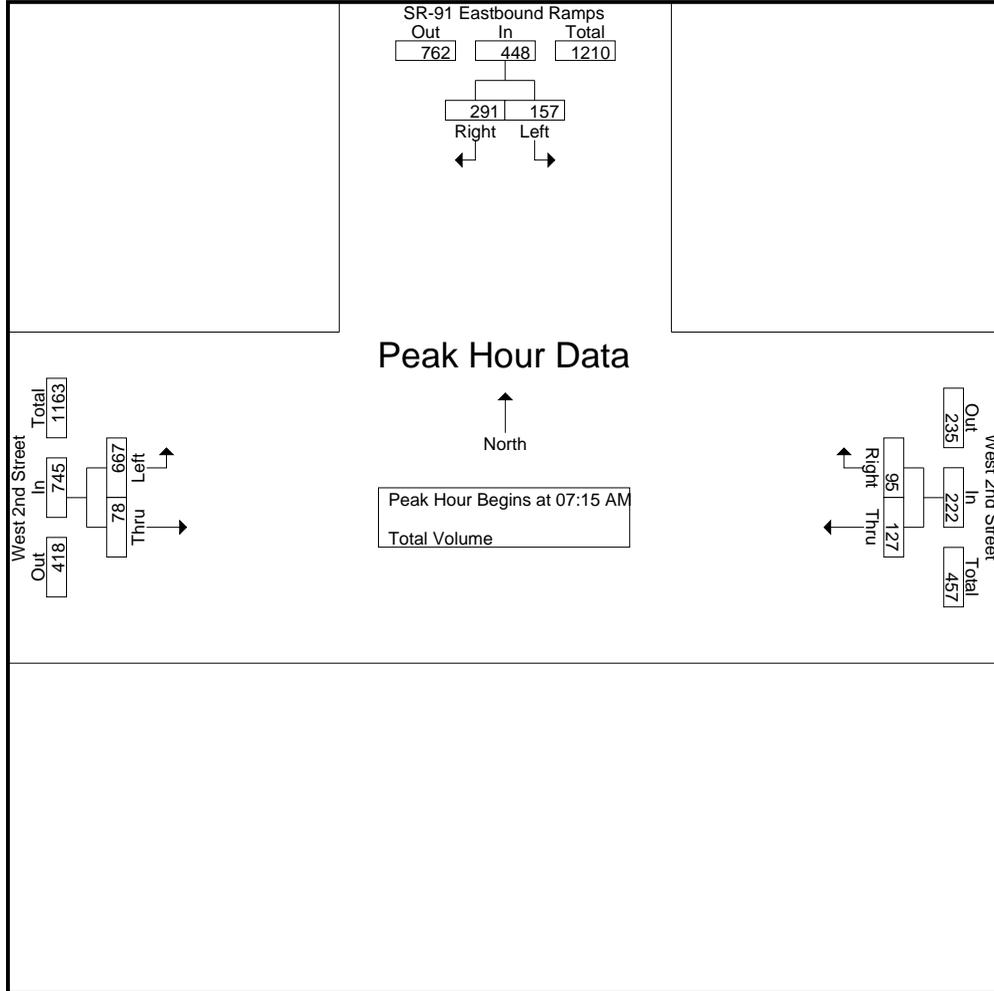
Groups Printed- Total Volume

Start Time	SR-91 Eastbound Ramps Southbound			West 2nd Street Westbound			West 2nd Street Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
07:00 AM	36	51	87	18	28	46	155	13	168	301
07:15 AM	40	77	117	38	25	63	156	17	173	353
07:30 AM	47	72	119	30	31	61	178	17	195	375
07:45 AM	35	74	109	37	20	57	167	16	183	349
Total	158	274	432	123	104	227	656	63	719	1378
08:00 AM	35	68	103	22	19	41	166	28	194	338
08:15 AM	33	67	100	25	15	40	138	16	154	294
08:30 AM	23	60	83	26	28	54	130	17	147	284
08:45 AM	41	56	97	26	15	41	138	22	160	298
Total	132	251	383	99	77	176	572	83	655	1214
Grand Total	290	525	815	222	181	403	1228	146	1374	2592
Apprch %	35.6	64.4		55.1	44.9		89.4	10.6		
Total %	11.2	20.3	31.4	8.6	7	15.5	47.4	5.6	53	

Start Time	SR-91 Eastbound Ramps Southbound			West 2nd Street Westbound			West 2nd Street Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	40	<b>77</b>	117	<b>38</b>	25	<b>63</b>	156	17	173	353
07:30 AM	<b>47</b>	72	<b>119</b>	30	<b>31</b>	61	<b>178</b>	17	<b>195</b>	<b>375</b>
07:45 AM	35	74	109	37	20	57	167	16	183	349
08:00 AM	35	68	103	22	19	41	166	<b>28</b>	194	338
Total Volume	157	291	448	127	95	222	667	78	745	1415
% App. Total	35	65		57.2	42.8		89.5	10.5		
PHF	.835	.945	.941	.836	.766	.881	.937	.696	.955	.943

City of Corona  
 N/S: SR-91 Eastbound Ramps  
 E/W: West 2nd Street  
 Weather: Clear

File Name : 05\_COR\_91E\_W 2nd AM  
 Site Code : 20123433  
 Start Date : 5/3/2023  
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	07:15 AM			07:00 AM			07:15 AM		
+0 mins.	40	<b>77</b>	117	18	28	46	156	17	173
+15 mins.	<b>47</b>	72	<b>119</b>	<b>38</b>	25	<b>63</b>	<b>178</b>	17	<b>195</b>
+30 mins.	35	74	109	30	<b>31</b>	61	167	16	183
+45 mins.	35	68	103	37	20	57	166	<b>28</b>	194
Total Volume	157	291	448	123	104	227	667	78	745
% App. Total	35	65		54.2	45.8		89.5	10.5	
PHF	.835	.945	.941	.809	.839	.901	.937	.696	.955

City of Corona  
 N/S: SR-91 Eastbound Ramps  
 E/W: West 2nd Street  
 Weather: Clear

File Name : 05\_COR\_91E\_W 2nd PM  
 Site Code : 20123433  
 Start Date : 5/3/2023  
 Page No : 1

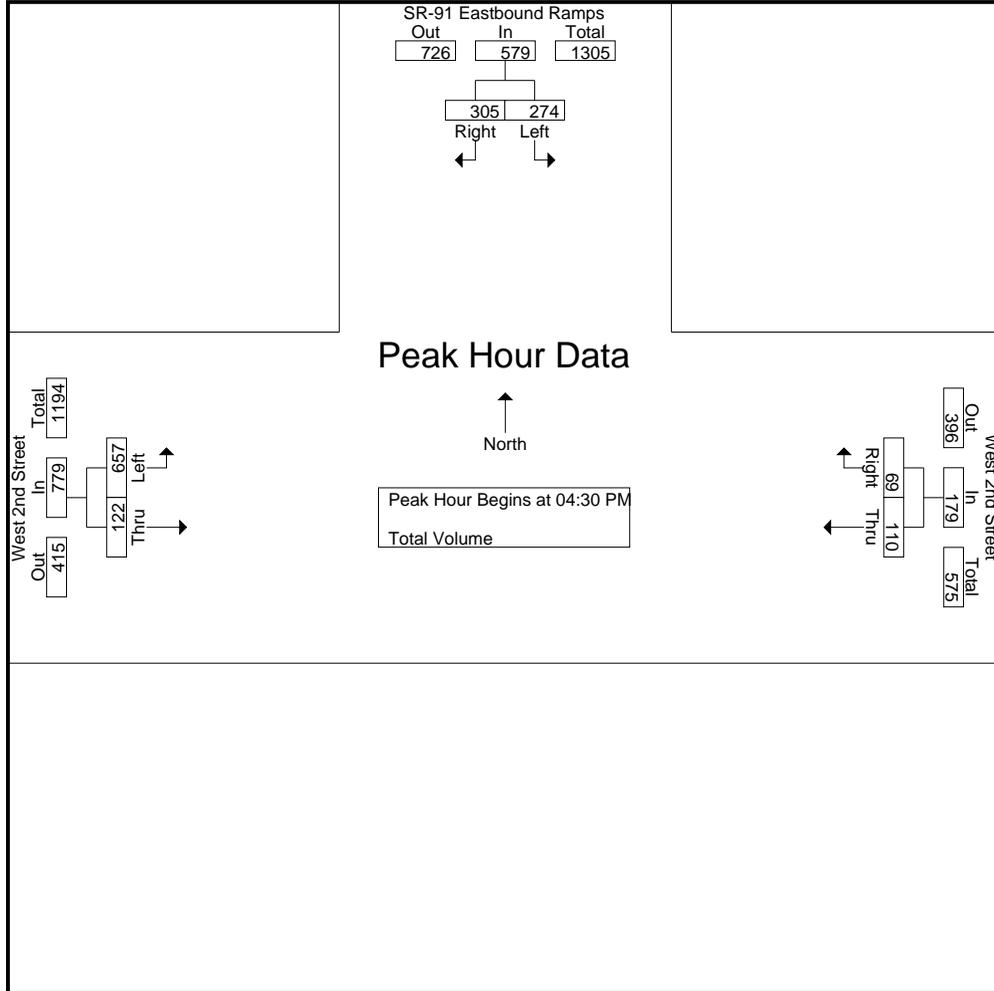
Groups Printed- Total Volume

Start Time	SR-91 Eastbound Ramps Southbound			West 2nd Street Westbound			West 2nd Street Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
04:00 PM	61	65	126	27	9	36	168	29	197	359
04:15 PM	62	65	127	38	20	58	147	42	189	374
04:30 PM	70	65	135	23	16	39	162	25	187	361
04:45 PM	56	70	126	19	17	36	164	32	196	358
Total	249	265	514	107	62	169	641	128	769	1452
05:00 PM	72	85	157	37	22	59	167	38	205	421
05:15 PM	76	85	161	31	14	45	164	27	191	397
05:30 PM	63	82	145	27	9	36	121	36	157	338
05:45 PM	71	85	156	23	13	36	103	35	138	330
Total	282	337	619	118	58	176	555	136	691	1486
Grand Total	531	602	1133	225	120	345	1196	264	1460	2938
Apprch %	46.9	53.1		65.2	34.8		81.9	18.1		
Total %	18.1	20.5	38.6	7.7	4.1	11.7	40.7	9	49.7	

Start Time	SR-91 Eastbound Ramps Southbound			West 2nd Street Westbound			West 2nd Street Eastbound			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	70	65	135	23	16	39	162	25	187	361
04:45 PM	56	70	126	19	17	36	164	32	196	358
05:00 PM	72	<b>85</b>	157	<b>37</b>	<b>22</b>	<b>59</b>	<b>167</b>	<b>38</b>	<b>205</b>	<b>421</b>
05:15 PM	<b>76</b>	85	<b>161</b>	31	14	45	164	27	191	397
Total Volume	274	305	579	110	69	179	657	122	779	1537
% App. Total	47.3	52.7		61.5	38.5		84.3	15.7		
PHF	.901	.897	.899	.743	.784	.758	.984	.803	.950	.913

City of Corona  
 N/S: SR-91 Eastbound Ramps  
 E/W: West 2nd Street  
 Weather: Clear

File Name : 05\_COR\_91E\_W 2nd PM  
 Site Code : 20123433  
 Start Date : 5/3/2023  
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	05:00 PM			04:15 PM			04:30 PM		
+0 mins.	72	<b>85</b>	157	<b>38</b>	20	58	162	25	187
+15 mins.	<b>76</b>	85	<b>161</b>	23	16	39	164	32	196
+30 mins.	63	82	145	19	17	36	<b>167</b>	<b>38</b>	<b>205</b>
+45 mins.	71	85	156	37	<b>22</b>	<b>59</b>	164	27	191
Total Volume	282	337	619	117	75	192	657	122	779
% App. Total	45.6	54.4		60.9	39.1		84.3	15.7	
PHF	.928	.991	.961	.770	.852	.814	.984	.803	.950

City of Corona  
 N/S: Buena Vista Avenue  
 E/W: West 2nd Street  
 Weather: Clear

File Name : 06\_COR\_BV\_W 2nd AM  
 Site Code : 20123433  
 Start Date : 5/3/2023  
 Page No : 1

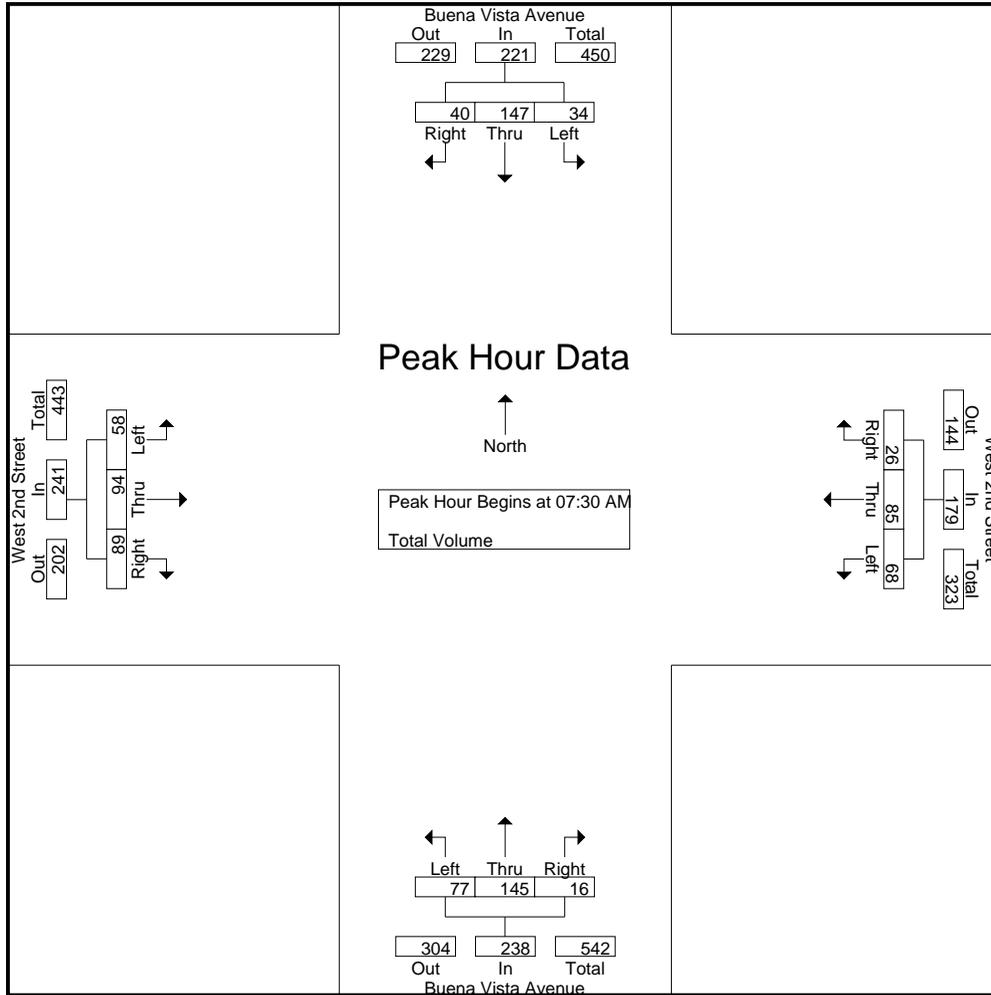
Groups Printed- Total Volume

Start Time	Buena Vista Avenue Southbound				West 2nd Street Westbound				Buena Vista Avenue Northbound				West 2nd Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	2	22	13	37	11	11	3	25	16	20	4	40	13	18	18	49	151
07:15 AM	2	30	22	54	11	19	12	42	20	16	4	40	17	16	14	47	183
07:30 AM	8	39	12	59	22	26	9	57	21	38	2	61	18	21	23	62	239
07:45 AM	13	48	14	75	17	21	11	49	21	48	4	73	21	23	24	68	265
Total	25	139	61	225	61	77	35	173	78	122	14	214	69	78	79	226	838
08:00 AM	5	30	8	43	14	17	3	34	19	20	3	42	12	31	19	62	181
08:15 AM	8	30	6	44	15	21	3	39	16	39	7	62	7	19	23	49	194
08:30 AM	10	30	7	47	26	18	4	48	33	25	9	67	11	20	9	40	202
08:45 AM	2	37	4	43	19	21	4	44	17	36	5	58	17	27	31	75	220
Total	25	127	25	177	74	77	14	165	85	120	24	229	47	97	82	226	797
Grand Total	50	266	86	402	135	154	49	338	163	242	38	443	116	175	161	452	1635
Apprch %	12.4	66.2	21.4		39.9	45.6	14.5		36.8	54.6	8.6		25.7	38.7	35.6		
Total %	3.1	16.3	5.3	24.6	8.3	9.4	3	20.7	10	14.8	2.3	27.1	7.1	10.7	9.8	27.6	

Start Time	Buena Vista Avenue Southbound				West 2nd Street Westbound				Buena Vista Avenue Northbound				West 2nd Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	8	39	12	59	<b>22</b>	<b>26</b>	9	<b>57</b>	<b>21</b>	38	2	61	18	21	23	62	239
07:45 AM	<b>13</b>	<b>48</b>	<b>14</b>	<b>75</b>	17	21	<b>11</b>	49	21	<b>48</b>	4	<b>73</b>	<b>21</b>	23	<b>24</b>	<b>68</b>	<b>265</b>
08:00 AM	5	30	8	43	14	17	3	34	19	20	3	42	12	<b>31</b>	19	62	181
08:15 AM	8	30	6	44	15	21	3	39	16	39	<b>7</b>	62	7	19	23	49	194
Total Volume	34	147	40	221	68	85	26	179	77	145	16	238	58	94	89	241	879
% App. Total	15.4	66.5	18.1		38	47.5	14.5		32.4	60.9	6.7		24.1	39	36.9		
PHF	.654	.766	.714	.737	.773	.817	.591	.785	.917	.755	.571	.815	.690	.758	.927	.886	.829

City of Corona  
 N/S: Buena Vista Avenue  
 E/W: West 2nd Street  
 Weather: Clear

File Name : 06\_COR\_BV\_W 2nd AM  
 Site Code : 20123433  
 Start Date : 5/3/2023  
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:45 AM				07:30 AM			
+0 mins.	2	30	<b>22</b>	54	11	19	<b>12</b>	42	21	<b>48</b>	4	<b>73</b>	18	21	23	62
+15 mins.	8	39	12	59	<b>22</b>	<b>26</b>	9	<b>57</b>	19	20	3	42	<b>21</b>	23	<b>24</b>	<b>68</b>
+30 mins.	<b>13</b>	<b>48</b>	14	<b>75</b>	17	21	11	49	16	39	7	62	12	<b>31</b>	19	62
+45 mins.	5	30	8	43	14	17	3	34	<b>33</b>	25	<b>9</b>	67	7	19	23	49
Total Volume	28	147	56	231	64	83	35	182	89	132	23	244	58	94	89	241
% App. Total	12.1	63.6	24.2		35.2	45.6	19.2		36.5	54.1	9.4		24.1	39	36.9	
PHF	.538	.766	.636	.770	.727	.798	.729	.798	.674	.688	.639	.836	.690	.758	.927	.886

City of Corona  
 N/S: Buena Vista Avenue  
 E/W: West 2nd Street  
 Weather: Clear

File Name : 06\_COR\_BV\_W 2nd PM  
 Site Code : 20123433  
 Start Date : 5/3/2023  
 Page No : 1

Groups Printed- Total Volume

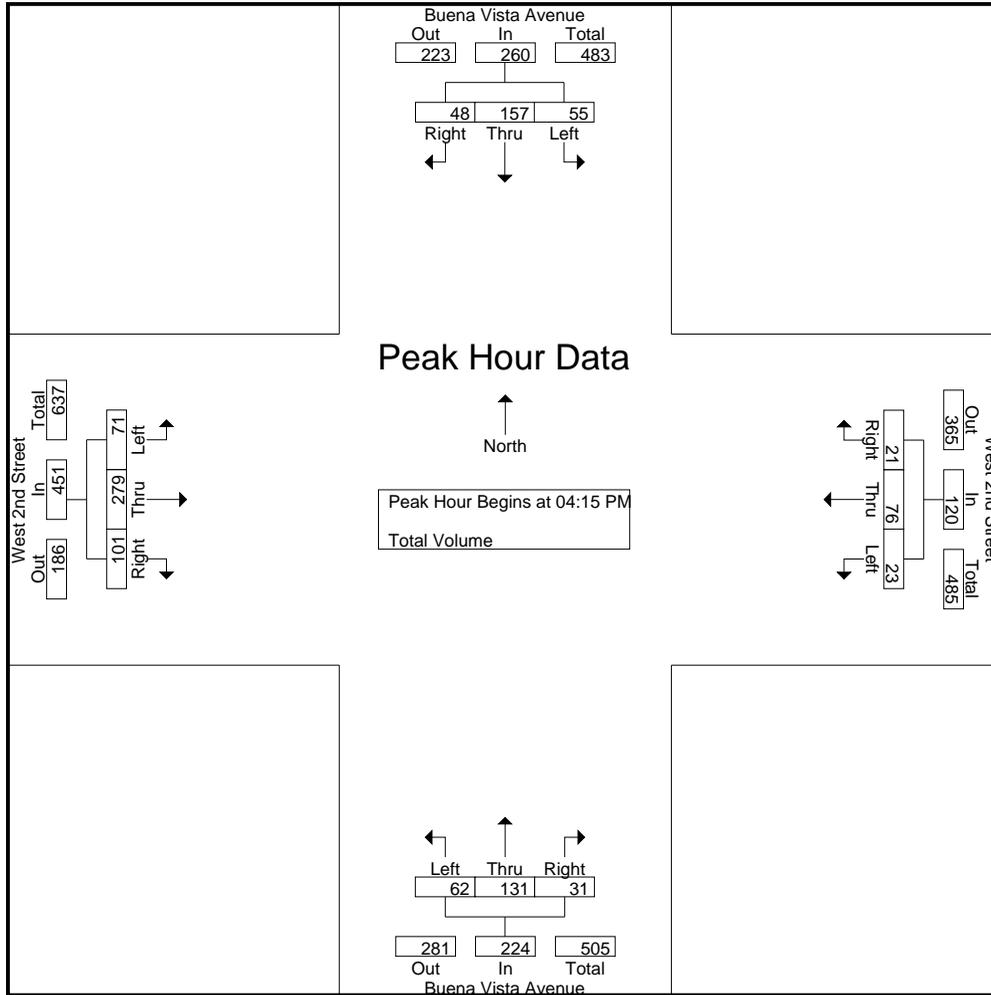
Start Time	Buena Vista Avenue Southbound				West 2nd Street Westbound				Buena Vista Avenue Northbound				West 2nd Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	15	58	9	82	9	21	3	33	12	28	6	46	19	58	20	97	258
04:15 PM	11	43	12	66	4	24	9	37	15	32	11	58	18	64	38	120	281
04:30 PM	14	36	13	63	7	17	4	28	15	40	7	62	17	61	25	103	256
04:45 PM	16	32	13	61	6	13	3	22	14	33	5	52	19	71	12	102	237
Total	56	169	47	272	26	75	19	120	56	133	29	218	73	254	95	422	1032
05:00 PM	14	46	10	70	6	22	5	33	18	26	8	52	17	83	26	126	281
05:15 PM	5	45	13	63	5	20	7	32	11	34	9	54	25	66	26	117	266
05:30 PM	6	42	12	60	12	21	2	35	11	23	12	46	23	67	17	107	248
05:45 PM	5	28	10	43	14	13	2	29	19	27	5	51	27	57	26	110	233
Total	30	161	45	236	37	76	16	129	59	110	34	203	92	273	95	460	1028
Grand Total	86	330	92	508	63	151	35	249	115	243	63	421	165	527	190	882	2060
Apprch %	16.9	65	18.1		25.3	60.6	14.1		27.3	57.7	15		18.7	59.8	21.5		
Total %	4.2	16	4.5	24.7	3.1	7.3	1.7	12.1	5.6	11.8	3.1	20.4	8	25.6	9.2	42.8	

Start Time	Buena Vista Avenue Southbound				West 2nd Street Westbound				Buena Vista Avenue Northbound				West 2nd Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:15 PM	11	43	12	66	4	<b>24</b>	9	37	15	32	11	58	18	64	<b>38</b>	120	<b>281</b>
04:30 PM	14	36	13	63	7	17	4	28	15	<b>40</b>	7	<b>62</b>	17	61	25	103	256
04:45 PM	<b>16</b>	32	13	61	6	13	3	22	14	33	5	52	<b>19</b>	71	12	102	237
05:00 PM	14	<b>46</b>	10	<b>70</b>	6	22	5	33	<b>18</b>	26	8	52	17	<b>83</b>	26	<b>126</b>	281
Total Volume	55	157	48	260	23	76	21	120	62	131	31	224	71	279	101	451	1055
% App. Total	21.2	60.4	18.5		19.2	63.3	17.5		27.7	58.5	13.8		15.7	61.9	22.4		
PHF	.859	.853	.923	.929	.821	.792	.583	.811	.861	.819	.705	.903	.934	.840	.664	.895	.939

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 04:15 PM

City of Corona  
 N/S: Buena Vista Avenue  
 E/W: West 2nd Street  
 Weather: Clear

File Name : 06\_COR\_BV\_W 2nd PM  
 Site Code : 20123433  
 Start Date : 5/3/2023  
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	04:00 PM				05:00 PM				04:15 PM				05:00 PM			
+0 mins.	15	<b>58</b>	9	<b>82</b>	6	<b>22</b>	5	33	15	32	<b>11</b>	58	17	<b>83</b>	<b>26</b>	<b>126</b>
+15 mins.	11	43	12	66	5	20	<b>7</b>	32	15	<b>40</b>	7	<b>62</b>	25	66	26	117
+30 mins.	14	36	<b>13</b>	63	12	21	2	<b>35</b>	14	33	5	52	23	67	17	107
+45 mins.	<b>16</b>	32	13	61	<b>14</b>	13	2	29	<b>18</b>	26	8	52	<b>27</b>	57	26	110
Total Volume	56	169	47	272	37	76	16	129	62	131	31	224	92	273	95	460
% App. Total	20.6	62.1	17.3		28.7	58.9	12.4		27.7	58.5	13.8		20	59.3	20.7	
PHF	.875	.728	.904	.829	.661	.864	.571	.921	.861	.819	.705	.903	.852	.822	.913	.913

City of Corona  
 N/S: Project Driveway 1  
 E/W: West 2nd Street  
 Weather: Clear

File Name : 07\_COR\_P DW\_W 2nd AM  
 Site Code : 20123433  
 Start Date : 5/3/2023  
 Page No : 1

Groups Printed- Total Volume

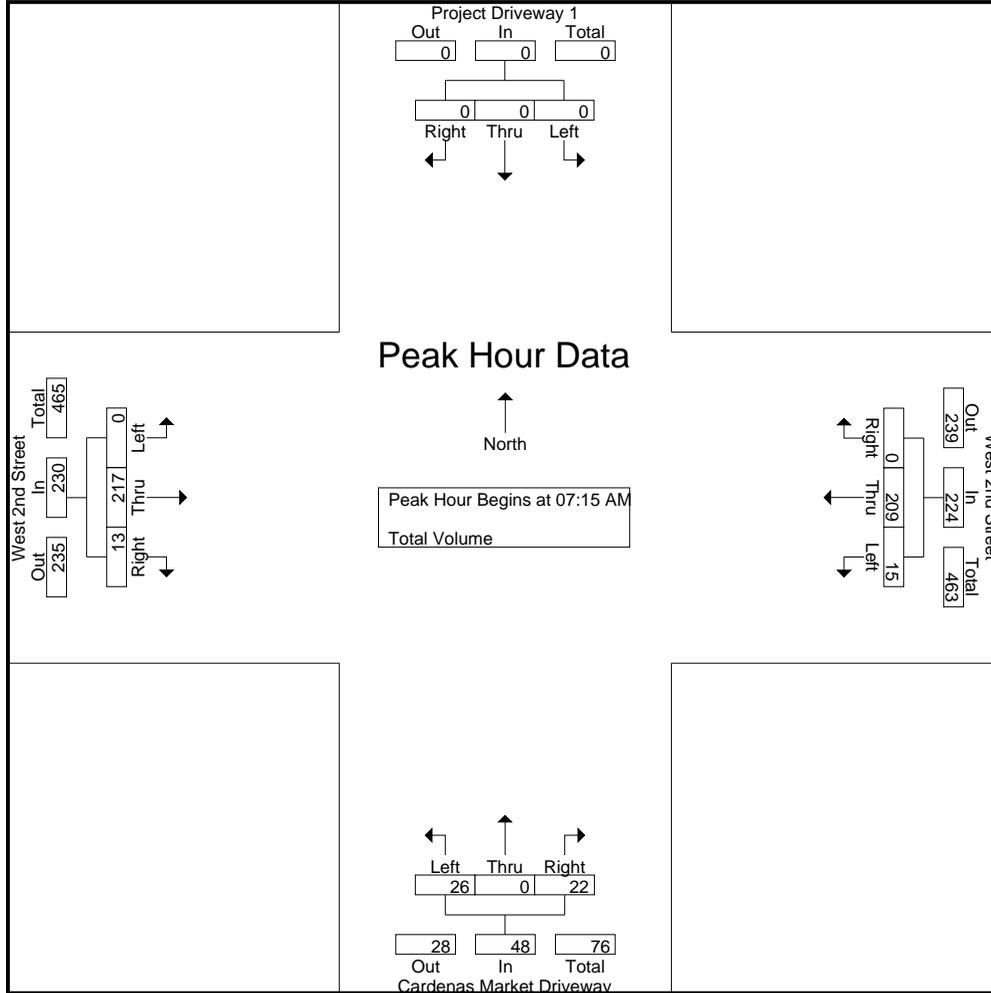
Start Time	Project Driveway 1 Southbound				West 2nd Street Westbound				Cardenas Market Driveway Northbound				West 2nd Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	0	0	0	1	39	0	40	6	0	2	8	0	47	3	50	98
07:15 AM	0	0	0	0	1	60	0	61	2	0	3	5	0	48	5	53	119
07:30 AM	0	0	0	0	5	55	0	60	8	0	4	12	0	61	3	64	136
07:45 AM	0	0	0	0	4	54	0	58	12	0	9	21	0	53	0	53	132
Total	0	0	0	0	11	208	0	219	28	0	18	46	0	209	11	220	485
08:00 AM	0	0	0	0	5	40	0	45	4	0	6	10	0	55	5	60	115
08:15 AM	0	0	0	0	3	38	0	41	5	0	4	9	0	46	5	51	101
08:30 AM	0	0	0	0	7	49	0	56	5	0	6	11	0	35	4	39	106
08:45 AM	0	0	0	0	4	38	0	42	10	0	12	22	0	58	3	61	125
Total	0	0	0	0	19	165	0	184	24	0	28	52	0	194	17	211	447
Grand Total	0	0	0	0	30	373	0	403	52	0	46	98	0	403	28	431	932
Apprch %	0	0	0		7.4	92.6	0		53.1	0	46.9		0	93.5	6.5		
Total %	0	0	0		3.2	40	0	43.2	5.6	0	4.9	10.5	0	43.2	3	46.2	

Start Time	Project Driveway 1 Southbound				West 2nd Street Westbound				Cardenas Market Driveway Northbound				West 2nd Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:15 AM	0	0	0	0	1	<b>60</b>	0	<b>61</b>	2	0	3	5	0	48	<b>5</b>	53	119
07:30 AM	0	0	0	0	<b>5</b>	55	0	60	8	0	4	12	0	<b>61</b>	3	<b>64</b>	<b>136</b>
07:45 AM	0	0	0	0	4	54	0	58	<b>12</b>	0	<b>9</b>	<b>21</b>	0	53	0	53	132
08:00 AM	0	0	0	0	5	40	0	45	4	0	6	10	0	55	5	60	115
Total Volume	0	0	0	0	15	209	0	224	26	0	22	48	0	217	13	230	502
% App. Total	0	0	0		6.7	93.3	0		54.2	0	45.8		0	94.3	5.7		
PHF	.000	.000	.000	.000	.750	.871	.000	.918	.542	.000	.611	.571	.000	.889	.650	.898	.923

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Entire Intersection Begins at 07:15 AM

City of Corona  
 N/S: Project Driveway 1  
 E/W: West 2nd Street  
 Weather: Clear

File Name : 07\_COR\_P DW\_W 2nd AM  
 Site Code : 20123433  
 Start Date : 5/3/2023  
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	07:00 AM				07:15 AM				07:30 AM				07:45 AM			
+0 mins.	0	0	0	0	1	<b>60</b>	0	<b>61</b>	8	0	4	12	0	48	<b>5</b>	53
+15 mins.	0	0	0	0	<b>5</b>	55	0	60	<b>12</b>	0	<b>9</b>	<b>21</b>	0	<b>61</b>	3	<b>64</b>
+30 mins.	0	0	0	0	4	54	0	58	4	0	6	10	0	53	0	53
+45 mins.	0	0	0	0	5	40	0	45	5	0	4	9	0	55	5	60
Total Volume	0	0	0	0	15	209	0	224	29	0	23	52	0	217	13	230
% App. Total	0	0	0	0	6.7	93.3	0		55.8	0	44.2		0	94.3	5.7	
PHF	.000	.000	.000	.000	.750	.871	.000	.918	.604	.000	.639	.619	.000	.889	.650	.898

City of Corona  
 N/S: Project Driveway 1  
 E/W: West 2nd Street  
 Weather: Clear

File Name : 07\_COR\_P DW\_W 2nd PM  
 Site Code : 20123433  
 Start Date : 5/3/2023  
 Page No : 1

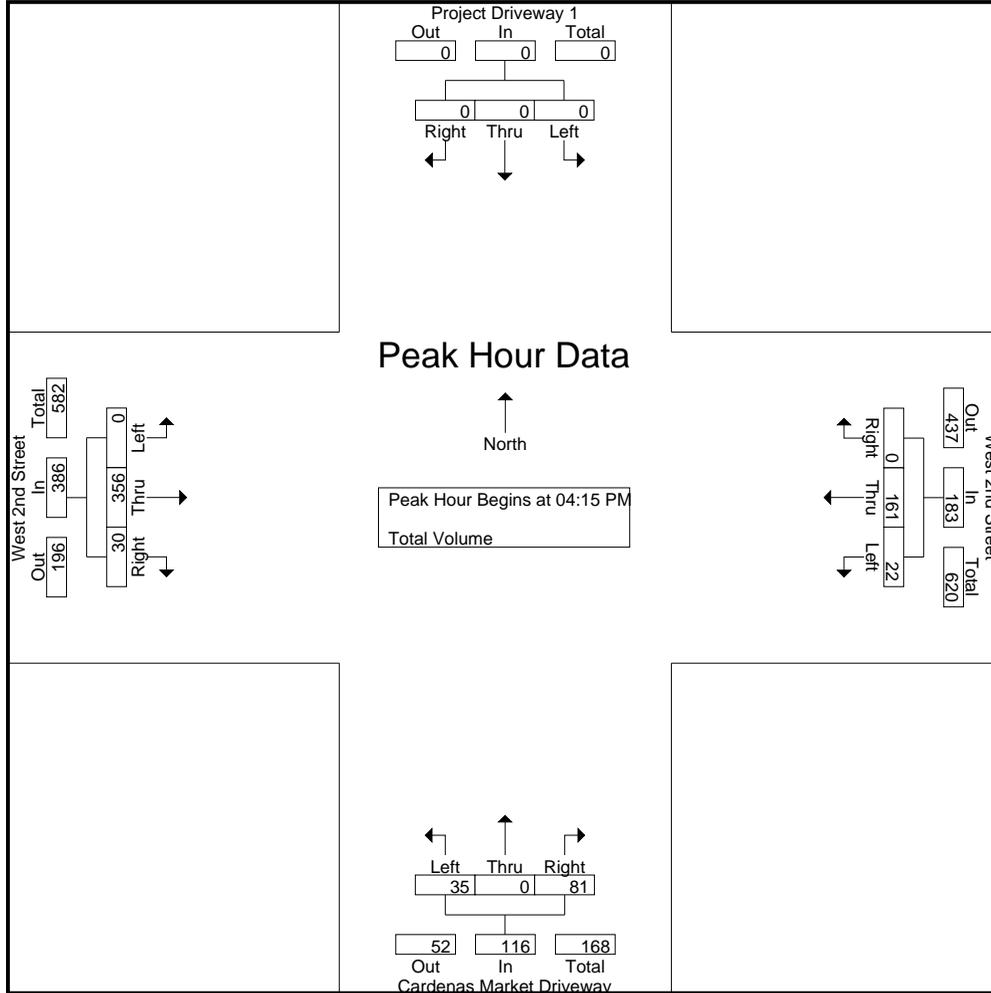
Groups Printed- Total Volume

Start Time	Project Driveway 1 Southbound				West 2nd Street Westbound				Cardenas Market Driveway Northbound				West 2nd Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	0	0	0	0	11	30	0	41	4	0	14	18	0	85	8	93	152
04:15 PM	0	0	0	0	5	45	0	50	12	0	21	33	0	87	11	98	181
04:30 PM	0	0	0	0	8	36	0	44	7	0	22	29	0	78	3	81	154
04:45 PM	0	0	0	0	6	32	0	38	7	0	22	29	0	90	7	97	164
Total	0	0	0	0	30	143	0	173	30	0	79	109	0	340	29	369	651
05:00 PM	0	0	0	0	3	48	0	51	9	0	16	25	0	101	9	110	186
05:15 PM	0	0	0	0	4	37	0	41	10	0	20	30	0	95	6	101	172
05:30 PM	0	0	0	0	12	32	0	44	6	0	9	15	0	90	9	99	158
05:45 PM	0	0	0	0	11	30	0	41	5	0	17	22	0	95	8	103	166
Total	0	0	0	0	30	147	0	177	30	0	62	92	0	381	32	413	682
Grand Total	0	0	0	0	60	290	0	350	60	0	141	201	0	721	61	782	1333
Apprch %	0	0	0		17.1	82.9	0		29.9	0	70.1		0	92.2	7.8		
Total %	0	0	0	0	4.5	21.8	0	26.3	4.5	0	10.6	15.1	0	54.1	4.6	58.7	

Start Time	Project Driveway 1 Southbound				West 2nd Street Westbound				Cardenas Market Driveway Northbound				West 2nd Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	0	0	0	5	45	0	50	12	0	21	33	0	87	11	98	181
04:30 PM	0	0	0	0	8	36	0	44	7	0	22	29	0	78	3	81	154
04:45 PM	0	0	0	0	6	32	0	38	7	0	22	29	0	90	7	97	164
05:00 PM	0	0	0	0	3	48	0	51	9	0	16	25	0	101	9	110	186
Total Volume	0	0	0	0	22	161	0	183	35	0	81	116	0	356	30	386	685
% App. Total	0	0	0		12	88	0		30.2	0	69.8		0	92.2	7.8		
PHF	.000	.000	.000	.000	.688	.839	.000	.897	.729	.000	.920	.879	.000	.881	.682	.877	.921

City of Corona  
 N/S: Project Driveway 1  
 E/W: West 2nd Street  
 Weather: Clear

File Name : 07\_COR\_P DW\_W 2nd PM  
 Site Code : 20123433  
 Start Date : 5/3/2023  
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	04:00 PM				04:15 PM				04:15 PM				05:00 PM			
+0 mins.	0	0	0	0	5	45	0	50	12	0	21	33	0	101	9	110
+15 mins.	0	0	0	0	8	36	0	44	7	0	22	29	0	95	6	101
+30 mins.	0	0	0	0	6	32	0	38	7	0	22	29	0	90	9	99
+45 mins.	0	0	0	0	3	48	0	51	9	0	16	25	0	95	8	103
Total Volume	0	0	0	0	22	161	0	183	35	0	81	116	0	381	32	413
% App. Total	0	0	0	0	12	88	0	89.7	30.2	0	69.8	87.9	0	92.3	7.7	93.9
PHF	.000	.000	.000	.000	.688	.839	.000	.897	.729	.000	.920	.879	.000	.943	.889	.939

SR-91 Freeway Volumes at Lincoln

Location	AM PEAK HOUR								PM PEAK HOUR							
	Existing 2023	Project	C	E+P	EAP	EAPC	2040NP	2040WP	Existing 2023	Project	C	E+P	EAP	EAPC	2040NP	2040WP
<b>SR-91 EB</b>																
West of Lincoln	8,459	10	17	8,469	8,811	8,828	9,170	9,180	8,261	11	14	8,272	8,595	8,609	9,726	9,737
EB Off Ramp at Lincoln	448	10	17	458	476	493	600	610	579	11	14	590	613	627	831	842
Between Ramps	8,011	0	0	8,011	8,335	8,335	8,570	8,570	7,682	0	0	7,682	7,982	7,982	8,895	8,895
EB On Ramp at Lincoln	775	9	14	784	815	829	913	922	746	11	49	757	787	836	937	948
East of Lincoln	8,786	9	14	8,795	9,150	9,164	9,483	9,492	8,428	11	49	8,439	8,769	8,818	9,832	9,843
<b>SR-91 WB</b>																
East of Lincoln	7,768	10	40	7,778	8,092	8,132	8,979	8,989	8,126	11	32	8,137	8,465	8,497	9,110	9,121
WB Off Ramp at Lincoln	1009	10	40	1019	1060	1100	1,457	1467	822	11	32	833	866	898	1,214	1225
Between Ramps	6,759	0	0	6,759	7,032	7,032	7,522	7,522	7,304	0	0	7,304	7,599	7,599	7,896	7,896
WB On Ramp at Lincoln	782	9	9	791	823	832	882	891	632	10	21	642	668	689	726	736
West of Lincoln	7,541	9	9	7,550	7,855	7,864	8,404	8,413	7,936	10	21	7,946	8,267	8,288	8,622	8,632

PeMS Data for Week of May 2-5, 2023

Flow Conserved Volumes

Long Range Forecasts

May 2023 Intersection Counts

Updated 2023.07.28

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**APPENDIX C**

**EXISTING (2023) CONDITIONS  
INTERSECTION ANALYSIS CALCULATION WORKSHEETS**

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Lanes, Volumes, Timings  
1: Lincoln Ave. & Pomona Rd.

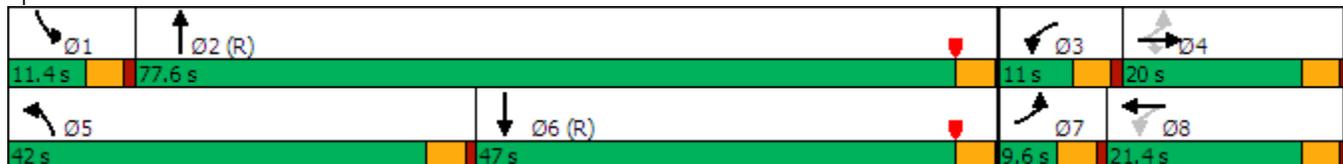
Existing (2023) AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	9	35	67	24	20	316	731	43	34	770	47
Future Volume (vph)	22	9	35	67	24	20	316	731	43	34	770	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		160	75		150	300		150	90		150
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	30			90			60			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		328			795			507			349	
Travel Time (s)		7.5			18.1			9.9			6.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8								
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	4.0	4.0	5.0	4.0		5.0	4.0		5.0	4.0	
Minimum Split (s)	9.5	20.0	20.0	9.5	20.0		9.5	20.0		9.5	20.0	
Total Split (s)	9.6	20.0	20.0	11.0	21.4		42.0	77.6		11.4	47.0	
Total Split (%)	8.0%	16.7%	16.7%	9.2%	17.8%		35.0%	64.7%		9.5%	39.2%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	0.5	0.5	1.0	0.5		1.0	0.5		1.0	0.5	
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)	4.5	4.0	4.0	4.5	4.0		4.5	4.0		4.5	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Lincoln Ave. & Pomona Rd.



HCM 6th Signalized Intersection Summary  
1: Lincoln Ave. & Pomona Rd.

Existing (2023) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	9	35	67	24	20	316	731	43	34	770	47
Future Volume (veh/h)	22	9	35	67	24	20	316	731	43	34	770	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.97	0.98		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	24	10	39	74	27	22	351	812	48	38	856	52
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	174	104	86	217	78	64	377	2463	146	53	1840	112
Arrive On Green	0.02	0.06	0.06	0.05	0.08	0.08	0.42	1.00	1.00	0.03	0.54	0.54
Sat Flow, veh/h	1781	1870	1542	1781	945	770	1781	3409	201	1781	3402	207
Grp Volume(v), veh/h	24	10	39	74	0	49	351	423	437	38	447	461
Grp Sat Flow(s),veh/h/ln	1781	1870	1542	1781	0	1715	1781	1777	1833	1781	1777	1832
Q Serve(g_s), s	1.5	0.6	2.9	4.6	0.0	3.2	22.5	0.0	0.0	2.5	18.5	18.5
Cycle Q Clear(g_c), s	1.5	0.6	2.9	4.6	0.0	3.2	22.5	0.0	0.0	2.5	18.5	18.5
Prop In Lane	1.00		1.00	1.00		0.45	1.00		0.11	1.00		0.11
Lane Grp Cap(c), veh/h	174	104	86	217	0	142	377	1284	1325	53	961	991
V/C Ratio(X)	0.14	0.10	0.46	0.34	0.00	0.34	0.93	0.33	0.33	0.71	0.47	0.47
Avail Cap(c_a), veh/h	209	249	206	223	0	249	557	1284	1325	102	961	991
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.81	0.81	0.81	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.7	53.8	54.9	49.3	0.0	51.9	33.8	0.0	0.0	57.7	16.9	16.9
Incr Delay (d2), s/veh	0.4	0.4	3.8	0.9	0.0	1.4	14.9	0.6	0.5	16.1	1.6	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.3	1.2	2.1	0.0	1.5	9.1	0.2	0.2	1.4	7.7	7.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.0	54.2	58.7	50.2	0.0	53.4	48.7	0.6	0.5	73.8	18.5	18.5
LnGrp LOS	D	D	E	D	A	D	D	A	A	E	B	B
Approach Vol, veh/h		73			123			1211			946	
Approach Delay, s/veh		55.9			51.5			14.5			20.7	
Approach LOS		E			D			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.1	90.7	10.6	10.7	29.9	68.9	7.3	14.0				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	6.9	73.6	6.5	16.0	37.5	43.0	5.1	17.4				
Max Q Clear Time (g_c+I1), s	4.5	2.0	6.6	4.9	24.5	20.5	3.5	5.2				
Green Ext Time (p_c), s	0.0	6.3	0.0	0.1	0.9	5.9	0.0	0.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			20.2									
HCM 6th LOS			C									

Lanes, Volumes, Timings  
2: Lincoln Ave. & SR-91 WB Ramps

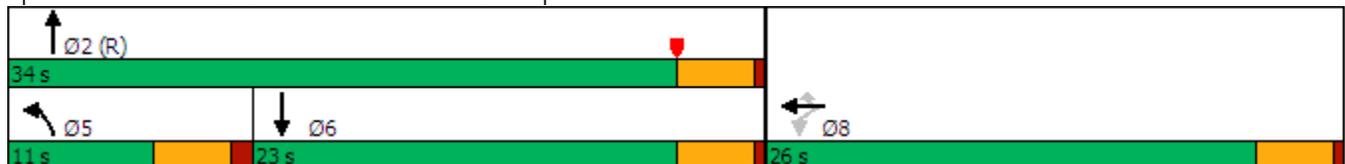
Existing (2023) AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	382	130	497	190	593	0	0	404	462
Future Volume (vph)	0	0	0	382	130	497	190	593	0	0	404	462
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	0		320	420		150	150		150
Storage Lanes	0		0	1		2	2		0	0		0
Taper Length (ft)	90			120			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			35				35
Link Distance (ft)		1035			1181			839				507
Travel Time (s)		23.5			26.8			16.3				9.9
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Shared Lane Traffic (%)				34%								
Turn Type				Perm	NA	Perm	Prot	NA				NA
Protected Phases					8		5	2				6
Permitted Phases				8		8						
Detector Phase				8	8	8	5	2				6
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0	5.0	4.0				4.0
Minimum Split (s)				20.0	20.0	20.0	9.5	20.0				20.0
Total Split (s)				26.0	26.0	26.0	11.0	34.0				23.0
Total Split (%)				43.3%	43.3%	43.3%	18.3%	56.7%				38.3%
Yellow Time (s)				3.5	3.5	3.5	3.5	3.5				3.5
All-Red Time (s)				0.5	0.5	0.5	1.0	0.5				0.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0				0.0
Total Lost Time (s)				4.0	4.0	4.0	4.5	4.0				4.0
Lead/Lag							Lead					Lag
Lead-Lag Optimize?							Yes					Yes
Recall Mode				None	None	None	None	C-Max				None

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT, Start of Yellow  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated

Splits and Phases: 2: Lincoln Ave. & SR-91 WB Ramps



HCM 6th Signalized Intersection Summary  
2: Lincoln Ave. & SR-91 WB Ramps

Existing (2023) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	382	130	497	190	593	0	0	404	462
Future Volume (veh/h)	0	0	0	382	130	497	190	593	0	0	404	462
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				272	326	529	202	631	0	0	430	491
Peak Hour Factor				0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				644	677	571	302	1794	0	0	608	540
Arrive On Green				0.36	0.36	0.36	0.12	0.67	0.00	0.00	0.46	0.46
Sat Flow, veh/h				1781	1870	1578	3456	3647	0	0	1870	1578
Grp Volume(v), veh/h				272	326	529	202	631	0	0	430	491
Grp Sat Flow(s),veh/h/ln				1781	1870	1578	1728	1777	0	0	1777	1578
Q Serve(g_s), s				6.9	8.1	19.3	3.4	4.6	0.0	0.0	11.7	17.3
Cycle Q Clear(g_c), s				6.9	8.1	19.3	3.4	4.6	0.0	0.0	11.7	17.3
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				644	677	571	302	1794	0	0	608	540
V/C Ratio(X)				0.42	0.48	0.93	0.67	0.35	0.00	0.00	0.71	0.91
Avail Cap(c_a), veh/h				653	686	579	374	1794	0	0	608	540
HCM Platoon Ratio				1.00	1.00	1.00	1.33	1.33	1.00	1.00	1.33	1.33
Upstream Filter(I)				1.00	1.00	1.00	0.92	0.92	0.00	0.00	0.88	0.88
Uniform Delay (d), s/veh				14.4	14.8	18.4	25.7	5.6	0.0	0.0	13.9	15.5
Incr Delay (d2), s/veh				0.4	0.5	21.0	3.0	0.5	0.0	0.0	3.3	17.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.6	3.2	9.5	1.4	1.3	0.0	0.0	4.1	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				14.9	15.3	39.4	28.7	6.1	0.0	0.0	17.2	33.0
LnGrp LOS				B	B	D	C	A	A	A	B	C
Approach Vol, veh/h					1127			833			921	
Approach Delay, s/veh					26.5			11.6			25.6	
Approach LOS					C			B			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		34.3			9.7	24.5		25.7				
Change Period (Y+Rc), s		4.0			4.5	4.0		4.0				
Max Green Setting (Gmax), s		30.0			6.5	19.0		22.0				
Max Q Clear Time (g_c+I1), s		6.6			5.4	19.3		21.3				
Green Ext Time (p_c), s		4.3			0.1	0.0		0.4				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				21.9								
HCM 6th LOS				C								
<b>Notes</b>												
User approved volume balancing among the lanes for turning movement.												

Lanes, Volumes, Timings  
3: Lincoln Ave. & D St./2nd St.

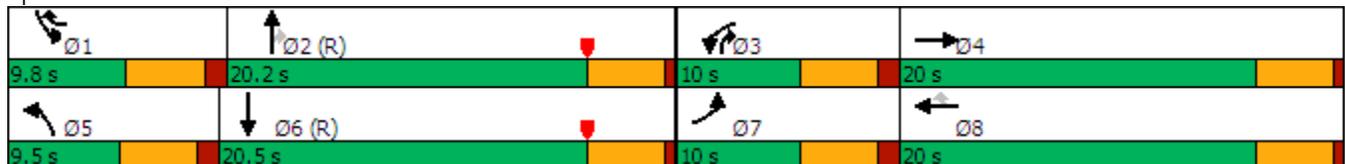
Existing (2023) AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	136	43	72	60	286	62	455	439	177	492	92
Future Volume (vph)	42	136	43	72	60	286	62	455	439	177	492	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		65	155		155	165		310	220		150
Storage Lanes	1		1	2		0	1		1	2		0
Taper Length (ft)	30			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		358			549			551			839	
Travel Time (s)		7.0			10.7			10.7			16.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases						8			2			
Detector Phase	7	4		3	8	1	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	
Minimum Split (s)	9.5	20.0		9.5	20.0	9.5	9.5	20.0	9.5	9.5	20.0	
Total Split (s)	10.0	20.0		10.0	20.0	9.8	9.5	20.2	10.0	9.8	20.5	
Total Split (%)	16.7%	33.3%		16.7%	33.3%	16.3%	15.8%	33.7%	16.7%	16.3%	34.2%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	0.5		1.0	0.5	1.0	1.0	0.5	1.0	1.0	0.5	
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)	4.5	4.0		4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow, Master Intersection  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 3: Lincoln Ave. & D St./2nd St.



HCM 6th Signalized Intersection Summary  
3: Lincoln Ave. & D St./2nd St.

Existing (2023) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				 				 		 	 	 
Traffic Volume (veh/h)	42	136	43	72	60	286	62	455	439	177	492	92
Future Volume (veh/h)	42	136	43	72	60	286	62	455	439	177	492	92
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	44	142	45	75	62	298	65	474	457	184	512	96
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	270	86	205	402	467	98	1341	690	281	1204	225
Arrive On Green	0.04	0.20	0.20	0.02	0.07	0.07	0.06	0.38	0.38	0.08	0.40	0.40
Sat Flow, veh/h	1781	1358	431	3456	1870	1574	1781	3554	1579	3456	2986	557
Grp Volume(v), veh/h	44	0	187	75	62	298	65	474	457	184	304	304
Grp Sat Flow(s),veh/h/ln	1781	0	1789	1728	1870	1574	1781	1777	1579	1728	1777	1766
Q Serve(g_s), s	1.5	0.0	5.6	1.3	1.9	10.1	2.1	5.8	13.8	3.1	7.4	7.5
Cycle Q Clear(g_c), s	1.5	0.0	5.6	1.3	1.9	10.1	2.1	5.8	13.8	3.1	7.4	7.5
Prop In Lane	1.00		0.24	1.00		1.00	1.00		1.00	1.00		0.32
Lane Grp Cap(c), veh/h	77	0	355	205	402	467	98	1341	690	281	717	712
V/C Ratio(X)	0.57	0.00	0.53	0.37	0.15	0.64	0.66	0.35	0.66	0.66	0.42	0.43
Avail Cap(c_a), veh/h	163	0	477	317	499	548	148	1341	690	305	717	712
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.98	0.98	0.98	1.00	1.00	1.00	0.77	0.77	0.77
Uniform Delay (d), s/veh	28.2	0.0	21.5	28.3	22.8	21.8	27.8	13.4	13.4	26.7	12.9	12.9
Incr Delay (d2), s/veh	6.5	0.0	1.2	1.1	0.2	1.9	7.4	0.7	5.0	3.5	1.4	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	2.3	0.5	0.8	4.2	1.1	2.1	5.0	1.3	2.8	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.6	0.0	22.7	29.4	22.9	23.7	35.2	14.2	18.3	30.2	14.3	14.3
LnGrp LOS	C	A	C	C	C	C	D	B	B	C	B	B
Approach Vol, veh/h		231			435			996			792	
Approach Delay, s/veh		25.0			24.5			17.5			18.0	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.4	26.6	8.1	15.9	7.8	28.2	7.1	16.9				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	5.3	16.2	5.5	16.0	5.0	16.5	5.5	16.0				
Max Q Clear Time (g_c+I1), s	5.1	15.8	3.3	7.6	4.1	9.5	3.5	12.1				
Green Ext Time (p_c), s	0.0	0.2	0.0	0.6	0.0	2.1	0.0	0.5				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			19.6									
HCM 6th LOS			B									

Lanes, Volumes, Timings  
4: Lincoln Ave. & 6th St.

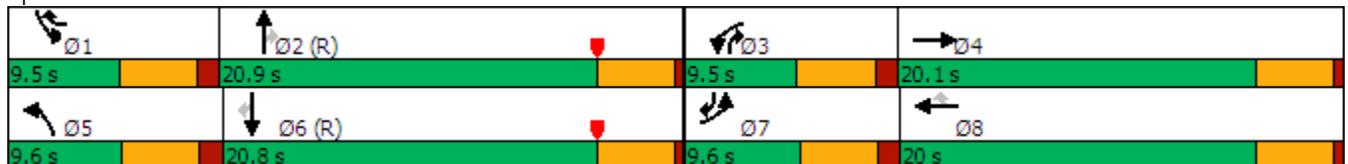
Existing (2023) AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	131	245	17	87	715	82	79	753	97	32	334	235
Future Volume (vph)	131	245	17	87	715	82	79	753	97	32	334	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	205		150	175		90	150		95	110		150
Storage Lanes	2		0	2		1	1		1	1		1
Taper Length (ft)	90			120			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		413			447			466			504	
Travel Time (s)		8.0			8.7			9.1			9.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0
Minimum Split (s)	9.5	20.0		9.5	20.0	9.5	9.5	20.0	9.5	9.5	20.0	9.5
Total Split (s)	9.6	20.1		9.5	20.0	9.5	9.6	20.9	9.5	9.5	20.8	9.6
Total Split (%)	16.0%	33.5%		15.8%	33.3%	15.8%	16.0%	34.8%	15.8%	15.8%	34.7%	16.0%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	0.5		1.0	0.5	1.0	1.0	0.5	1.0	1.0	0.5	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)	4.5	4.0		4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 4: Lincoln Ave. & 6th St.



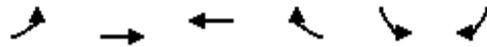
HCM 6th Signalized Intersection Summary  
4: Lincoln Ave. & 6th St.

Existing (2023) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 			 			 	 
Traffic Volume (veh/h)	131	245	17	87	715	82	79	753	97	32	334	235
Future Volume (veh/h)	131	245	17	87	715	82	79	753	97	32	334	235
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	146	272	19	97	794	91	88	837	108	36	371	261
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	263	902	63	231	919	467	114	1224	649	67	1130	622
Arrive On Green	0.08	0.27	0.27	0.07	0.26	0.26	0.06	0.34	0.34	0.04	0.32	0.32
Sat Flow, veh/h	3456	3370	234	3456	3554	1576	1781	3554	1578	1781	3554	1578
Grp Volume(v), veh/h	146	143	148	97	794	91	88	837	108	36	371	261
Grp Sat Flow(s),veh/h/ln	1728	1777	1827	1728	1777	1576	1781	1777	1578	1781	1777	1578
Q Serve(g_s), s	2.4	3.8	3.9	1.6	12.8	2.6	2.9	12.1	2.6	1.2	4.8	7.2
Cycle Q Clear(g_c), s	2.4	3.8	3.9	1.6	12.8	2.6	2.9	12.1	2.6	1.2	4.8	7.2
Prop In Lane	1.00		0.13	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	263	476	489	231	919	467	114	1224	649	67	1130	622
V/C Ratio(X)	0.56	0.30	0.30	0.42	0.86	0.19	0.77	0.68	0.17	0.54	0.33	0.42
Avail Cap(c_a), veh/h	294	477	490	288	948	480	151	1224	649	148	1130	622
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.7	17.5	17.5	26.9	21.2	15.8	27.6	16.9	11.2	28.4	15.6	13.2
Incr Delay (d2), s/veh	1.8	0.3	0.3	1.2	8.2	0.2	15.8	3.1	0.6	6.5	0.8	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	1.5	1.5	0.7	5.8	0.9	1.7	4.8	0.9	0.6	1.8	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.6	17.8	17.8	28.1	29.4	16.0	43.4	20.0	11.7	34.9	16.4	15.3
LnGrp LOS	C	B	B	C	C	B	D	B	B	C	B	B
Approach Vol, veh/h		437			982			1033			668	
Approach Delay, s/veh		21.4			28.0			21.1			16.9	
Approach LOS		C			C			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.8	24.7	8.5	20.1	8.3	23.1	9.1	19.5				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	5.0	16.9	5.0	16.1	5.1	16.8	5.1	16.0				
Max Q Clear Time (g_c+I1), s	3.2	14.1	3.6	5.9	4.9	9.2	4.4	14.8				
Green Ext Time (p_c), s	0.0	1.5	0.0	1.1	0.0	2.0	0.0	0.7				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				22.4								
HCM 6th LOS				C								

Lanes, Volumes, Timings  
5: 2nd St. & SR-91 EB Ramps

Existing (2023) AM Peak Hour

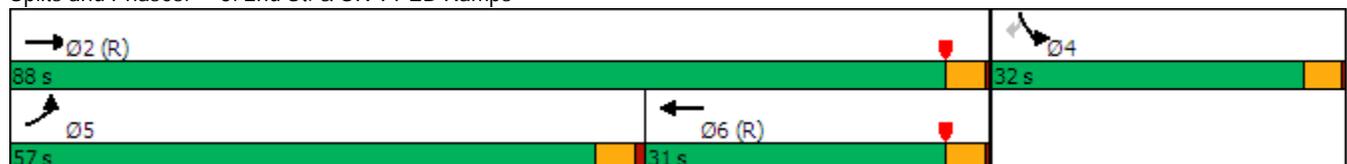


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖↗	↑	↕↔		↖↗	↗
Traffic Volume (vph)	667	78	127	108	157	291
Future Volume (vph)	667	78	127	108	157	291
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190			150	450	150
Storage Lanes	0			0	0	0
Taper Length (ft)	60				90	
Right Turn on Red				Yes		Yes
Link Speed (mph)		35	35		30	
Link Distance (ft)		549	319		407	
Travel Time (s)		10.7	6.2		9.3	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Shared Lane Traffic (%)						50%
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	5.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.5	20.0	20.0		20.0	20.0
Total Split (s)	57.0	88.0	31.0		32.0	32.0
Total Split (%)	47.5%	73.3%	25.8%		26.7%	26.7%
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	0.5	0.5		0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.0	4.0		4.0	4.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Recall Mode	None	C-Max	C-Max		Max	Max

Intersection Summary

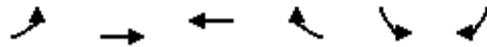
Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 5: 2nd St. & SR-91 EB Ramps



HCM 6th Signalized Intersection Summary  
5: 2nd St. & SR-91 EB Ramps

Existing (2023) AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	667	78	127	108	157	291
Future Volume (veh/h)	667	78	127	108	157	291
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	710	83	135	115	159	319
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	800	1309	813	639	416	740
Arrive On Green	0.39	1.00	0.72	0.72	0.23	0.23
Sat Flow, veh/h	3456	1870	1980	1483	1781	3170
Grp Volume(v), veh/h	710	83	126	124	159	319
Grp Sat Flow(s),veh/h/ln	1728	1870	1777	1593	1781	1585
Q Serve(g_s), s	23.0	0.0	2.7	3.0	9.0	10.3
Cycle Q Clear(g_c), s	23.0	0.0	2.7	3.0	9.0	10.3
Prop In Lane	1.00			0.93	1.00	1.00
Lane Grp Cap(c), veh/h	800	1309	766	687	416	740
V/C Ratio(X)	0.89	0.06	0.17	0.18	0.38	0.43
Avail Cap(c_a), veh/h	1512	1309	766	687	416	740
HCM Platoon Ratio	1.67	1.67	1.67	1.67	1.00	1.00
Upstream Filter(I)	0.85	0.85	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.4	0.0	9.9	10.0	38.7	39.2
Incr Delay (d2), s/veh	3.1	0.1	0.5	0.6	2.7	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.6	0.0	1.1	1.1	4.3	9.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	38.4	0.1	10.4	10.6	41.4	41.0
LnGrp LOS	D	A	B	B	D	D
Approach Vol, veh/h		793	250		478	
Approach Delay, s/veh		34.4	10.5		41.2	
Approach LOS		C	B		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		88.0		32.0	32.3	55.7
Change Period (Y+Rc), s		4.0		4.0	4.5	4.0
Max Green Setting (Gmax), s		84.0		28.0	52.5	27.0
Max Q Clear Time (g_c+I1), s		2.0		12.3	25.0	5.0
Green Ext Time (p_c), s		0.5		1.6	2.7	1.4

Intersection Summary

HCM 6th Ctrl Delay	32.6
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings  
6: Buena Vista Ave. & 2nd St.

Existing (2023) AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	94	89	68	107	26	77	145	16	34	147	40
Future Volume (vph)	58	94	89	68	107	26	77	145	16	34	147	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		50	150		150	95		150	95		150
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	90			90			60			60		
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		528			733			392			629	
Travel Time (s)		10.3			14.3			8.9			14.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	13.6
Intersection LOS	B

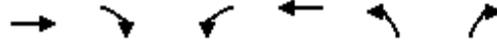
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↔		↖	↗		↖	↗	
Traffic Vol, veh/h	58	94	89	68	107	26	77	145	16	34	147	40
Future Vol, veh/h	58	94	89	68	107	26	77	145	16	34	147	40
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	70	113	107	82	129	31	93	175	19	41	177	48
Number of Lanes	0	1	1	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	12.3	15.8	12.9	13.7
HCM LOS	B	C	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	38%	0%	34%	100%	0%
Vol Thru, %	0%	90%	62%	0%	53%	0%	79%
Vol Right, %	0%	10%	0%	100%	13%	0%	21%
Sign Control	Stop						
Traffic Vol by Lane	77	161	152	89	201	34	187
LT Vol	77	0	58	0	68	34	0
Through Vol	0	145	94	0	107	0	147
RT Vol	0	16	0	89	26	0	40
Lane Flow Rate	93	194	183	107	242	41	225
Geometry Grp	7	7	7	7	6	7	7
Degree of Util (X)	0.189	0.366	0.357	0.182	0.464	0.084	0.42
Departure Headway (Hd)	7.34	6.792	7.026	6.118	6.892	7.376	6.711
Convergence, Y/N	Yes						
Cap	490	533	513	587	523	486	536
Service Time	5.075	4.492	4.762	3.853	4.928	5.113	4.448
HCM Lane V/C Ratio	0.19	0.364	0.357	0.182	0.463	0.084	0.42
HCM Control Delay	11.8	13.4	13.6	10.2	15.8	10.8	14.2
HCM Lane LOS	B	B	B	B	C	B	B
HCM 95th-tile Q	0.7	1.7	1.6	0.7	2.4	0.3	2.1

Lanes, Volumes, Timings  
7: Cardenas Dwy. & 2nd St.

Existing (2023) AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↑↑	
Traffic Volume (vph)	217	13	15	209	26	22
Future Volume (vph)	217	13	15	209	26	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	35			35	30	
Link Distance (ft)	319			197	217	
Travel Time (s)	6.2			3.8	4.9	
Confl. Peds. (#/hr)		5	5		5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection						
Int Delay, s/veh	1.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↑↓	
Traffic Vol, veh/h	217	13	15	209	26	22
Future Vol, veh/h	217	13	15	209	26	22
Conflicting Peds, #/hr	0	5	5	0	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	236	14	16	227	28	24

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	255	0	399
Stage 1	-	-	-	-	248
Stage 2	-	-	-	-	151
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	1307	-	579
Stage 1	-	-	-	-	770
Stage 2	-	-	-	-	861
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1301	-	565
Mov Cap-2 Maneuver	-	-	-	-	565
Stage 1	-	-	-	-	766
Stage 2	-	-	-	-	845

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	10.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	676	-	-	1301	-
HCM Lane V/C Ratio	0.077	-	-	0.013	-
HCM Control Delay (s)	10.8	-	-	7.8	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Lanes, Volumes, Timings  
1: Lincoln Ave. & Pomona Rd.

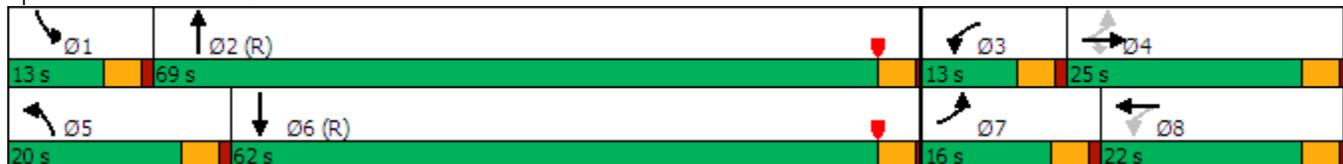
Existing (2023) PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	31	171	83	18	17	76	612	65	28	923	46
Future Volume (vph)	116	31	171	83	18	17	76	612	65	28	923	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		160	75		150	300		150	90		150
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	30			90			60			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		328			795			507			349	
Travel Time (s)		7.5			18.1			9.9			6.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8								
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	4.0	4.0	5.0	4.0		5.0	4.0		5.0	4.0	
Minimum Split (s)	9.5	20.0	20.0	9.5	20.0		9.5	20.0		9.5	20.0	
Total Split (s)	16.0	25.0	25.0	13.0	22.0		20.0	69.0		13.0	62.0	
Total Split (%)	13.3%	20.8%	20.8%	10.8%	18.3%		16.7%	57.5%		10.8%	51.7%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	0.5	0.5	1.0	0.5		1.0	0.5		1.0	0.5	
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)	4.5	4.0	4.0	4.5	4.0		4.5	4.0		4.5	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Lincoln Ave. & Pomona Rd.



HCM 6th Signalized Intersection Summary  
1: Lincoln Ave. & Pomona Rd.

Existing (2023) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	116	31	171	83	18	17	76	612	65	28	923	46
Future Volume (veh/h)	116	31	171	83	18	17	76	612	65	28	923	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	127	34	188	91	20	19	84	673	71	31	1014	51
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	330	256	215	299	103	98	106	2063	217	48	2078	104
Arrive On Green	0.08	0.14	0.14	0.06	0.12	0.12	0.12	1.00	1.00	0.03	0.60	0.60
Sat Flow, veh/h	1781	1870	1568	1781	876	832	1781	3242	342	1781	3442	173
Grp Volume(v), veh/h	127	34	188	91	0	39	84	368	376	31	523	542
Grp Sat Flow(s),veh/h/ln	1781	1870	1568	1781	0	1708	1781	1777	1807	1781	1777	1838
Q Serve(g_s), s	7.4	1.9	14.1	5.3	0.0	2.5	5.5	0.0	0.0	2.1	19.9	19.9
Cycle Q Clear(g_c), s	7.4	1.9	14.1	5.3	0.0	2.5	5.5	0.0	0.0	2.1	19.9	19.9
Prop In Lane	1.00		1.00	1.00		0.49	1.00		0.19	1.00		0.09
Lane Grp Cap(c), veh/h	330	256	215	299	0	201	106	1131	1150	48	1073	1110
V/C Ratio(X)	0.39	0.13	0.88	0.30	0.00	0.19	0.79	0.33	0.33	0.65	0.49	0.49
Avail Cap(c_a), veh/h	362	327	274	321	0	256	230	1131	1150	126	1073	1110
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.96	0.96	0.96	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.9	45.5	50.8	43.0	0.0	47.8	52.1	0.0	0.0	57.8	13.4	13.4
Incr Delay (d2), s/veh	0.7	0.2	21.5	0.6	0.0	0.5	12.0	0.7	0.7	13.8	1.6	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	0.9	6.8	2.4	0.0	1.1	2.7	0.2	0.2	1.1	8.0	8.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.6	45.7	72.3	43.5	0.0	48.3	64.1	0.7	0.7	71.6	15.0	14.9
LnGrp LOS	D	D	E	D	A	D	E	A	A	E	B	B
Approach Vol, veh/h		349			130			828			1096	
Approach Delay, s/veh		58.9			45.0			7.2			16.5	
Approach LOS		E			D			A			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.7	80.3	11.5	20.4	11.6	76.4	13.8	18.1				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	8.5	65.0	8.5	21.0	15.5	58.0	11.5	18.0				
Max Q Clear Time (g_c+I1), s	4.1	2.0	7.3	16.1	7.5	21.9	9.4	4.5				
Green Ext Time (p_c), s	0.0	5.2	0.0	0.3	0.1	8.2	0.1	0.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			21.0									
HCM 6th LOS			C									

Lanes, Volumes, Timings  
2: Lincoln Ave. & SR-91 WB Ramps

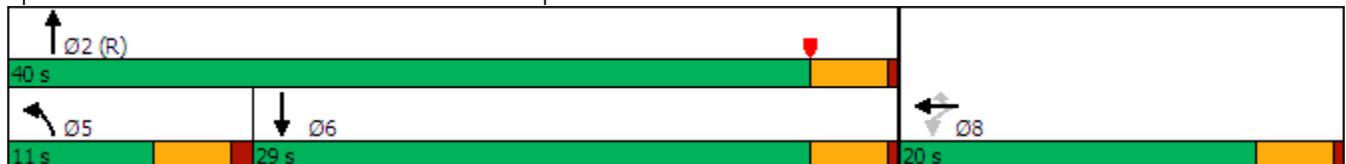
Existing (2023) PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	586	23	213	197	540	0	0	741	412
Future Volume (vph)	0	0	0	586	23	213	197	540	0	0	741	412
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	0		320	420		150	150		150
Storage Lanes	0		0	1		2	2		0	0		0
Taper Length (ft)	90			120			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			35				35
Link Distance (ft)		1035			1181			839				507
Travel Time (s)		23.5			26.8			16.3				9.9
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		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
Shared Lane Traffic (%)				48%								
Turn Type				Perm	NA	Perm	Prot	NA				NA
Protected Phases					8		5	2				6
Permitted Phases				8		8						
Detector Phase				8	8	8	5	2				6
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0	5.0	4.0				4.0
Minimum Split (s)				20.0	20.0	20.0	9.5	20.0				20.0
Total Split (s)				20.0	20.0	20.0	11.0	40.0				29.0
Total Split (%)				33.3%	33.3%	33.3%	18.3%	66.7%				48.3%
Yellow Time (s)				3.5	3.5	3.5	3.5	3.5				3.5
All-Red Time (s)				0.5	0.5	0.5	1.0	0.5				0.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0				0.0
Total Lost Time (s)				4.0	4.0	4.0	4.5	4.0				4.0
Lead/Lag							Lead					Lag
Lead-Lag Optimize?							Yes					Yes
Recall Mode				None	None	None	None	C-Max				None

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 2: Lincoln Ave. & SR-91 WB Ramps



HCM 6th Signalized Intersection Summary  
2: Lincoln Ave. & SR-91 WB Ramps

Existing (2023) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	586	23	213	197	540	0	0	741	412
Future Volume (veh/h)	0	0	0	586	23	213	197	540	0	0	741	412
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				655	0	232	214	587	0	0	805	448
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				816	0	360	315	2266	0	0	1040	574
Arrive On Green				0.23	0.00	0.23	0.12	0.85	0.00	0.00	0.16	0.16
Sat Flow, veh/h				3563	0	1575	3456	3647	0	0	2299	1218
Grp Volume(v), veh/h				655	0	232	214	587	0	0	647	606
Grp Sat Flow(s),veh/h/ln				1781	0	1575	1728	1777	0	0	1777	1647
Q Serve(g_s), s				10.4	0.0	8.0	3.6	1.9	0.0	0.0	21.0	21.2
Cycle Q Clear(g_c), s				10.4	0.0	8.0	3.6	1.9	0.0	0.0	21.0	21.2
Prop In Lane				1.00		1.00	1.00		0.00	0.00		0.74
Lane Grp Cap(c), veh/h				816	0	360	315	2266	0	0	838	777
V/C Ratio(X)				0.80	0.00	0.64	0.68	0.26	0.00	0.00	0.77	0.78
Avail Cap(c_a), veh/h				950	0	420	374	2266	0	0	838	777
HCM Platoon Ratio				1.00	1.00	1.00	1.33	1.33	1.00	1.00	0.33	0.33
Upstream Filter(I)				1.00	0.00	1.00	0.91	0.91	0.00	0.00	0.86	0.86
Uniform Delay (d), s/veh				21.9	0.0	20.9	25.5	1.8	0.0	0.0	22.2	22.3
Incr Delay (d2), s/veh				4.4	0.0	2.6	3.5	0.3	0.0	0.0	3.9	4.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.5	0.0	3.0	1.5	0.5	0.0	0.0	10.5	10.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				26.3	0.0	23.6	29.1	2.0	0.0	0.0	26.1	26.8
LnGrp LOS				C	A	C	C	A	A	A	C	C
Approach Vol, veh/h					887			801			1253	
Approach Delay, s/veh					25.6			9.3			26.4	
Approach LOS					C			A			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		42.3			10.0	32.3		17.7				
Change Period (Y+Rc), s		4.0			4.5	4.0		4.0				
Max Green Setting (Gmax), s		36.0			6.5	25.0		16.0				
Max Q Clear Time (g_c+I1), s		3.9			5.6	23.2		12.4				
Green Ext Time (p_c), s		4.2			0.1	1.3		1.3				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				21.5								
HCM 6th LOS				C								
<b>Notes</b>												
User approved volume balancing among the lanes for turning movement.												

Lanes, Volumes, Timings  
3: Lincoln Ave. & D St./2nd St.

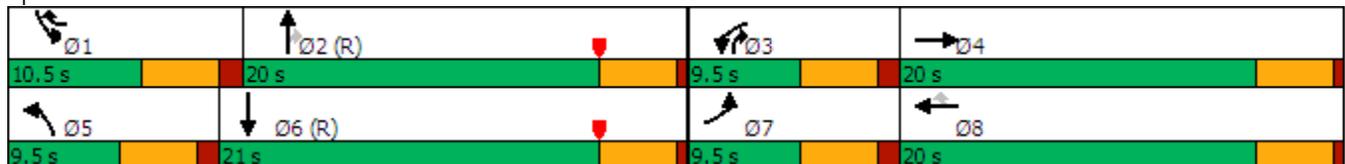
Existing (2023) PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	167	19	117	65	233	44	441	299	316	877	109
Future Volume (vph)	63	167	19	117	65	233	44	441	299	316	877	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		65	155		155	165		310	220		150
Storage Lanes	1		1	2		0	1		1	2		0
Taper Length (ft)	30			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		358			549			551			839	
Travel Time (s)		7.0			10.7			10.7			16.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases						8			2			
Detector Phase	7	4		3	8	1	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	
Minimum Split (s)	9.5	20.0		9.5	20.0	9.5	9.5	20.0	9.5	9.5	20.0	
Total Split (s)	9.5	20.0		9.5	20.0	10.5	9.5	20.0	9.5	10.5	21.0	
Total Split (%)	15.8%	33.3%		15.8%	33.3%	17.5%	15.8%	33.3%	15.8%	17.5%	35.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	0.5		1.0	0.5	1.0	1.0	0.5	1.0	1.0	0.5	
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)	4.5	4.0		4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow, Master Intersection  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated

Splits and Phases: 3: Lincoln Ave. & D St./2nd St.



HCM 6th Signalized Intersection Summary  
3: Lincoln Ave. & D St./2nd St.

Existing (2023) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				 				 		 	 	 
Traffic Volume (veh/h)	63	167	19	117	65	233	44	441	299	316	877	109
Future Volume (veh/h)	63	167	19	117	65	233	44	441	299	316	877	109
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	66	176	20	123	68	245	46	464	315	333	923	115
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	99	278	32	251	347	451	79	1334	708	346	1369	170
Arrive On Green	0.06	0.17	0.17	0.02	0.06	0.06	0.04	0.38	0.38	0.10	0.43	0.43
Sat Flow, veh/h	1781	1647	187	3456	1870	1572	1781	3554	1579	3456	3177	396
Grp Volume(v), veh/h	66	0	196	123	68	245	46	464	315	333	516	522
Grp Sat Flow(s),veh/h/ln	1781	0	1835	1728	1870	1572	1781	1777	1579	1728	1777	1796
Q Serve(g_s), s	2.2	0.0	6.0	2.1	2.1	8.1	1.5	5.6	8.3	5.8	14.0	14.0
Cycle Q Clear(g_c), s	2.2	0.0	6.0	2.1	2.1	8.1	1.5	5.6	8.3	5.8	14.0	14.0
Prop In Lane	1.00		0.10	1.00		1.00	1.00		1.00	1.00		0.22
Lane Grp Cap(c), veh/h	99	0	310	251	347	451	79	1334	708	346	765	774
V/C Ratio(X)	0.67	0.00	0.63	0.49	0.20	0.54	0.58	0.35	0.45	0.96	0.67	0.67
Avail Cap(c_a), veh/h	148	0	489	288	499	578	148	1334	708	346	765	774
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.97	0.97	0.97	1.00	1.00	1.00	0.50	0.50	0.50
Uniform Delay (d), s/veh	27.8	0.0	23.2	28.2	23.9	21.0	28.1	13.5	11.4	26.9	13.7	13.7
Incr Delay (d2), s/veh	7.5	0.0	2.1	1.4	0.3	1.0	6.5	0.7	2.0	25.5	2.4	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	2.5	0.9	0.9	3.1	0.7	2.1	2.8	3.4	5.2	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.3	0.0	25.4	29.6	24.2	22.0	34.6	14.2	13.4	52.4	16.1	16.1
LnGrp LOS	D	A	C	C	C	C	C	B	B	D	B	B
Approach Vol, veh/h		262			436			825			1371	
Approach Delay, s/veh		27.8			24.5			15.0			24.9	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.5	26.5	8.9	14.1	7.2	29.8	7.8	15.1				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	6.0	16.0	5.0	16.0	5.0	17.0	5.0	16.0				
Max Q Clear Time (g_c+I1), s	7.8	10.3	4.1	8.0	3.5	16.0	4.2	10.1				
Green Ext Time (p_c), s	0.0	2.1	0.0	0.6	0.0	0.6	0.0	0.6				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			22.3									
HCM 6th LOS			C									

Lanes, Volumes, Timings  
4: Lincoln Ave. & 6th St.

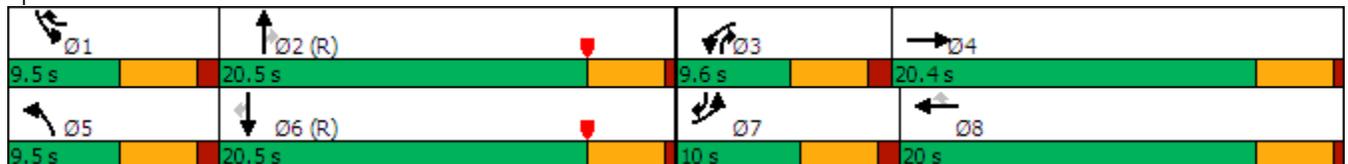
Existing (2023) PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	231	779	72	190	482	123	41	463	146	91	707	200
Future Volume (vph)	231	779	72	190	482	123	41	463	146	91	707	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	205		150	175		90	150		95	110		150
Storage Lanes	2		0	2		1	1		1	1		1
Taper Length (ft)	90			120			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		413			447			466			504	
Travel Time (s)		8.0			8.7			9.1			9.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0
Minimum Split (s)	9.5	20.0		9.5	20.0	9.5	9.5	20.0	9.5	9.5	20.0	9.5
Total Split (s)	10.0	20.4		9.6	20.0	9.5	9.5	20.5	9.6	9.5	20.5	10.0
Total Split (%)	16.7%	34.0%		16.0%	33.3%	15.8%	15.8%	34.2%	16.0%	15.8%	34.2%	16.7%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	0.5		1.0	0.5	1.0	1.0	0.5	1.0	1.0	0.5	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)	4.5	4.0		4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 4: Lincoln Ave. & 6th St.



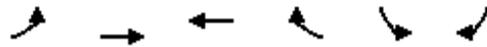
HCM 6th Signalized Intersection Summary  
4: Lincoln Ave. & 6th St.

Existing (2023) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	231	779	72	190	482	123	41	463	146	91	707	200
Future Volume (veh/h)	231	779	72	190	482	123	41	463	146	91	707	200
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	236	795	73	194	492	126	42	472	149	93	721	204
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	317	888	82	291	934	520	75	1050	600	119	1138	651
Arrive On Green	0.09	0.27	0.27	0.08	0.26	0.26	0.04	0.30	0.30	0.07	0.32	0.32
Sat Flow, veh/h	3456	3289	302	3456	3554	1576	1781	3554	1577	1781	3554	1578
Grp Volume(v), veh/h	236	429	439	194	492	126	42	472	149	93	721	204
Grp Sat Flow(s),veh/h/ln	1728	1777	1814	1728	1777	1576	1781	1777	1577	1781	1777	1578
Q Serve(g_s), s	4.0	14.0	14.0	3.3	7.1	3.5	1.4	6.5	3.9	3.1	10.4	5.2
Cycle Q Clear(g_c), s	4.0	14.0	14.0	3.3	7.1	3.5	1.4	6.5	3.9	3.1	10.4	5.2
Prop In Lane	1.00		0.17	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	317	480	490	291	934	520	75	1050	600	119	1138	651
V/C Ratio(X)	0.75	0.89	0.89	0.67	0.53	0.24	0.56	0.45	0.25	0.78	0.63	0.31
Avail Cap(c_a), veh/h	317	486	496	294	948	526	148	1050	600	148	1138	651
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.6	21.1	21.1	26.6	18.9	14.7	28.2	17.2	12.7	27.6	17.4	11.9
Incr Delay (d2), s/veh	9.2	18.7	18.4	5.5	0.5	0.2	6.5	1.4	1.0	18.9	2.7	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	7.6	7.7	1.5	2.7	1.1	0.7	2.5	1.4	1.8	4.1	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.8	39.8	39.5	32.2	19.5	14.9	34.7	18.6	13.7	46.4	20.1	13.2
LnGrp LOS	D	D	D	C	B	B	C	B	B	D	C	B
Approach Vol, veh/h		1104			812			663			1018	
Approach Delay, s/veh		38.8			21.8			18.5			21.1	
Approach LOS		D			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.5	21.7	9.6	20.2	7.0	23.2	10.0	19.8				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	5.0	16.5	5.1	16.4	5.0	16.5	5.5	16.0				
Max Q Clear Time (g_c+I1), s	5.1	8.5	5.3	16.0	3.4	12.4	6.0	9.1				
Green Ext Time (p_c), s	0.0	2.2	0.0	0.2	0.0	2.0	0.0	2.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				26.2								
HCM 6th LOS				C								

Lanes, Volumes, Timings  
5: 2nd St. & SR-91 EB Ramps

Existing (2023) PM Peak Hour

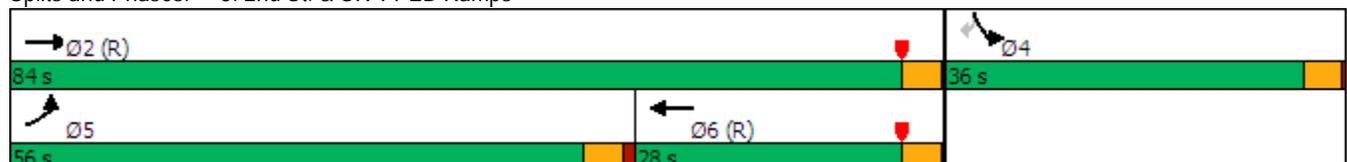


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖↗	↑	↕↔		↖↗	↗
Traffic Volume (vph)	657	122	110	89	274	305
Future Volume (vph)	657	122	110	89	274	305
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190			150	450	150
Storage Lanes	0			0	0	0
Taper Length (ft)	60				90	
Right Turn on Red				Yes		Yes
Link Speed (mph)		35	35		30	
Link Distance (ft)		549	319		407	
Travel Time (s)		10.7	6.2		9.3	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)						40%
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	5.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.5	20.0	20.0		20.0	20.0
Total Split (s)	56.0	84.0	28.0		36.0	36.0
Total Split (%)	46.7%	70.0%	23.3%		30.0%	30.0%
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	0.5	0.5		0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.0	4.0		4.0	4.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Recall Mode	None	C-Max	C-Max		Max	Max

Intersection Summary

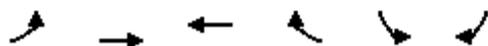
Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 5: 2nd St. & SR-91 EB Ramps



HCM 6th Signalized Intersection Summary  
5: 2nd St. & SR-91 EB Ramps

Existing (2023) PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	657	122	110	89	274	305
Future Volume (veh/h)	657	122	110	89	274	305
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	722	134	121	98	416	212
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	812	1247	763	569	950	423
Arrive On Green	0.39	1.00	0.66	0.66	0.27	0.27
Sat Flow, veh/h	3456	1870	2028	1442	3563	1585
Grp Volume(v), veh/h	722	134	110	109	416	212
Grp Sat Flow(s),veh/h/ln	1728	1870	1777	1600	1781	1585
Q Serve(g_s), s	23.4	0.0	2.8	3.1	11.6	13.6
Cycle Q Clear(g_c), s	23.4	0.0	2.8	3.1	11.6	13.6
Prop In Lane	1.00			0.90	1.00	1.00
Lane Grp Cap(c), veh/h	812	1247	701	631	950	423
V/C Ratio(X)	0.89	0.11	0.16	0.17	0.44	0.50
Avail Cap(c_a), veh/h	1483	1247	701	631	950	423
HCM Platoon Ratio	1.67	1.67	1.67	1.67	1.00	1.00
Upstream Filter(I)	0.84	0.84	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.0	0.0	12.9	12.9	36.5	37.2
Incr Delay (d2), s/veh	3.1	0.1	0.5	0.6	1.5	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.7	0.1	1.2	1.2	5.3	12.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	38.1	0.1	13.4	13.5	38.0	41.5
LnGrp LOS	D	A	B	B	D	D
Approach Vol, veh/h		856	219		628	
Approach Delay, s/veh		32.1	13.5		39.2	
Approach LOS		C	B		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		84.0		36.0	32.7	51.3
Change Period (Y+Rc), s		4.0		4.0	4.5	4.0
Max Green Setting (Gmax), s		80.0		32.0	51.5	24.0
Max Q Clear Time (g_c+I1), s		2.0		15.6	25.4	5.1
Green Ext Time (p_c), s		0.8		2.1	2.8	1.1

Intersection Summary

HCM 6th Ctrl Delay	32.3
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings  
6: Buena Vista Ave. & 2nd St.

Existing (2023) PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	279	101	23	76	21	62	131	31	55	157	48
Future Volume (vph)	71	279	101	23	76	21	62	131	31	55	157	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		50	150		150	95		150	95		150
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	90			90			60			60		
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		528			733			392			629	
Travel Time (s)		10.3			14.3			8.9			14.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	15.6
Intersection LOS	C

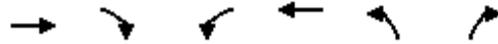
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕		↕	↕		↕	↕	
Traffic Vol, veh/h	71	279	101	23	76	21	62	131	31	55	157	48
Future Vol, veh/h	71	279	101	23	76	21	62	131	31	55	157	48
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	76	297	107	24	81	22	66	139	33	59	167	51
Number of Lanes	0	1	1	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	19.1	12.5	12.6	13.5
HCM LOS	C	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	20%	0%	19%	100%	0%
Vol Thru, %	0%	81%	80%	0%	63%	0%	77%
Vol Right, %	0%	19%	0%	100%	17%	0%	23%
Sign Control	Stop						
Traffic Vol by Lane	62	162	350	101	120	55	205
LT Vol	62	0	71	0	23	55	0
Through Vol	0	131	279	0	76	0	157
RT Vol	0	31	0	101	21	0	48
Lane Flow Rate	66	172	372	107	128	59	218
Geometry Grp	7	7	7	7	6	7	7
Degree of Util (X)	0.138	0.33	0.672	0.17	0.252	0.121	0.411
Departure Headway (Hd)	7.534	6.884	6.608	5.794	7.102	7.457	6.777
Convergence, Y/N	Yes						
Cap	478	526	551	623	507	483	534
Service Time	5.243	4.593	4.308	3.494	5.133	5.166	4.486
HCM Lane V/C Ratio	0.138	0.327	0.675	0.172	0.252	0.122	0.408
HCM Control Delay	11.4	13	21.8	9.7	12.5	11.2	14.1
HCM Lane LOS	B	B	C	A	B	B	B
HCM 95th-tile Q	0.5	1.4	5	0.6	1	0.4	2

Lanes, Volumes, Timings  
7: Cardenas Dwy. & 2nd St.

Existing (2023) PM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↑↑	
Traffic Volume (vph)	356	30	22	164	35	81
Future Volume (vph)	356	30	22	164	35	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	35			35	30	
Link Distance (ft)	319			197	217	
Travel Time (s)	6.2			3.8	4.9	
Confl. Peds. (#/hr)		5	5		5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection						
Int Delay, s/veh	2.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↑↑	
Traffic Vol, veh/h	356	30	22	164	35	81
Future Vol, veh/h	356	30	22	164	35	81
Conflicting Peds, #/hr	0	5	5	0	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	387	33	24	178	38	88

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	425	0	551
Stage 1	-	-	-	-	409
Stage 2	-	-	-	-	142
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	1131	-	464
Stage 1	-	-	-	-	639
Stage 2	-	-	-	-	870
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1126	-	448
Mov Cap-2 Maneuver	-	-	-	-	448
Stage 1	-	-	-	-	636
Stage 2	-	-	-	-	845

Approach	EB	WB	NB
HCM Control Delay, s	0	1	12.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	636	-	-	1126	-
HCM Lane V/C Ratio	0.198	-	-	0.021	-
HCM Control Delay (s)	12.1	-	-	8.3	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.7	-	-	0.1	-

**APPENDIX D**

**TRAFFIC SIGNAL WARRANTS**

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# Figure 4C-3. Warrant 3, Peak Hour

## EXISTING CONDITIONS (AM Peak Hour)

Major Street Name = **Buena Vista Av.**

Total of Both Approaches (VPH) = **459**

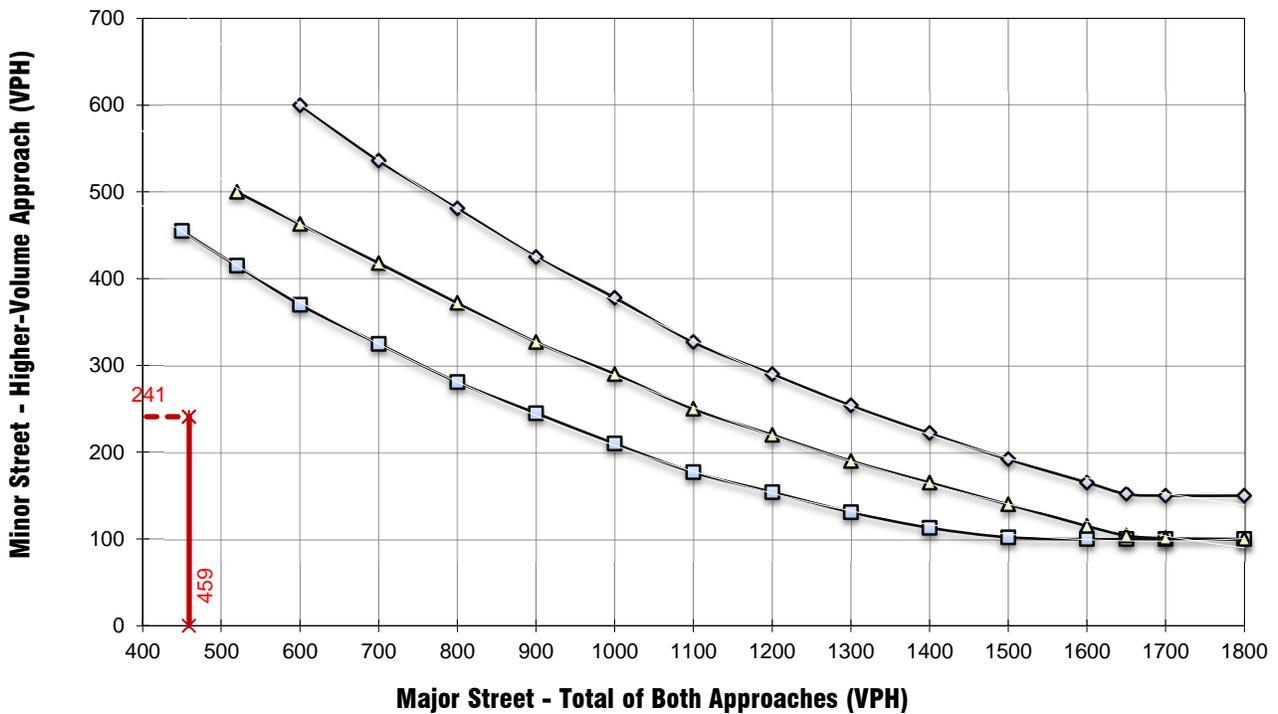
Number of Approach Lanes Major Street = **1**

Minor Street Name = **2nd St.**

High Volume Approach (VPH) = **241**

Number of Approach Lanes Minor Street = **1**

### SIGNAL WARRANT NOT SATISFIED



- 1 Lane (Major) & 1 Lane (Minor)
- ▲— 2+ Lanes (Major) & 1 Lane (Minor) OR 1 Lane (Major) & 2+ Lanes (Minor)
- ◆— 2+ Lanes (Major) & 2+ Lanes (Minor)
- X— Major Street Approaches
- - -X- - - Minor Street Approaches

**\*\* NOTE:**

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

# Figure 4C-3. Warrant 3, Peak Hour

## EXISTING CONDITIONS (PM Peak Hour)

Major Street Name = **2nd St.**

Total of Both Approaches (VPH) = **571**

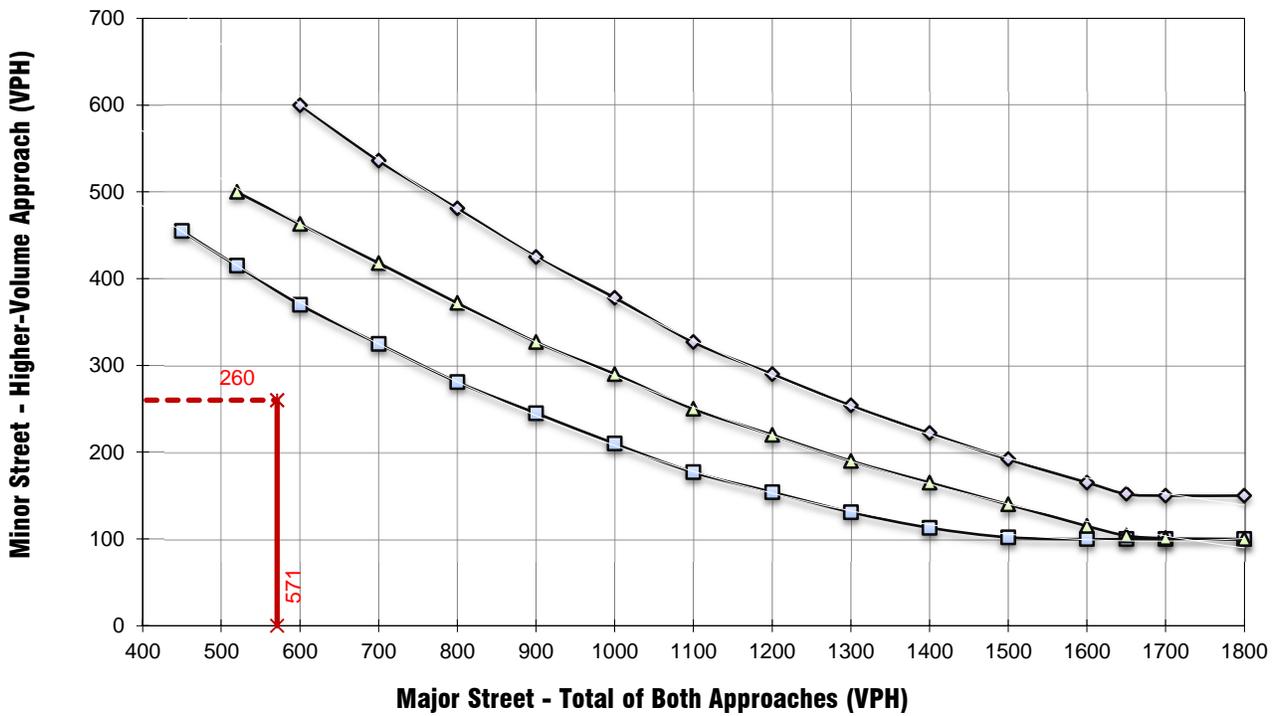
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Buena Vista Av.**

High Volume Approach (VPH) = **260**

Number of Approach Lanes Minor Street = **1**

### SIGNAL WARRANT NOT SATISFIED



**\*\* NOTE:**

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

# Figure 4C-3. Warrant 3, Peak Hour

## EAPC CONDITIONS (AM Peak Hour)

Major Street Name = **Buena Vista Av.**

Total of Both Approaches (VPH) = **510**

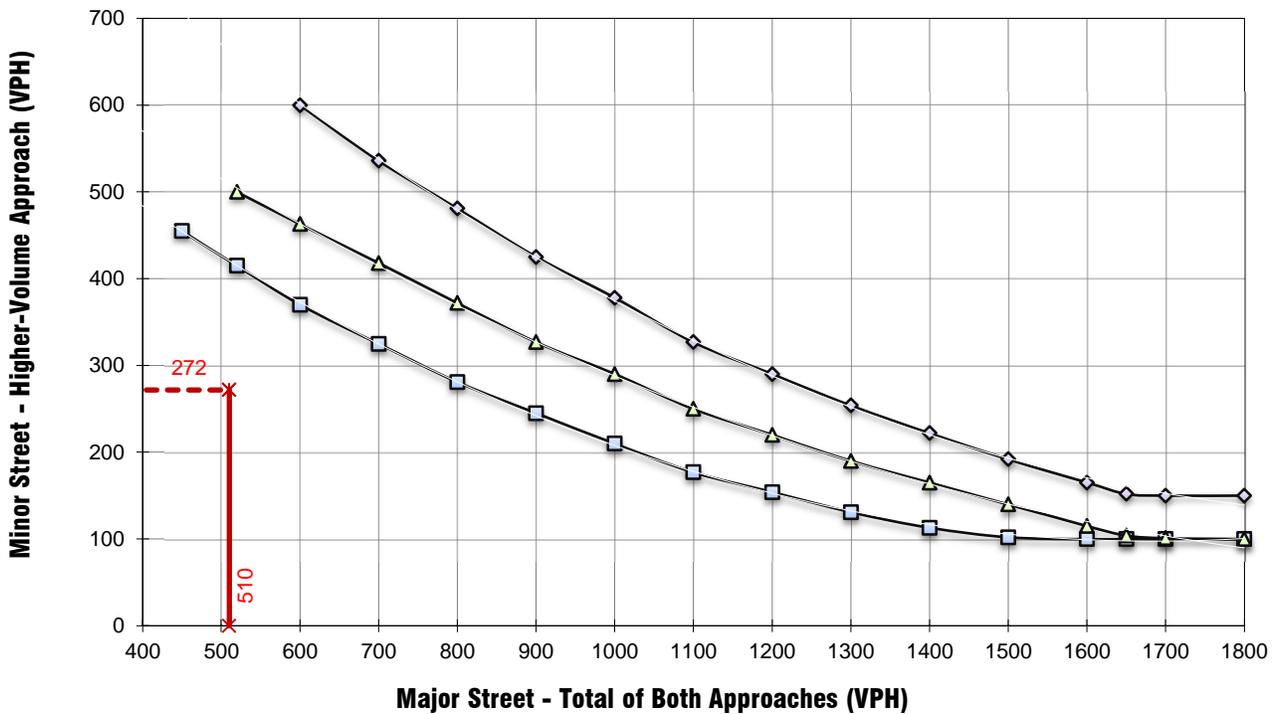
Number of Approach Lanes Major Street = **1**

Minor Street Name = **2nd St.**

High Volume Approach (VPH) = **272**

Number of Approach Lanes Minor Street = **1**

### SIGNAL WARRANT NOT SATISFIED



**\*\* NOTE:**

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

# Figure 4C-3. Warrant 3, Peak Hour

## EAPC CONDITIONS (PM Peak Hour)

Major Street Name = **2nd St.**

Total of Both Approaches (VPH) = **629**

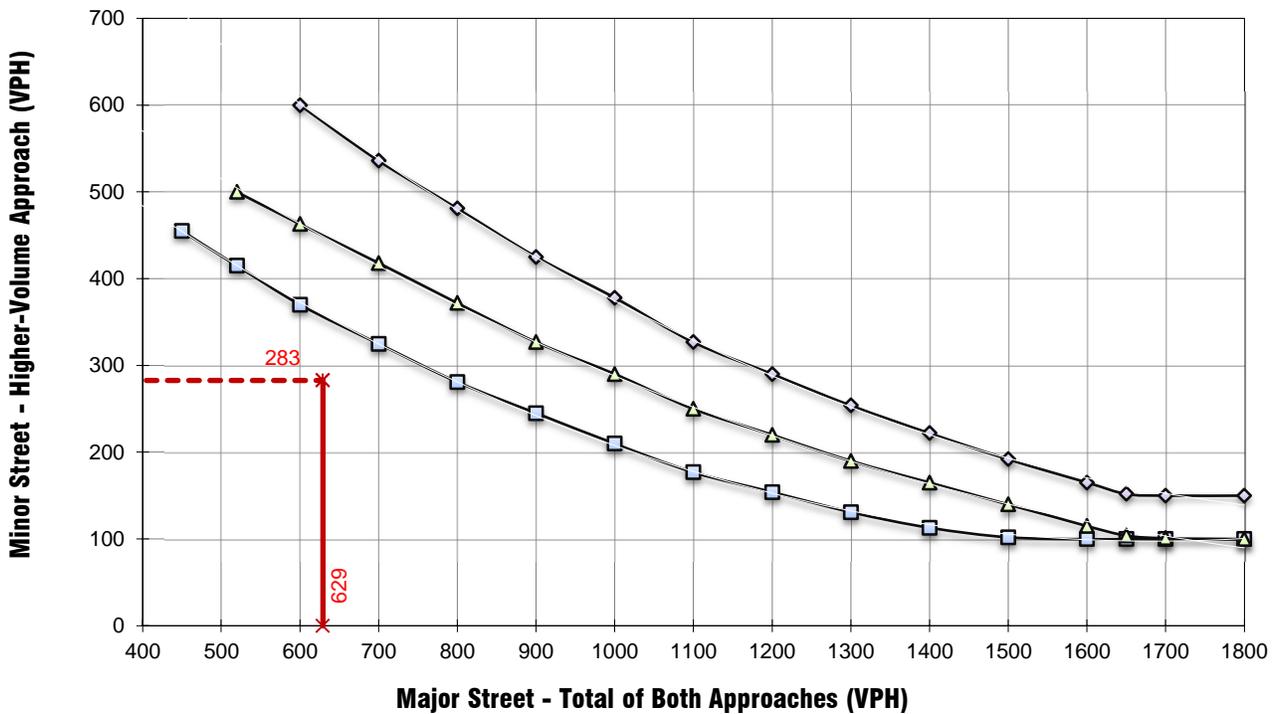
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Buena Vista Av.**

High Volume Approach (VPH) = **283**

Number of Approach Lanes Minor Street = **1**

### SIGNAL WARRANT NOT SATISFIED



- 1 Lane (Major) & 1 Lane (Minor)
- ▲— 2+ Lanes (Major) & 1 Lane (Minor) OR 1 Lane (Major) & 2+ Lanes (Minor)
- ◇— 2+ Lanes (Major) & 2+ Lanes (Minor)
- \*— Major Street Approaches
- - - Minor Street Approaches

**\*\* NOTE:**

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

# Figure 4C-3. Warrant 3, Peak Hour

## EAPC CONDITIONS (AM Peak Hour)

Major Street Name = **2nd St.**

Total of Both Approaches (VPH) = **553**

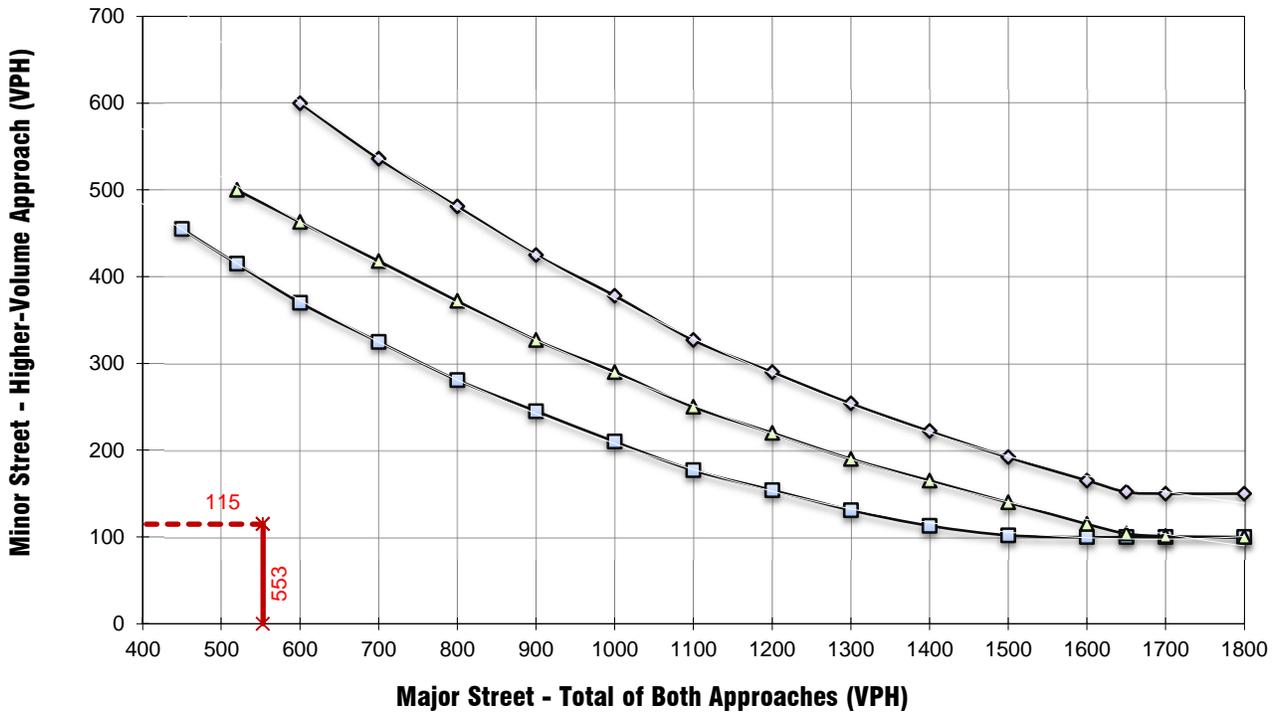
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Project Dwy. 2**

High Volume Approach (VPH) = **115**

Number of Approach Lanes Minor Street = **1**

### SIGNAL WARRANT NOT SATISFIED



- 1 Lane (Major) & 1 Lane (Minor)
- ▲— 2+ Lanes (Major) & 1 Lane (Minor) OR 1 Lane (Major) & 2+ Lanes (Minor)
- ◇— 2+ Lanes (Major) & 2+ Lanes (Minor)
- \*— Major Street Approaches
- - - Minor Street Approaches

**\*\* NOTE:**

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

# Figure 4C-3. Warrant 3, Peak Hour

## EAPC CONDITIONS (PM Peak Hour)

Major Street Name = **2nd St.**

Total of Both Approaches (VPH) = **733**

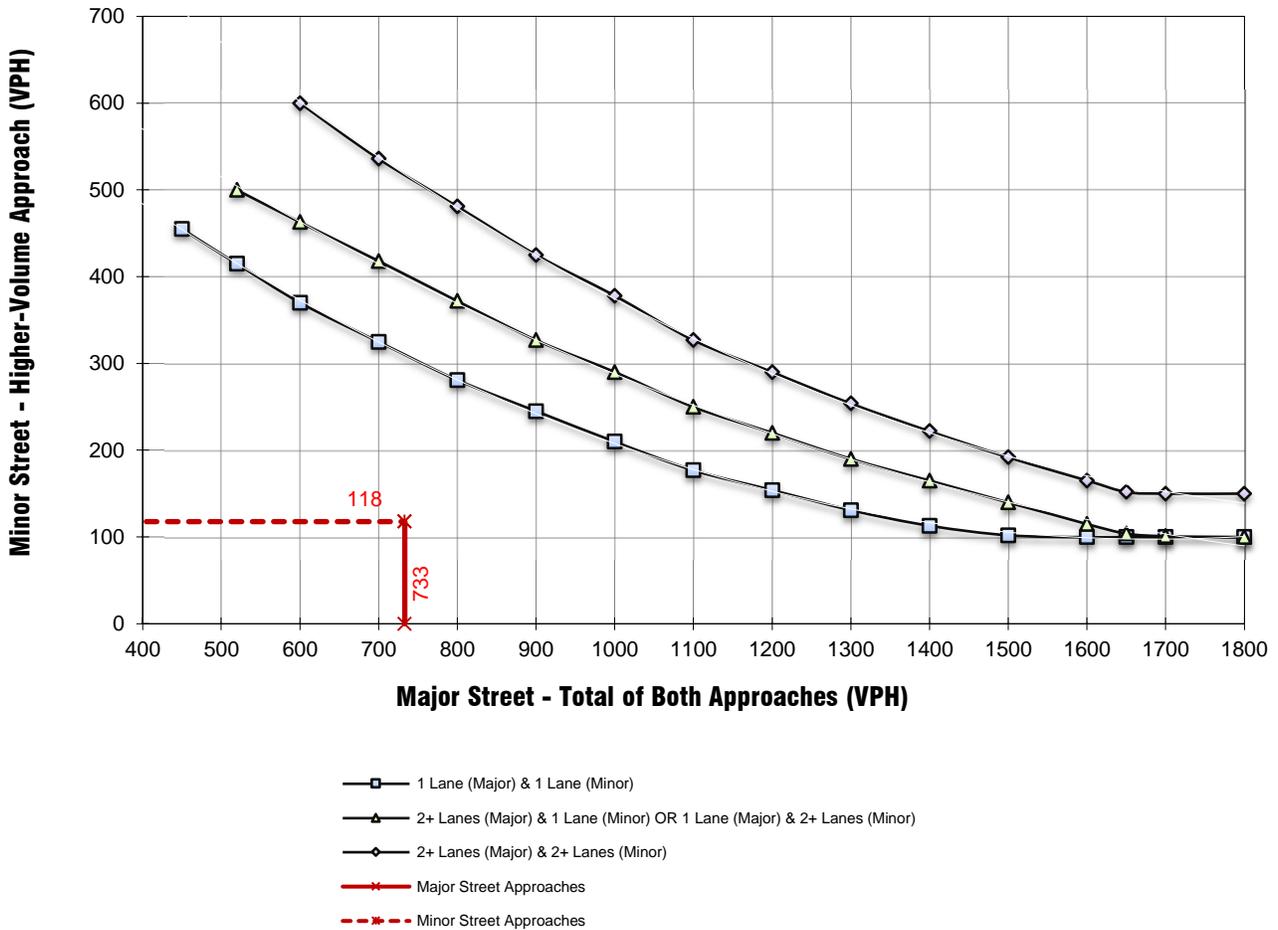
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Project Dwy. 2**

High Volume Approach (VPH) = **118**

Number of Approach Lanes Minor Street = **1**

### SIGNAL WARRANT NOT SATISFIED



**\*\* NOTE:**

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

# Figure 4C-3. Warrant 3, Peak Hour

## 2040WP CONDITIONS (AM Peak Hour)

Major Street Name = **Buena Vista Av.**

Total of Both Approaches (VPH) = **570**

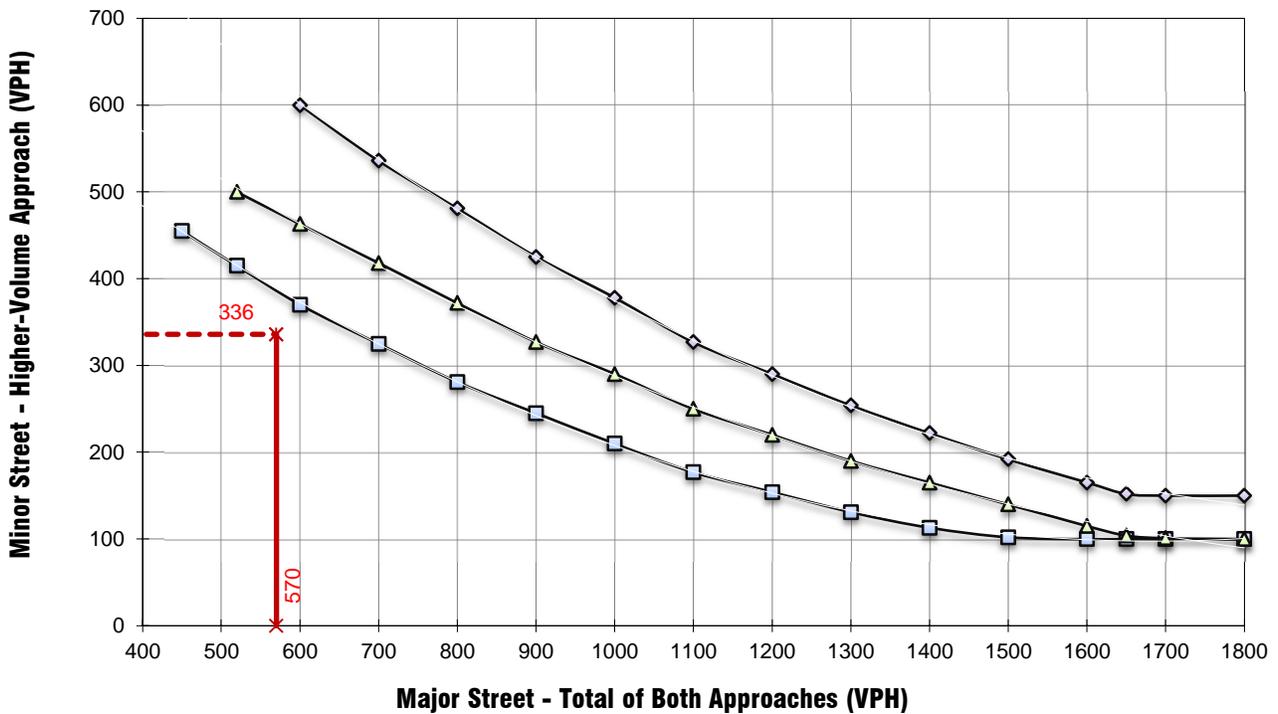
Number of Approach Lanes Major Street = **1**

Minor Street Name = **2nd St.**

High Volume Approach (VPH) = **336**

Number of Approach Lanes Minor Street = **1**

### SIGNAL WARRANT NOT SATISFIED



- 1 Lane (Major) & 1 Lane (Minor)
- ▲— 2+ Lanes (Major) & 1 Lane (Minor) OR 1 Lane (Major) & 2+ Lanes (Minor)
- ◇— 2+ Lanes (Major) & 2+ Lanes (Minor)
- \*— Major Street Approaches
- - - Minor Street Approaches

**\*\* NOTE:**

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

# Figure 4C-3. Warrant 3, Peak Hour

## 2040WP CONDITIONS (PM Peak Hour)

Major Street Name = **2nd St.**

Total of Both Approaches (VPH) = **747**

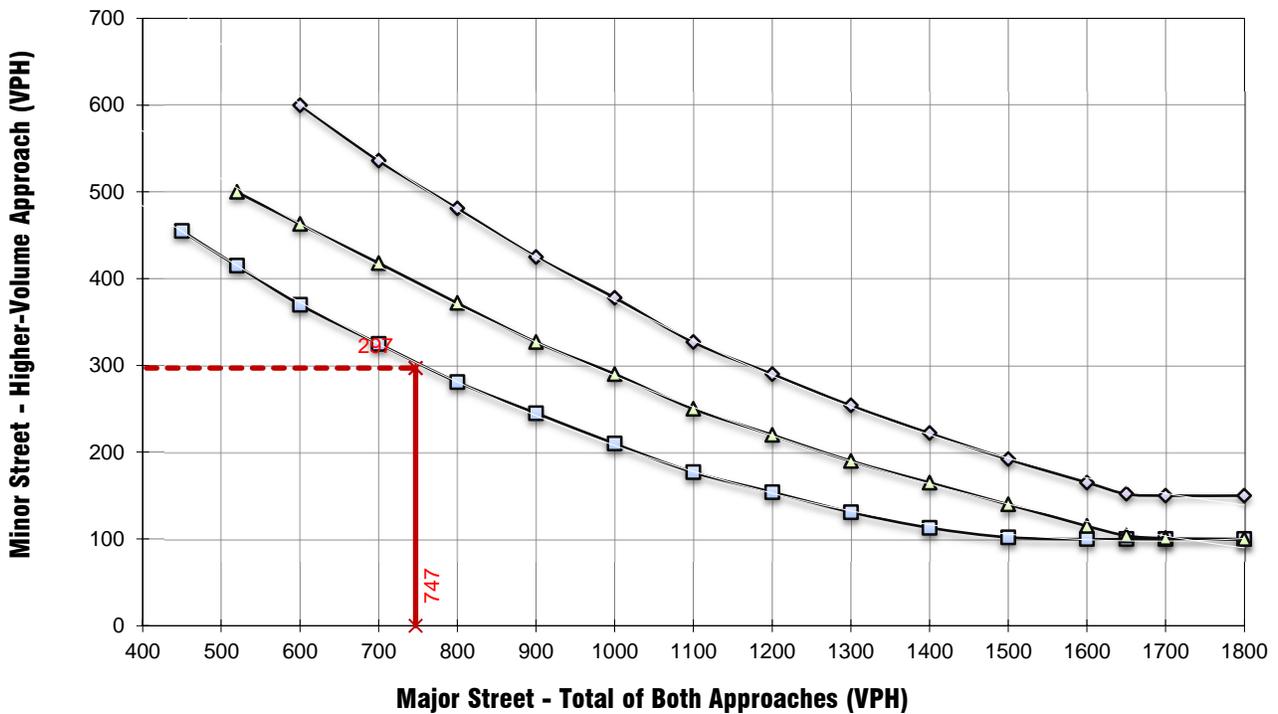
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Buena Vista Av.**

High Volume Approach (VPH) = **297**

Number of Approach Lanes Minor Street = **1**

### SIGNAL WARRANT NOT SATISFIED



- 1 Lane (Major) & 1 Lane (Minor)
- ▲— 2+ Lanes (Major) & 1 Lane (Minor) OR 1 Lane (Major) & 2+ Lanes (Minor)
- ◇— 2+ Lanes (Major) & 2+ Lanes (Minor)
- x— Major Street Approaches
- - - Minor Street Approaches

**\*\* NOTE:**

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

# Figure 4C-3. Warrant 3, Peak Hour

## 2040WP CONDITIONS (AM Peak Hour)

Major Street Name = **2nd St.**

Total of Both Approaches (VPH) = **835**

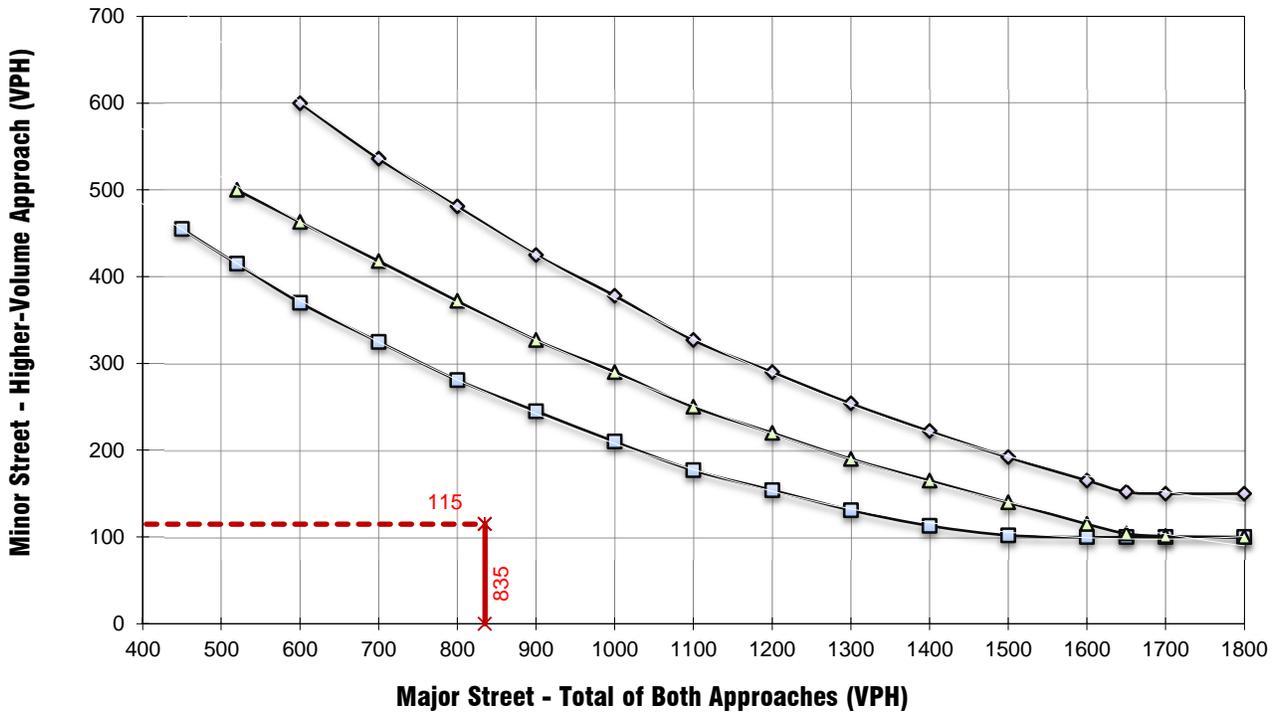
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Project Dwy. 2**

High Volume Approach (VPH) = **115**

Number of Approach Lanes Minor Street = **1**

### SIGNAL WARRANT NOT SATISFIED



- 1 Lane (Major) & 1 Lane (Minor)
- ▲— 2+ Lanes (Major) & 1 Lane (Minor) OR 1 Lane (Major) & 2+ Lanes (Minor)
- ◇— 2+ Lanes (Major) & 2+ Lanes (Minor)
- x— Major Street Approaches
- x— Minor Street Approaches

**\*\* NOTE:**

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

# Figure 4C-3. Warrant 3, Peak Hour

## 2040WP CONDITIONS (PM Peak Hour)

Major Street Name = **2nd St.**

Total of Both Approaches (VPH) = **1095**

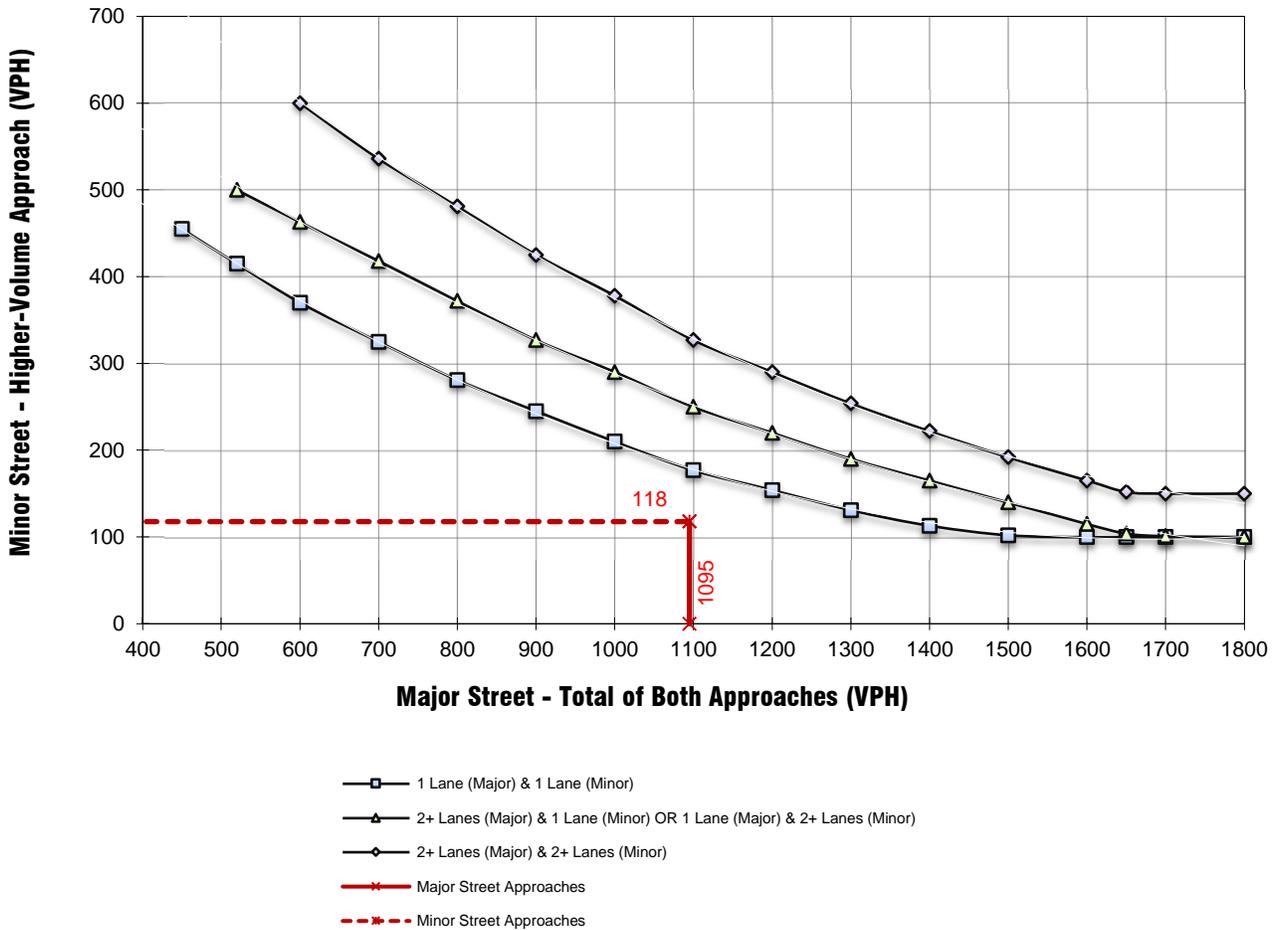
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Project Dwy. 2**

High Volume Approach (VPH) = **118**

Number of Approach Lanes Minor Street = **1**

### SIGNAL WARRANT NOT SATISFIED



**\*\* NOTE:**

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

**Figure 4C-103 (CA). Traffic Signal Warrants Worksheet  
(Average Traffic Estimate Form)**

**EXISTING PLUS PROJECT CONDITIONS**

Jurisdiction: City of Corona  
 Major Street 2nd St. Critical Approach Speed (Major) 35 mph  
 Minor Street Project Dwy. 2 Critical Approach Speed (Minor) 30 mph

Major Street Approach Lanes = 2 lane Minor Street Approach Lanes = 1 lane  
 Major Street Future ADT = 8,516 vpd Minor Street Future ADT = 1,725 vpd

(Based on Estimated Average Daily Traffic - See Note)

<u>URBAN</u> XX		<u>RURAL</u>		Minimum Requirements EADT			
<u>Satisfied</u>		<u>Not Satisfied</u> XX		<i>Vehicles Per Day on Major Street (Total of Both Approaches)</i>		<i>Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)</i>	
<u>Major Street</u>		<u>Minor Street</u>		<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
1		1		8,000	5,600	2,400	1,680
2 +	8,516	1	1,725	9,600	6,720	2,400	1,680
2 +		2 +		9,600	6,720	3,200	2,240
1		2 +		8,000	5,600	3,200	2,240
<u>Satisfied</u>		<u>Not Satisfied</u> XX		<i>Vehicles Per Day on Major Street (Total of Both Approaches)</i>		<i>Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)</i>	
<u>Major Street</u>		<u>Minor Street</u>		<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
1		1		12,000	8,400	1,200	850
2 +	8,516	1	1,725	14,400	10,080	1,200 *	850
2 +		2 +		14,400	10,080	1,600	1,120
1		2 +		12,000	8,400	1,600	1,120
<u>Satisfied</u>		<u>Not Satisfied</u> XX		2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following condition fulfilled 80% of more ....		<u>A</u> 72%	<u>B</u> 59%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

## Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

### EAP (2025) CONDITIONS

Jurisdiction: City of Corona  
 Major Street 2nd St. Critical Approach Speed (Major) 35 mph  
 Minor Street Project Dwy. 2 Critical Approach Speed (Minor) 30 mph

Major Street Approach Lanes = 2 lane Minor Street Approach Lanes = 1 lane  
 Major Street Future ADT = 8,818 vpd Minor Street Future ADT = 1,725 vpd

(Based on Estimated Average Daily Traffic - See Note)

<u>URBAN</u> XX	<u>RURAL</u>	Minimum Requirements EADT			
<u>Satisfied</u>	<u>Not Satisfied</u> XX	<i>Vehicles Per Day on Major Street (Total of Both Approaches)</i>		<i>Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)</i>	
<u>Major Street</u>	<u>Minor Street</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
1	1	8,000	5,600	2,400	1,680
2 + 8,818	1 1,725	9,600	6,720	2,400	1,680
2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		<i>Vehicles Per Day on Major Street (Total of Both Approaches)</i>		<i>Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)</i>	
<u>Satisfied</u>	<u>Not Satisfied</u> XX				
<u>Major Street</u>	<u>Minor Street</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
1	1	12,000	8,400	1,200	850
2 + 8,818	1 1,725	14,400	10,080	1,200 *	850
2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
<u>Satisfied</u>	<u>Not Satisfied</u> XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following condition fulfilled 80% of more ....					
	<u>A</u> 72%	<u>B</u> 61%			

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

**Figure 4C-103 (CA). Traffic Signal Warrants Worksheet  
(Average Traffic Estimate Form)**

**EAPC (2025) CONDITIONS**

Jurisdiction: City of Corona  
 Major Street 2nd St. Critical Approach Speed (Major) 35 mph  
 Minor Street Project Dwy. 2 Critical Approach Speed (Minor) 30 mph

Major Street Approach Lanes = 2 lane Minor Street Approach Lanes = 1 lane  
 Major Street Future ADT = 8,928 vpd Minor Street Future ADT = 1,725 vpd

(Based on Estimated Average Daily Traffic - See Note)

<u>URBAN</u> XX		<u>RURAL</u>		Minimum Requirements EADT			
<u>Satisfied</u>		<u>Not Satisfied</u> XX		<i>Vehicles Per Day on Major Street (Total of Both Approaches)</i>		<i>Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)</i>	
Number of lanes for moving traffic on each approach				<i>Urban</i>	<i>Rural</i>	<i>Urban</i>	<i>Rural</i>
<u>Major Street</u>	<u>Minor Street</u>						
1	1	8,000	5,600	2,400	1,680		
2 + 8,928	1 1,725	9,600	6,720	2,400	1,680		
2 +	2 +	9,600	6,720	3,200	2,240		
1	2 +	8,000	5,600	3,200	2,240		
CONDITION B - Interruption of Continuous Traffic				<i>Vehicles Per Day on Major Street (Total of Both Approaches)</i>		<i>Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)</i>	
<u>Satisfied</u>		<u>Not Satisfied</u> XX		<i>Urban</i>	<i>Rural</i>	<i>Urban</i>	<i>Rural</i>
Number of lanes for moving traffic on each approach							
<u>Major Street</u>	<u>Minor Street</u>						
1	1	12,000	8,400	1,200	850		
2 + 8,928	1 1,725	14,400	10,080	1,200 *	850		
2 +	2 +	14,400	10,080	1,600	1,120		
1	2 +	12,000	8,400	1,600	1,120		
Combination of CONDITIONS A + B				2 CONDITIONS		2 CONDITIONS	
<u>Satisfied</u>		<u>Not Satisfied</u> XX		80%		80%	
No one condition satisfied, but following condition fulfilled 80% of more ....		<u>A</u>	<u>B</u>				
		72%	62%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

**Figure 4C-103 (CA). Traffic Signal Warrants Worksheet  
(Average Traffic Estimate Form)**

**2040WP CONDITIONS**

Jurisdiction: City of Corona  
 Major Street 2nd St. Critical Approach Speed (Major) 35 mph  
 Minor Street Project Dwy. 2 Critical Approach Speed (Minor) 30 mph

Major Street Approach Lanes = 2 lane Minor Street Approach Lanes = 1 lane  
 Major Street Future ADT = 13,280 vpd Minor Street Future ADT = 1,725 vpd

**(Based on Estimated Average Daily Traffic - See Note)**

<u>URBAN</u> XX		<u>RURAL</u>		Minimum Requirements EADT			
<u>Satisfied</u>		<u>Not Satisfied</u> XX		<i>Vehicles Per Day on Major Street (Total of Both Approaches)</i>		<i>Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)</i>	
Number of lanes for moving traffic on each approach				<i>Urban</i>	<i>Rural</i>	<i>Urban</i>	<i>Rural</i>
<u>Major Street</u>	<u>Minor Street</u>						
1	1	8,000	5,600	2,400	1,680		
2+ 13,280	1 1,725	9,600 *	6,720	2,400	1,680		
2+	2+	9,600	6,720	3,200	2,240		
1	2+	8,000	5,600	3,200	2,240		
CONDITION B - Interruption of Continuous Traffic				<i>Vehicles Per Day on Major Street (Total of Both Approaches)</i>		<i>Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)</i>	
<u>Satisfied</u>		<u>Not Satisfied</u> XX					
Number of lanes for moving traffic on each approach				<i>Urban</i>	<i>Rural</i>	<i>Urban</i>	<i>Rural</i>
<u>Major Street</u>	<u>Minor Street</u>						
1	1	12,000	8,400	1,200	850		
2+ 13,280	1 1,725	14,400	10,080	1,200 *	850		
2+	2+	14,400	10,080	1,600	1,120		
1	2+	12,000	8,400	1,600	1,120		
Combination of CONDITIONS A + B				2 CONDITIONS		2 CONDITIONS	
<u>Satisfied</u>		<u>Not Satisfied</u> XX		80%		80%	
No one condition satisfied, but following condition fulfilled 80% of more ....		<u>A</u>	<u>B</u>				
		72%	92%				

**Note:** To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

**APPENDIX E**

**EXISTING (2023) CONDITIONS  
FREEWAY RAMP ANALYSIS WORKSHEETS**

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# HCS7 Freeway Diverge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing (2023)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 WB Off-Ramp @ Lincoln	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	70.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	2900	1000
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	7768	1009
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	8616	1119
Capacity (c), pc/h	14400	2000
Volume-to-Capacity Ratio (v/c)	0.60	0.56

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (Ds)	0.464
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1507
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	57.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	74.8
Flow in Lanes 1 and 2 (v12), pc/h	3449	Ramp Junction Speed (S), mi/h	64.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	22.4
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	24.9

# HCS7 Freeway Merge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing (2023)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 WB On-Ramp @ Lincoln	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA),ft	2500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	6759	782
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	7497	867
Capacity (c), pc/h	12000	2000
Volume-to-Capacity Ratio (v/c)	0.70	0.43

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.383
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1642
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	62.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.109	Outer Lanes Freeway Speed (SO), mi/h	71.3
Flow in Lanes 1 and 2 (v12), pc/h	2189	Ramp Junction Speed (S), mi/h	66.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	3056	Average Density (D), pc/mi/ln	25.0
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	27.1

# HCS7 Freeway Diverge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing (2023)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 EB Off-Ramp @ 2nd St	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	70.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	4900	1340
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided Two-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	8459	448
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	9382	497
Capacity (c), pc/h	11000	4000
Volume-to-Capacity Ratio (v/c)	0.85	0.12

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (Ds)	0.408
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2252
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	58.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	71.9
Flow in Lanes 1 and 2 (v12), pc/h	3002	Ramp Junction Speed (S), mi/h	65.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	28.5
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	18.0

# HCS7 Freeway Merge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing (2023)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 EB On-Ramp @ 2nd St	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA),ft	2300	1500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	8011	775
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	8885	860
Capacity (c), pc/h	14400	2000
Volume-to-Capacity Ratio (v/c)	0.68	0.43

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.349
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1999
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	63.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.110	Outer Lanes Freeway Speed (SO), mi/h	70.0
Flow in Lanes 1 and 2 (v12), pc/h	2666	Ramp Junction Speed (S), mi/h	66.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	3526	Average Density (D), pc/mi/ln	24.3
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	23.2

# HCS7 Freeway Diverge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing (2023)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 WB Off-Ramp @ Lincoln	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	2900	1000
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	8126	822
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	9013	912
Capacity (c), pc/h	14100	2000
Volume-to-Capacity Ratio (v/c)	0.64	0.46

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (Ds)	0.445
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1649
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	68.8
Flow in Lanes 1 and 2 (v12), pc/h	3462	Ramp Junction Speed (S), mi/h	60.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	24.7
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	25.0

# HCS7 Freeway Merge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing (2023)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 WB On-Ramp @ Lincoln	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	7	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA),ft	2500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	7304	632
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	8101	701
Capacity (c), pc/h	16800	2000
Volume-to-Capacity Ratio (v/c)	0.52	0.35

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.389
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1823
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	62.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.130	Outer Lanes Freeway Speed (SO), mi/h	70.6
Flow in Lanes 1 and 2 (v12), pc/h	2430	Ramp Junction Speed (S), mi/h	66.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	3131	Average Density (D), pc/mi/ln	18.9
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	27.8

# HCS7 Freeway Diverge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing (2023)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 EB Off-Ramp @ 2nd St	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	70.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	4900	1340
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided Two-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	8261	579
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	9163	642
Capacity (c), pc/h	11000	4000
Volume-to-Capacity Ratio (v/c)	0.83	0.16

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (Ds)	0.421
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2199
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	58.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	72.1
Flow in Lanes 1 and 2 (v12), pc/h	2932	Ramp Junction Speed (S), mi/h	65.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	27.9
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	17.4

# HCS7 Freeway Merge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing (2023)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 EB On-Ramp @ 2nd St	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA),ft	2300	1500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	7682	746
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	8520	827
Capacity (c), pc/h	14400	2000
Volume-to-Capacity Ratio (v/c)	0.65	0.41

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.331
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1917
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	64.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.114	Outer Lanes Freeway Speed (SO), mi/h	70.3
Flow in Lanes 1 and 2 (v12), pc/h	2556	Ramp Junction Speed (S), mi/h	67.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	3383	Average Density (D), pc/mi/ln	23.1
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	22.1

**APPENDIX F**

**EXISTING (2023) CONDITIONS  
FREEWAY SEGMENT ANALYSIS WORKSHEETS**

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# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing (2023)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 WB, east of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	7768	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (V <sub>p</sub> ), pc/h/ln	1436
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.60
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	69.4
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	20.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing (2023)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 WB, between ramps	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	6759	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1499
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.62
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	69.0
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	21.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFSadj), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing (2023)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 WB, west of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	7541	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1673
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	67.4
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	24.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing (2023)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 EB, west of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8459	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1876
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.78
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	64.7
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	29.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing (2023)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 EB, between ramps	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8011	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (V <sub>p</sub> ), pc/h/ln	1777
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.74
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	66.1
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	26.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing (2023)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 EB, East of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8786	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1624
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.68
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	67.9
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	23.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFSadj), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing (2023)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 WB, east of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8126	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (V <sub>p</sub> ), pc/h/ln	1502
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	68.9
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	21.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing (2023)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 WB, between ramps	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	7304	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (V <sub>p</sub> ), pc/h/ln	1620
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.68
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	68.0
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	23.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing (2023)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 WB, west of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	7936	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (V <sub>p</sub> ), pc/h/ln	1760
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.73
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	66.4
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	26.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing (2023)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 EB, west of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8261	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (V <sub>p</sub> ), pc/h/ln	1833
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.76
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	65.4
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	28.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing (2023)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 EB, between ramps	Unit	United States Customary

## Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	7682	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (V <sub>p</sub> ), pc/h/ln	1704
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.71
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	67.1
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	25.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing (2023)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 EB, East of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8428	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1558
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	68.5
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	22.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

**APPENDIX G**

**EXISTING PLUS PROJECT (E+P) CONDITIONS  
INTERSECTION ANALYSIS CALCULATION WORKSHEETS**

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Lanes, Volumes, Timings  
1: Lincoln Ave. & Pomona Rd.

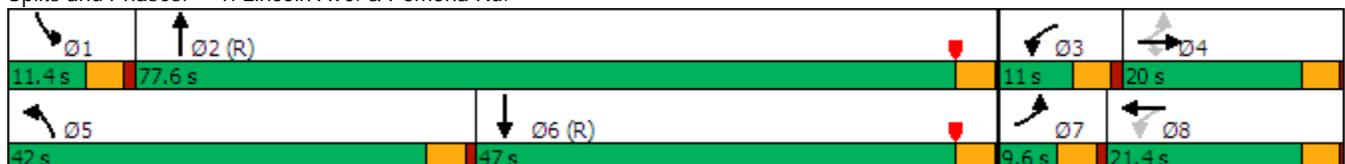
E+P AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	9	38	70	24	20	319	735	46	34	773	47
Future Volume (vph)	22	9	38	70	24	20	319	735	46	34	773	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		160	75		150	300		150	90		150
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	30			90			60			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		328			795			507			349	
Travel Time (s)		7.5			18.1			9.9			6.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8								
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	4.0	4.0	5.0	4.0		5.0	4.0		5.0	4.0	
Minimum Split (s)	9.5	20.0	20.0	9.5	20.0		9.5	20.0		9.5	20.0	
Total Split (s)	9.6	20.0	20.0	11.0	21.4		42.0	77.6		11.4	47.0	
Total Split (%)	8.0%	16.7%	16.7%	9.2%	17.8%		35.0%	64.7%		9.5%	39.2%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	0.5	0.5	1.0	0.5		1.0	0.5		1.0	0.5	
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)	4.5	4.0	4.0	4.5	4.0		4.5	4.0		4.5	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Lincoln Ave. & Pomona Rd.



HCM 6th Signalized Intersection Summary  
1: Lincoln Ave. & Pomona Rd.

E+P AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	9	38	70	24	20	319	735	46	34	773	47
Future Volume (veh/h)	22	9	38	70	24	20	319	735	46	34	773	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	24	10	42	78	27	22	354	817	51	38	859	52
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	176	107	88	223	82	67	380	2440	152	53	1821	110
Arrive On Green	0.02	0.06	0.06	0.05	0.09	0.09	0.43	1.00	1.00	0.03	0.54	0.54
Sat Flow, veh/h	1781	1870	1543	1781	945	770	1781	3396	212	1781	3403	206
Grp Volume(v), veh/h	24	10	42	78	0	49	354	427	441	38	449	462
Grp Sat Flow(s),veh/h/ln	1781	1870	1543	1781	0	1716	1781	1777	1831	1781	1777	1832
Q Serve(g_s), s	1.5	0.6	3.2	4.8	0.0	3.2	22.7	0.0	0.0	2.5	18.8	18.8
Cycle Q Clear(g_c), s	1.5	0.6	3.2	4.8	0.0	3.2	22.7	0.0	0.0	2.5	18.8	18.8
Prop In Lane	1.00		1.00	1.00		0.45	1.00		0.12	1.00		0.11
Lane Grp Cap(c), veh/h	176	107	88	223	0	149	380	1277	1316	53	951	981
V/C Ratio(X)	0.14	0.09	0.48	0.35	0.00	0.33	0.93	0.33	0.33	0.71	0.47	0.47
Avail Cap(c_a), veh/h	211	249	206	226	0	249	557	1277	1316	102	951	981
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.81	0.81	0.81	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.5	53.6	54.8	48.7	0.0	51.5	33.6	0.0	0.0	57.7	17.3	17.3
Incr Delay (d2), s/veh	0.3	0.4	3.9	0.9	0.0	1.3	15.1	0.6	0.6	16.1	1.7	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.3	1.3	2.2	0.0	1.4	9.2	0.2	0.2	1.4	7.9	8.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.8	54.0	58.8	49.7	0.0	52.8	48.7	0.6	0.6	73.8	19.0	19.0
LnGrp LOS	D	D	E	D	A	D	D	A	A	E	B	B
Approach Vol, veh/h		76			127			1222			949	
Approach Delay, s/veh		56.0			50.9			14.5			21.2	
Approach LOS		E			D			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.1	90.2	10.8	10.9	30.1	68.2	7.3	14.4				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	6.9	73.6	6.5	16.0	37.5	43.0	5.1	17.4				
Max Q Clear Time (g_c+I1), s	4.5	2.0	6.8	5.2	24.7	20.8	3.5	5.2				
Green Ext Time (p_c), s	0.0	6.4	0.0	0.1	0.9	5.9	0.0	0.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			20.5									
HCM 6th LOS			C									

Lanes, Volumes, Timings  
2: Lincoln Ave. & SR-91 WB Ramps

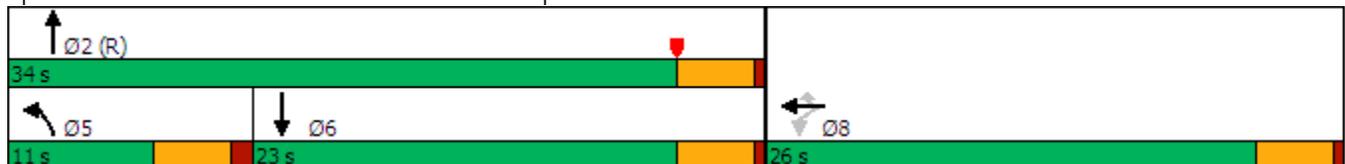
E+P AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	392	130	497	199	603	0	0	413	462
Future Volume (vph)	0	0	0	392	130	497	199	603	0	0	413	462
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	0		320	420		150	150		150
Storage Lanes	0		0	1		2	2		0	0		0
Taper Length (ft)	90			120			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			35				35
Link Distance (ft)		1035			1181			839				507
Travel Time (s)		23.5			26.8			16.3				9.9
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Shared Lane Traffic (%)				34%								
Turn Type				Perm	NA	Perm	Prot	NA				NA
Protected Phases					8		5	2				6
Permitted Phases				8		8						
Detector Phase				8	8	8	5	2				6
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0	5.0	4.0				4.0
Minimum Split (s)				20.0	20.0	20.0	9.5	20.0				20.0
Total Split (s)				26.0	26.0	26.0	11.0	34.0				23.0
Total Split (%)				43.3%	43.3%	43.3%	18.3%	56.7%				38.3%
Yellow Time (s)				3.5	3.5	3.5	3.5	3.5				3.5
All-Red Time (s)				0.5	0.5	0.5	1.0	0.5				0.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0				0.0
Total Lost Time (s)				4.0	4.0	4.0	4.5	4.0				4.0
Lead/Lag							Lead					Lag
Lead-Lag Optimize?							Yes					Yes
Recall Mode				None	None	None	None	C-Max				None

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT, Start of Yellow  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated

Splits and Phases: 2: Lincoln Ave. & SR-91 WB Ramps



HCM 6th Signalized Intersection Summary  
2: Lincoln Ave. & SR-91 WB Ramps

E+P AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	392	130	497	199	603	0	0	413	462
Future Volume (veh/h)	0	0	0	392	130	497	199	603	0	0	413	462
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				278	333	529	212	641	0	0	439	491
Peak Hour Factor				0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				645	677	571	313	1794	0	0	603	535
Arrive On Green				0.36	0.36	0.36	0.12	0.67	0.00	0.00	0.45	0.45
Sat Flow, veh/h				1781	1870	1578	3456	3647	0	0	1870	1578
Grp Volume(v), veh/h				278	333	529	212	641	0	0	439	491
Grp Sat Flow(s),veh/h/ln				1781	1870	1578	1728	1777	0	0	1777	1578
Q Serve(g_s), s				7.1	8.3	19.3	3.5	4.7	0.0	0.0	12.1	17.5
Cycle Q Clear(g_c), s				7.1	8.3	19.3	3.5	4.7	0.0	0.0	12.1	17.5
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				645	677	571	313	1794	0	0	603	535
V/C Ratio(X)				0.43	0.49	0.93	0.68	0.36	0.00	0.00	0.73	0.92
Avail Cap(c_a), veh/h				653	686	579	374	1794	0	0	603	535
HCM Platoon Ratio				1.00	1.00	1.00	1.33	1.33	1.00	1.00	1.33	1.33
Upstream Filter(I)				1.00	1.00	1.00	0.91	0.91	0.00	0.00	0.87	0.87
Uniform Delay (d), s/veh				14.5	14.9	18.4	25.6	5.6	0.0	0.0	14.2	15.7
Incr Delay (d2), s/veh				0.5	0.6	21.0	3.4	0.5	0.0	0.0	3.9	18.7
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.6	3.2	9.5	1.5	1.4	0.0	0.0	4.3	7.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				14.9	15.4	39.4	29.0	6.2	0.0	0.0	18.1	34.4
LnGrp LOS				B	B	D	C	A	A	A	B	C
Approach Vol, veh/h					1140			853			930	
Approach Delay, s/veh					26.4			11.8			26.7	
Approach LOS					C			B			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		34.3			9.9	24.4		25.7				
Change Period (Y+Rc), s		4.0			4.5	4.0		4.0				
Max Green Setting (Gmax), s		30.0			6.5	19.0		22.0				
Max Q Clear Time (g_c+I1), s		6.7			5.5	19.5		21.3				
Green Ext Time (p_c), s		4.4			0.1	0.0		0.4				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				22.2								
HCM 6th LOS				C								
<b>Notes</b>												
User approved volume balancing among the lanes for turning movement.												

Lanes, Volumes, Timings  
3: Lincoln Ave. & D St./2nd St.

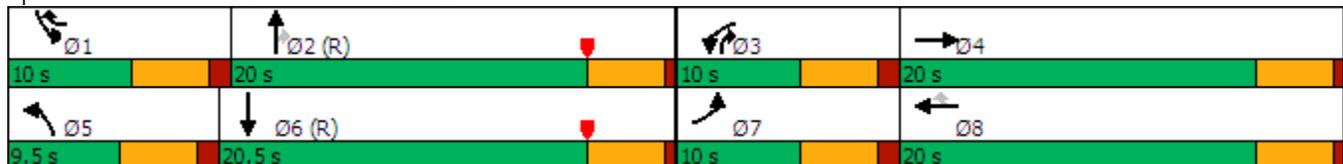
E+P AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	139	43	100	63	279	62	481	452	196	492	92
Future Volume (vph)	42	139	43	100	63	279	62	481	452	196	492	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		65	155		155	165		310	220		150
Storage Lanes	1		1	2		0	1		1	2		0
Taper Length (ft)	30			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		358			549			551			839	
Travel Time (s)		7.0			10.7			10.7			16.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases						8			2			
Detector Phase	7	4		3	8	1	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	
Minimum Split (s)	9.5	20.0		9.5	20.0	9.5	9.5	20.0	9.5	9.5	20.0	
Total Split (s)	10.0	20.0		10.0	20.0	10.0	9.5	20.0	10.0	10.0	20.5	
Total Split (%)	16.7%	33.3%		16.7%	33.3%	16.7%	15.8%	33.3%	16.7%	16.7%	34.2%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	0.5		1.0	0.5	1.0	1.0	0.5	1.0	1.0	0.5	
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)	4.5	4.0		4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow, Master Intersection  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 3: Lincoln Ave. & D St./2nd St.



HCM 6th Signalized Intersection Summary  
3: Lincoln Ave. & D St./2nd St.

E+P AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				 				 		 	 	
Traffic Volume (veh/h)	42	139	43	100	63	279	62	481	452	196	492	92
Future Volume (veh/h)	42	139	43	100	63	279	62	481	452	196	492	92
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	44	145	45	104	66	291	65	501	471	204	512	96
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	253	78	237	393	470	98	1334	701	303	1218	227
Arrive On Green	0.04	0.19	0.19	0.02	0.07	0.07	0.06	0.38	0.38	0.09	0.41	0.41
Sat Flow, veh/h	1781	1366	424	3456	1870	1574	1781	3554	1579	3456	2986	557
Grp Volume(v), veh/h	44	0	190	104	66	291	65	501	471	204	304	304
Grp Sat Flow(s),veh/h/ln	1781	0	1790	1728	1870	1574	1781	1777	1579	1728	1777	1766
Q Serve(g_s), s	1.5	0.0	5.8	1.8	2.0	9.8	2.1	6.2	14.2	3.4	7.3	7.4
Cycle Q Clear(g_c), s	1.5	0.0	5.8	1.8	2.0	9.8	2.1	6.2	14.2	3.4	7.3	7.4
Prop In Lane	1.00		0.24	1.00		1.00	1.00		1.00	1.00		0.32
Lane Grp Cap(c), veh/h	77	0	331	237	393	470	98	1334	701	303	725	720
V/C Ratio(X)	0.57	0.00	0.57	0.44	0.17	0.62	0.66	0.38	0.67	0.67	0.42	0.42
Avail Cap(c_a), veh/h	163	0	477	317	499	559	148	1334	701	317	725	720
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.98	0.98	0.98	1.00	1.00	1.00	0.76	0.76	0.76
Uniform Delay (d), s/veh	28.2	0.0	22.3	28.2	23.0	21.5	27.8	13.6	13.2	26.5	12.7	12.7
Incr Delay (d2), s/veh	6.5	0.0	1.6	1.2	0.2	1.5	7.4	0.8	5.1	4.0	1.4	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	2.4	0.7	0.8	4.0	1.1	2.3	5.1	1.5	2.8	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.6	0.0	23.9	29.4	23.2	23.0	35.2	14.4	18.3	30.6	14.0	14.1
LnGrp LOS	C	A	C	C	C	C	D	B	B	C	B	B
Approach Vol, veh/h		234			461			1037			812	
Approach Delay, s/veh		25.9			24.5			17.5			18.2	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.8	26.5	8.6	15.1	7.8	28.5	7.1	16.6				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	5.5	16.0	5.5	16.0	5.0	16.5	5.5	16.0				
Max Q Clear Time (g_c+I1), s	5.4	16.2	3.8	7.8	4.1	9.4	3.5	11.8				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.6	0.0	2.1	0.0	0.5				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				19.8								
HCM 6th LOS				B								

Lanes, Volumes, Timings  
4: Lincoln Ave. & 6th St.

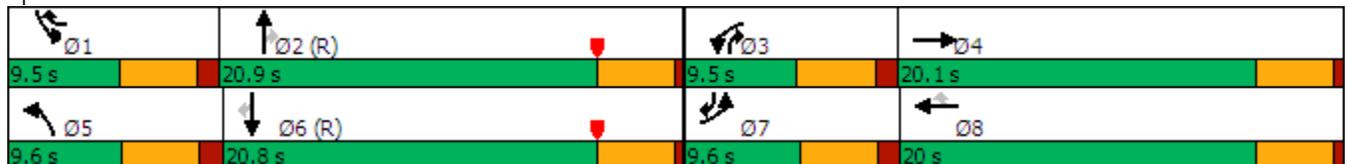
E+P AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	134	245	17	87	715	85	79	760	97	35	341	238
Future Volume (vph)	134	245	17	87	715	85	79	760	97	35	341	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	205		150	175		90	150		95	110		150
Storage Lanes	2		0	2		1	1		1	1		1
Taper Length (ft)	90			120			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		413			447			466			504	
Travel Time (s)		8.0			8.7			9.1			9.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0
Minimum Split (s)	9.5	20.0		9.5	20.0	9.5	9.5	20.0	9.5	9.5	20.0	9.5
Total Split (s)	9.6	20.1		9.5	20.0	9.5	9.6	20.9	9.5	9.5	20.8	9.6
Total Split (%)	16.0%	33.5%		15.8%	33.3%	15.8%	16.0%	34.8%	15.8%	15.8%	34.7%	16.0%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	0.5		1.0	0.5	1.0	1.0	0.5	1.0	1.0	0.5	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)	4.5	4.0		4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 4: Lincoln Ave. & 6th St.



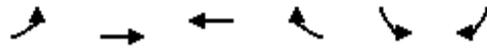
HCM 6th Signalized Intersection Summary  
4: Lincoln Ave. & 6th St.

E+P AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 			 			 	
Traffic Volume (veh/h)	134	245	17	87	715	85	79	760	97	35	341	238
Future Volume (veh/h)	134	245	17	87	715	85	79	760	97	35	341	238
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	149	272	19	97	794	94	88	844	108	39	379	264
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	264	904	63	231	919	471	114	1215	645	71	1129	622
Arrive On Green	0.08	0.27	0.27	0.07	0.26	0.26	0.06	0.34	0.34	0.04	0.32	0.32
Sat Flow, veh/h	3456	3370	234	3456	3554	1576	1781	3554	1578	1781	3554	1578
Grp Volume(v), veh/h	149	143	148	97	794	94	88	844	108	39	379	264
Grp Sat Flow(s),veh/h/ln	1728	1777	1827	1728	1777	1576	1781	1777	1578	1781	1777	1578
Q Serve(g_s), s	2.5	3.8	3.9	1.6	12.8	2.7	2.9	12.3	2.6	1.3	4.9	7.3
Cycle Q Clear(g_c), s	2.5	3.8	3.9	1.6	12.8	2.7	2.9	12.3	2.6	1.3	4.9	7.3
Prop In Lane	1.00		0.13	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	264	477	490	231	919	471	114	1215	645	71	1129	622
V/C Ratio(X)	0.56	0.30	0.30	0.42	0.86	0.20	0.77	0.69	0.17	0.55	0.34	0.42
Avail Cap(c_a), veh/h	294	477	490	288	948	483	151	1215	645	148	1129	622
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.7	17.5	17.5	26.9	21.2	15.7	27.6	17.0	11.3	28.3	15.6	13.2
Incr Delay (d2), s/veh	2.0	0.3	0.3	1.2	8.2	0.2	15.8	3.3	0.6	6.5	0.8	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	1.5	1.5	0.7	5.8	0.9	1.7	4.9	0.9	0.6	1.9	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.7	17.8	17.8	28.1	29.4	15.9	43.4	20.3	11.8	34.8	16.4	15.4
LnGrp LOS	C	B	B	C	C	B	D	C	B	C	B	B
Approach Vol, veh/h		440			985			1040			682	
Approach Delay, s/veh		21.5			28.0			21.4			17.1	
Approach LOS		C			C			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.9	24.5	8.5	20.1	8.3	23.1	9.1	19.5				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	5.0	16.9	5.0	16.1	5.1	16.8	5.1	16.0				
Max Q Clear Time (g_c+I1), s	3.3	14.3	3.6	5.9	4.9	9.3	4.5	14.8				
Green Ext Time (p_c), s	0.0	1.5	0.0	1.1	0.0	2.0	0.0	0.7				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				22.5								
HCM 6th LOS				C								

Lanes, Volumes, Timings  
5: 2nd St. & SR-91 EB Ramps

E+P AM Peak Hour

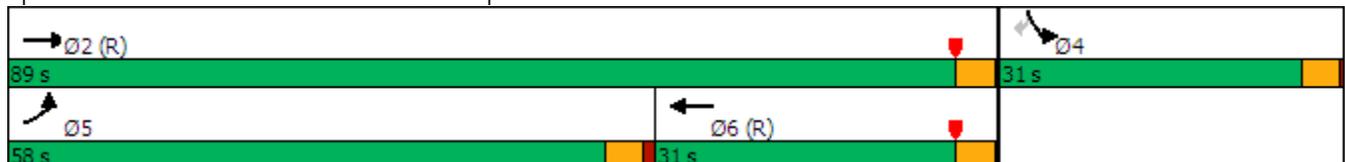


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↑	↕↔		↔↔↔	↔
Traffic Volume (vph)	667	113	151	117	167	291
Future Volume (vph)	667	113	151	117	167	291
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190			150	450	150
Storage Lanes	0			0	0	0
Taper Length (ft)	60				90	
Right Turn on Red				Yes		Yes
Link Speed (mph)		35	35		30	
Link Distance (ft)		549	319		407	
Travel Time (s)		10.7	6.2		9.3	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Shared Lane Traffic (%)						50%
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	5.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.5	20.0	20.0		20.0	20.0
Total Split (s)	58.0	89.0	31.0		31.0	31.0
Total Split (%)	48.3%	74.2%	25.8%		25.8%	25.8%
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	0.5	0.5		0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.0	4.0		4.0	4.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Recall Mode	None	C-Max	C-Max		Max	Max

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

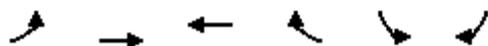
Splits and Phases: 5: 2nd St. & SR-91 EB Ramps



# HCM 6th Signalized Intersection Summary

## 5: 2nd St. & SR-91 EB Ramps

E+P AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖↗	↑	↖↗		↖↗	↖
Traffic Volume (veh/h)	667	113	151	117	167	291
Future Volume (veh/h)	667	113	151	117	167	291
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	710	120	161	124	163	326
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	800	1325	864	623	401	713
Arrive On Green	0.39	1.00	0.44	0.44	0.22	0.22
Sat Flow, veh/h	3456	1870	2059	1417	1781	3170
Grp Volume(v), veh/h	710	120	144	141	163	326
Grp Sat Flow(s),veh/h/ln	1728	1870	1777	1606	1781	1585
Q Serve(g_s), s	23.0	0.0	6.0	6.5	9.4	10.7
Cycle Q Clear(g_c), s	23.0	0.0	6.0	6.5	9.4	10.7
Prop In Lane	1.00			0.88	1.00	1.00
Lane Grp Cap(c), veh/h	800	1325	781	705	401	713
V/C Ratio(X)	0.89	0.09	0.19	0.20	0.41	0.46
Avail Cap(c_a), veh/h	1541	1325	781	705	401	713
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.3	0.0	20.5	20.7	39.7	40.2
Incr Delay (d2), s/veh	3.0	0.1	0.5	0.6	3.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.6	0.0	2.6	2.5	4.5	9.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	38.4	0.1	21.1	21.3	42.7	42.3
LnGrp LOS	D	A	C	C	D	D
Approach Vol, veh/h		830	285		489	
Approach Delay, s/veh		32.9	21.2		42.4	
Approach LOS		C	C		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		89.0		31.0	32.3	56.7
Change Period (Y+Rc), s		4.0		4.0	4.5	4.0
Max Green Setting (Gmax), s		85.0		27.0	53.5	27.0
Max Q Clear Time (g_c+I1), s		2.0		12.7	25.0	8.5
Green Ext Time (p_c), s		0.7		1.6	2.8	1.5

### Intersection Summary

HCM 6th Ctrl Delay	33.7
HCM 6th LOS	C

### Notes

User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings  
6: Buena Vista Ave. & 2nd St.

E+P AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	100	99	68	113	26	87	145	16	34	147	43
Future Volume (vph)	61	100	99	68	113	26	87	145	16	34	147	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		50	150		150	95		150	95		150
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	90			90			60			60		
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		528			733			392			629	
Travel Time (s)		10.3			14.3			8.9			14.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	14.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕		↕	↕		↕	↕	
Traffic Vol, veh/h	61	100	99	68	113	26	87	145	16	34	147	43
Future Vol, veh/h	61	100	99	68	113	26	87	145	16	34	147	43
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	73	120	119	82	136	31	105	175	19	41	177	52
Number of Lanes	0	1	1	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	12.9	16.6	13.2	14.2
HCM LOS	B	C	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	38%	0%	33%	100%	0%
Vol Thru, %	0%	90%	62%	0%	55%	0%	77%
Vol Right, %	0%	10%	0%	100%	13%	0%	23%
Sign Control	Stop						
Traffic Vol by Lane	87	161	161	99	207	34	190
LT Vol	87	0	61	0	68	34	0
Through Vol	0	145	100	0	113	0	147
RT Vol	0	16	0	99	26	0	43
Lane Flow Rate	105	194	194	119	249	41	229
Geometry Grp	7	7	7	7	6	7	7
Degree of Util (X)	0.218	0.371	0.384	0.206	0.486	0.086	0.436
Departure Headway (Hd)	7.478	6.894	7.128	6.221	7.021	7.528	6.853
Convergence, Y/N	Yes						
Cap	480	522	504	576	514	476	527
Service Time	5.22	4.636	4.87	3.962	5.063	5.27	4.595
HCM Lane V/C Ratio	0.219	0.372	0.385	0.207	0.484	0.086	0.435
HCM Control Delay	12.3	13.7	14.3	10.6	16.6	11	14.8
HCM Lane LOS	B	B	B	B	C	B	B
HCM 95th-tile Q	0.8	1.7	1.8	0.8	2.6	0.3	2.2

Lanes, Volumes, Timings  
 7: Cardenas Dwy./Project Dwy. 1 & 2nd St.

E+P AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 				 			 
Traffic Volume (vph)	0	262	13	0	229	39	0	0	22	0	0	39
Future Volume (vph)	0	262	13	0	229	39	0	0	22	0	0	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		319			197			217			156	
Travel Time (s)		6.2			3.8			4.9			3.5	
Confl. Peds. (#/hr)			5	5			5		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
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑				↑			↑
Traffic Vol, veh/h	0	262	13	0	229	39	0	0	22	0	0	39
Future Vol, veh/h	0	262	13	0	229	39	0	0	22	0	0	39
Conflicting Peds, #/hr	0	0	5	5	0	0	5	0	5	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	285	14	0	249	42	0	0	24	0	0	42

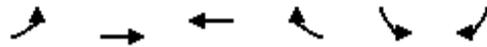
Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	-	0	0	-	-	0	-	-	160	-	-	146
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	857	0	0	875
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	849	-	-	875
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	9.4	9.3
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	849	-	-	-	-	875
HCM Lane V/C Ratio	0.028	-	-	-	-	0.048
HCM Control Delay (s)	9.4	-	-	-	-	9.3
HCM Lane LOS	A	-	-	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	-	0.2

Lanes, Volumes, Timings  
8: 2nd St. & Project Dwy. 2

E+P AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	91	193	218	25	65	50
Future Volume (vph)	91	193	218	25	65	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	245			50	0	0
Storage Lanes	0			1	1	0
Taper Length (ft)	90				90	
Link Speed (mph)		35	35		30	
Link Distance (ft)		197	196		131	
Travel Time (s)		3.8	3.8		3.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection						
Int Delay, s/veh	3.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	91	193	218	25	65	50
Future Vol, veh/h	91	193	218	25	65	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	50	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	99	210	237	27	71	54

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	264	0	-	0	659 132
Stage 1	-	-	-	-	251 -
Stage 2	-	-	-	-	408 -
Critical Hdwy	4.13	-	-	-	6.63 6.93
Critical Hdwy Stg 1	-	-	-	-	5.83 -
Critical Hdwy Stg 2	-	-	-	-	5.43 -
Follow-up Hdwy	2.219	-	-	-	3.519 3.319
Pot Cap-1 Maneuver	1299	-	-	-	412 894
Stage 1	-	-	-	-	768 -
Stage 2	-	-	-	-	670 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1299	-	-	-	381 894
Mov Cap-2 Maneuver	-	-	-	-	381 -
Stage 1	-	-	-	-	710 -
Stage 2	-	-	-	-	670 -

Approach	EB	WB	SB
HCM Control Delay, s	2.6	0	14.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1299	-	-	-	508
HCM Lane V/C Ratio	0.076	-	-	-	0.246
HCM Control Delay (s)	8	-	-	-	14.4
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	1

Lanes, Volumes, Timings  
1: Lincoln Ave. & Pomona Rd.

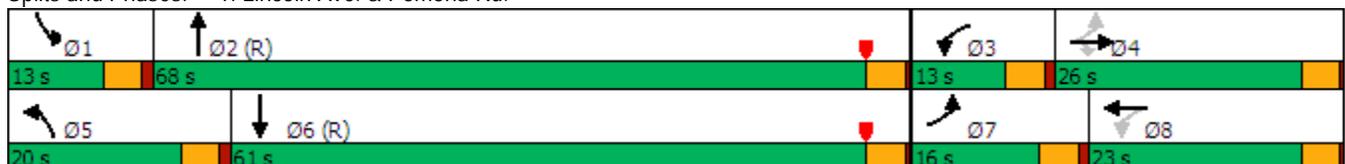
E+P PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	31	175	87	18	17	80	616	69	28	926	46
Future Volume (vph)	116	31	175	87	18	17	80	616	69	28	926	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		160	75		150	300		150	90		150
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	30			90			60			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		328			795			507			349	
Travel Time (s)		7.5			18.1			9.9			6.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8								
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	4.0	4.0	5.0	4.0		5.0	4.0		5.0	4.0	
Minimum Split (s)	9.5	20.0	20.0	9.5	20.0		9.5	20.0		9.5	20.0	
Total Split (s)	16.0	26.0	26.0	13.0	23.0		20.0	68.0		13.0	61.0	
Total Split (%)	13.3%	21.7%	21.7%	10.8%	19.2%		16.7%	56.7%		10.8%	50.8%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	0.5	0.5	1.0	0.5		1.0	0.5		1.0	0.5	
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)	4.5	4.0	4.0	4.5	4.0		4.5	4.0		4.5	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Lincoln Ave. & Pomona Rd.



HCM 6th Signalized Intersection Summary  
1: Lincoln Ave. & Pomona Rd.

E+P PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	116	31	175	87	18	17	80	616	69	28	926	46
Future Volume (veh/h)	116	31	175	87	18	17	80	616	69	28	926	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	127	34	192	96	20	19	88	677	76	31	1018	51
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	337	261	219	309	108	102	110	2031	228	48	2051	103
Arrive On Green	0.08	0.14	0.14	0.06	0.12	0.12	0.12	1.00	1.00	0.03	0.60	0.60
Sat Flow, veh/h	1781	1870	1568	1781	876	832	1781	3219	361	1781	3443	172
Grp Volume(v), veh/h	127	34	192	96	0	39	88	373	380	31	525	544
Grp Sat Flow(s),veh/h/ln	1781	1870	1568	1781	0	1708	1781	1777	1804	1781	1777	1838
Q Serve(g_s), s	7.4	1.9	14.4	5.6	0.0	2.5	5.8	0.0	0.0	2.1	20.4	20.4
Cycle Q Clear(g_c), s	7.4	1.9	14.4	5.6	0.0	2.5	5.8	0.0	0.0	2.1	20.4	20.4
Prop In Lane	1.00		1.00	1.00		0.49	1.00		0.20	1.00		0.09
Lane Grp Cap(c), veh/h	337	261	219	309	0	210	110	1121	1138	48	1059	1095
V/C Ratio(X)	0.38	0.13	0.88	0.31	0.00	0.19	0.80	0.33	0.33	0.65	0.50	0.50
Avail Cap(c_a), veh/h	370	343	287	327	0	271	230	1121	1138	126	1059	1095
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.96	0.96	0.96	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.3	45.2	50.6	42.2	0.0	47.2	51.8	0.0	0.0	57.8	13.9	13.9
Incr Delay (d2), s/veh	0.7	0.2	20.4	0.6	0.0	0.4	11.7	0.8	0.8	13.8	1.7	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	0.9	6.9	2.5	0.0	1.1	2.8	0.2	0.2	1.1	8.2	8.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.0	45.4	70.9	42.8	0.0	47.6	63.6	0.8	0.8	71.6	15.6	15.5
LnGrp LOS	D	D	E	D	A	D	E	A	A	E	B	B
Approach Vol, veh/h		353			135			841			1100	
Approach Delay, s/veh		58.1			44.2			7.3			17.1	
Approach LOS		E			D			A			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.7	79.7	11.8	20.8	11.9	75.5	13.8	18.8				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	8.5	64.0	8.5	22.0	15.5	57.0	11.5	19.0				
Max Q Clear Time (g_c+I1), s	4.1	2.0	7.6	16.4	7.8	22.4	9.4	4.5				
Green Ext Time (p_c), s	0.0	5.3	0.0	0.4	0.1	8.2	0.1	0.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			21.2									
HCM 6th LOS			C									

Lanes, Volumes, Timings  
2: Lincoln Ave. & SR-91 WB Ramps

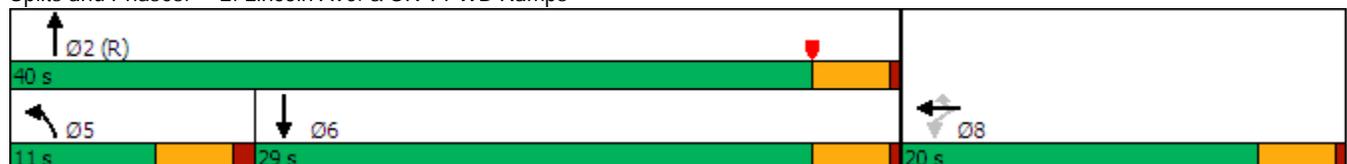
E+P PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	597	23	213	207	552	0	0	752	412
Future Volume (vph)	0	0	0	597	23	213	207	552	0	0	752	412
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	0		320	420		150	150		150
Storage Lanes	0		0	1		2	2		0	0		0
Taper Length (ft)	90			120			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			35				35
Link Distance (ft)		1035			1181			839				507
Travel Time (s)		23.5			26.8			16.3				9.9
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		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
Shared Lane Traffic (%)				48%								
Turn Type				Perm	NA	Perm	Prot	NA				NA
Protected Phases					8		5	2				6
Permitted Phases				8		8						
Detector Phase				8	8	8	5	2				6
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0	5.0	4.0				4.0
Minimum Split (s)				20.0	20.0	20.0	9.5	20.0				20.0
Total Split (s)				20.0	20.0	20.0	11.0	40.0				29.0
Total Split (%)				33.3%	33.3%	33.3%	18.3%	66.7%				48.3%
Yellow Time (s)				3.5	3.5	3.5	3.5	3.5				3.5
All-Red Time (s)				0.5	0.5	0.5	1.0	0.5				0.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0				0.0
Total Lost Time (s)				4.0	4.0	4.0	4.5	4.0				4.0
Lead/Lag							Lead					Lag
Lead-Lag Optimize?							Yes					Yes
Recall Mode				None	None	None	None	C-Max				None

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 2: Lincoln Ave. & SR-91 WB Ramps



HCM 6th Signalized Intersection Summary  
2: Lincoln Ave. & SR-91 WB Ramps

E+P PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	597	23	213	207	552	0	0	752	412
Future Volume (veh/h)	0	0	0	597	23	213	207	552	0	0	752	412
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				667	0	232	225	600	0	0	817	448
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				825	0	365	326	2257	0	0	1034	562
Arrive On Green				0.23	0.00	0.23	0.13	0.84	0.00	0.00	0.15	0.15
Sat Flow, veh/h				3563	0	1575	3456	3647	0	0	2313	1206
Grp Volume(v), veh/h				667	0	232	225	600	0	0	653	612
Grp Sat Flow(s),veh/h/ln				1781	0	1575	1728	1777	0	0	1777	1649
Q Serve(g_s), s				10.6	0.0	8.0	3.7	2.0	0.0	0.0	21.2	21.5
Cycle Q Clear(g_c), s				10.6	0.0	8.0	3.7	2.0	0.0	0.0	21.2	21.5
Prop In Lane				1.00		1.00	1.00		0.00	0.00		0.73
Lane Grp Cap(c), veh/h				825	0	365	326	2257	0	0	828	768
V/C Ratio(X)				0.81	0.00	0.64	0.69	0.27	0.00	0.00	0.79	0.80
Avail Cap(c_a), veh/h				950	0	420	374	2257	0	0	828	768
HCM Platoon Ratio				1.00	1.00	1.00	1.33	1.33	1.00	1.00	0.33	0.33
Upstream Filter(I)				1.00	0.00	1.00	0.89	0.89	0.00	0.00	0.84	0.84
Uniform Delay (d), s/veh				21.8	0.0	20.8	25.4	1.9	0.0	0.0	22.5	22.7
Incr Delay (d2), s/veh				4.7	0.0	2.5	4.0	0.3	0.0	0.0	4.4	5.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.6	0.0	3.0	1.6	0.5	0.0	0.0	10.7	10.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				26.5	0.0	23.3	29.4	2.1	0.0	0.0	26.9	27.7
LnGrp LOS				C	A	C	C	A	A	A	C	C
Approach Vol, veh/h					899			825			1265	
Approach Delay, s/veh					25.6			9.5			27.3	
Approach LOS					C			A			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		42.1			10.2	31.9		17.9				
Change Period (Y+Rc), s		4.0			4.5	4.0		4.0				
Max Green Setting (Gmax), s		36.0			6.5	25.0		16.0				
Max Q Clear Time (g_c+I1), s		4.0			5.7	23.5		12.6				
Green Ext Time (p_c), s		4.3			0.1	1.1		1.3				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				21.9								
HCM 6th LOS				C								
<b>Notes</b>												
User approved volume balancing among the lanes for turning movement.												

Lanes, Volumes, Timings  
3: Lincoln Ave. & D St./2nd St.

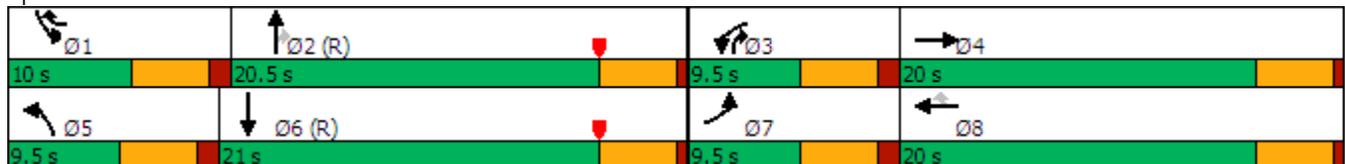
E+P PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	171	19	153	69	220	44	476	314	338	877	109
Future Volume (vph)	63	171	19	153	69	220	44	476	314	338	877	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		65	155		155	165		310	220		150
Storage Lanes	1		1	2		0	1		1	2		0
Taper Length (ft)	30			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		358			549			551			839	
Travel Time (s)		7.0			10.7			10.7			16.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases						8			2			
Detector Phase	7	4		3	8	1	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	
Minimum Split (s)	9.5	20.0		9.5	20.0	9.5	9.5	20.0	9.5	9.5	20.0	
Total Split (s)	9.5	20.0		9.5	20.0	10.0	9.5	20.5	9.5	10.0	21.0	
Total Split (%)	15.8%	33.3%		15.8%	33.3%	16.7%	15.8%	34.2%	15.8%	16.7%	35.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	0.5		1.0	0.5	1.0	1.0	0.5	1.0	1.0	0.5	
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)	4.5	4.0		4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow, Master Intersection  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated

Splits and Phases: 3: Lincoln Ave. & D St./2nd St.



HCM 6th Signalized Intersection Summary  
3: Lincoln Ave. & D St./2nd St.

E+P PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	171	19	153	69	220	44	476	314	338	877	109
Future Volume (veh/h)	63	171	19	153	69	220	44	476	314	338	877	109
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	66	180	20	161	73	232	46	501	331	356	923	115
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	99	262	29	268	338	429	79	1382	737	317	1385	173
Arrive On Green	0.06	0.16	0.16	0.03	0.06	0.06	0.04	0.39	0.39	0.09	0.44	0.44
Sat Flow, veh/h	1781	1652	184	3456	1870	1572	1781	3554	1579	3456	3177	396
Grp Volume(v), veh/h	66	0	200	161	73	232	46	501	331	356	516	522
Grp Sat Flow(s),veh/h/ln	1781	0	1835	1728	1870	1572	1781	1777	1579	1728	1777	1796
Q Serve(g_s), s	2.2	0.0	6.2	2.8	2.2	7.8	1.5	6.0	8.5	5.5	13.9	13.9
Cycle Q Clear(g_c), s	2.2	0.0	6.2	2.8	2.2	7.8	1.5	6.0	8.5	5.5	13.9	13.9
Prop In Lane	1.00		0.10	1.00		1.00	1.00		1.00	1.00		0.22
Lane Grp Cap(c), veh/h	99	0	291	268	338	429	79	1382	737	317	774	783
V/C Ratio(X)	0.67	0.00	0.69	0.60	0.22	0.54	0.58	0.36	0.45	1.12	0.67	0.67
Avail Cap(c_a), veh/h	148	0	489	288	499	564	148	1382	737	317	774	783
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.97	0.97	0.97	1.00	1.00	1.00	0.48	0.48	0.48
Uniform Delay (d), s/veh	27.8	0.0	23.8	28.3	24.2	21.5	28.1	13.0	10.8	27.2	13.5	13.5
Incr Delay (d2), s/veh	7.5	0.0	2.9	3.0	0.3	1.0	6.5	0.7	2.0	74.3	2.2	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	2.7	1.2	1.0	3.0	0.7	2.2	2.8	5.4	5.0	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.3	0.0	26.7	31.3	24.5	22.5	34.6	13.8	12.8	101.5	15.7	15.6
LnGrp LOS	D	A	C	C	C	C	C	B	B	F	B	B
Approach Vol, veh/h		266			466			878			1394	
Approach Delay, s/veh		28.8			25.8			14.5			37.6	
Approach LOS		C			C			B			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.0	27.3	9.2	13.5	7.2	30.1	7.8	14.8				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	5.5	16.5	5.0	16.0	5.0	17.0	5.0	16.0				
Max Q Clear Time (g_c+I1), s	7.5	10.5	4.8	8.2	3.5	15.9	4.2	9.8				
Green Ext Time (p_c), s	0.0	2.3	0.0	0.6	0.0	0.7	0.0	0.6				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			28.2									
HCM 6th LOS			C									

Lanes, Volumes, Timings  
4: Lincoln Ave. & 6th St.

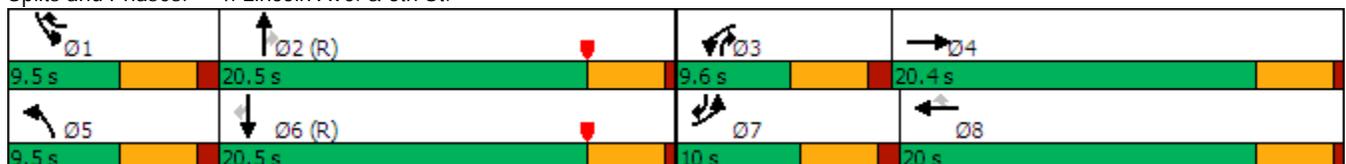
E+P PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	235	779	72	190	482	127	41	470	146	95	713	204
Future Volume (vph)	235	779	72	190	482	127	41	470	146	95	713	204
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	205		150	175		90	150		95	110		150
Storage Lanes	2		0	2		1	1		1	1		1
Taper Length (ft)	90			120			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		413			447			466			504	
Travel Time (s)		8.0			8.7			9.1			9.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0
Minimum Split (s)	9.5	20.0		9.5	20.0	9.5	9.5	20.0	9.5	9.5	20.0	9.5
Total Split (s)	10.0	20.4		9.6	20.0	9.5	9.5	20.5	9.6	9.5	20.5	10.0
Total Split (%)	16.7%	34.0%		16.0%	33.3%	15.8%	15.8%	34.2%	16.0%	15.8%	34.2%	16.7%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	0.5		1.0	0.5	1.0	1.0	0.5	1.0	1.0	0.5	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)	4.5	4.0		4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 4: Lincoln Ave. & 6th St.



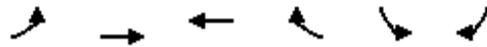
HCM 6th Signalized Intersection Summary  
4: Lincoln Ave. & 6th St.

E+P PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 			 			 	
Traffic Volume (veh/h)	235	779	72	190	482	127	41	470	146	95	713	204
Future Volume (veh/h)	235	779	72	190	482	127	41	470	146	95	713	204
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	240	795	73	194	492	130	42	480	149	97	728	208
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	317	888	82	291	934	525	75	1040	595	124	1138	651
Arrive On Green	0.09	0.27	0.27	0.08	0.26	0.26	0.04	0.29	0.29	0.07	0.32	0.32
Sat Flow, veh/h	3456	3289	302	3456	3554	1576	1781	3554	1577	1781	3554	1578
Grp Volume(v), veh/h	240	429	439	194	492	130	42	480	149	97	728	208
Grp Sat Flow(s),veh/h/ln	1728	1777	1814	1728	1777	1576	1781	1777	1577	1781	1777	1578
Q Serve(g_s), s	4.1	14.0	14.0	3.3	7.1	3.6	1.4	6.6	3.9	3.2	10.5	5.4
Cycle Q Clear(g_c), s	4.1	14.0	14.0	3.3	7.1	3.6	1.4	6.6	3.9	3.2	10.5	5.4
Prop In Lane	1.00		0.17	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	317	480	490	291	934	525	75	1040	595	124	1138	651
V/C Ratio(X)	0.76	0.89	0.89	0.67	0.53	0.25	0.56	0.46	0.25	0.78	0.64	0.32
Avail Cap(c_a), veh/h	317	486	496	294	948	531	148	1040	595	148	1138	651
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.6	21.1	21.1	26.6	18.9	14.6	28.2	17.4	12.9	27.5	17.4	12.0
Incr Delay (d2), s/veh	10.1	18.7	18.4	5.5	0.5	0.2	6.5	1.5	1.0	19.8	2.8	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	7.6	7.7	1.5	2.7	1.2	0.7	2.6	1.4	2.0	4.2	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.7	39.8	39.5	32.2	19.5	14.8	34.7	18.8	13.9	47.2	20.2	13.2
LnGrp LOS	D	D	D	C	B	B	C	B	B	D	C	B
Approach Vol, veh/h		1108			816			671			1033	
Approach Delay, s/veh		39.0			21.7			18.7			21.3	
Approach LOS		D			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.7	21.6	9.6	20.2	7.0	23.2	10.0	19.8				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	5.0	16.5	5.1	16.4	5.0	16.5	5.5	16.0				
Max Q Clear Time (g_c+I1), s	5.2	8.6	5.3	16.0	3.4	12.5	6.1	9.1				
Green Ext Time (p_c), s	0.0	2.2	0.0	0.2	0.0	2.0	0.0	2.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				26.3								
HCM 6th LOS				C								

Lanes, Volumes, Timings  
5: 2nd St. & SR-91 EB Ramps

E+P PM Peak Hour

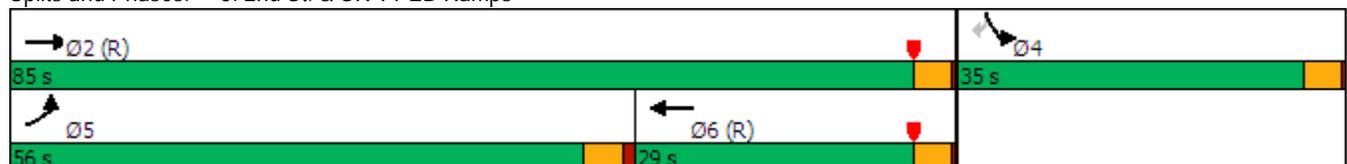


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↑	↕↔		↔↔↔	↔
Traffic Volume (vph)	657	163	137	100	285	305
Future Volume (vph)	657	163	137	100	285	305
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190			150	450	150
Storage Lanes	0			0	0	0
Taper Length (ft)	60				90	
Right Turn on Red				Yes		Yes
Link Speed (mph)		35	35		30	
Link Distance (ft)		549	319		407	
Travel Time (s)		10.7	6.2		9.3	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)						39%
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	5.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.5	20.0	20.0		20.0	20.0
Total Split (s)	56.0	85.0	29.0		35.0	35.0
Total Split (%)	46.7%	70.8%	24.2%		29.2%	29.2%
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	0.5	0.5		0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.0	4.0		4.0	4.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Recall Mode	None	C-Max	C-Max		Max	Max

Intersection Summary

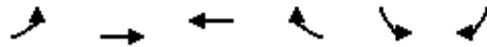
Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 5: 2nd St. & SR-91 EB Ramps



HCM 6th Signalized Intersection Summary  
5: 2nd St. & SR-91 EB Ramps

E+P PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	657	163	137	100	285	305
Future Volume (veh/h)	657	163	137	100	285	305
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	722	179	151	110	424	216
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	812	1262	812	553	920	409
Arrive On Green	0.39	1.00	0.40	0.40	0.26	0.26
Sat Flow, veh/h	3456	1870	2110	1374	3563	1585
Grp Volume(v), veh/h	722	179	132	129	424	216
Grp Sat Flow(s),veh/h/ln	1728	1870	1777	1613	1781	1585
Q Serve(g_s), s	23.4	0.0	5.7	6.2	12.0	14.0
Cycle Q Clear(g_c), s	23.4	0.0	5.7	6.2	12.0	14.0
Prop In Lane	1.00			0.85	1.00	1.00
Lane Grp Cap(c), veh/h	812	1262	715	649	920	409
V/C Ratio(X)	0.89	0.14	0.18	0.20	0.46	0.53
Avail Cap(c_a), veh/h	1483	1262	715	649	920	409
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.83	0.83	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.0	0.0	23.1	23.3	37.5	38.2
Incr Delay (d2), s/veh	3.0	0.2	0.6	0.7	1.7	4.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.7	0.1	2.5	2.5	5.5	13.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	38.0	0.2	23.7	24.0	39.1	43.0
LnGrp LOS	D	A	C	C	D	D
Approach Vol, veh/h		901	261		640	
Approach Delay, s/veh		30.5	23.8		40.4	
Approach LOS		C	C		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		85.0		35.0	32.7	52.3
Change Period (Y+Rc), s		4.0		4.0	4.5	4.0
Max Green Setting (Gmax), s		81.0		31.0	51.5	25.0
Max Q Clear Time (g_c+I1), s		2.0		16.0	25.4	8.2
Green Ext Time (p_c), s		1.1		2.1	2.8	1.3

Intersection Summary

HCM 6th Ctrl Delay	33.1
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings  
6: Buena Vista Ave. & 2nd St.

E+P PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	286	111	23	83	21	74	131	31	55	157	52
Future Volume (vph)	75	286	111	23	83	21	74	131	31	55	157	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		50	150		150	95		150	95		150
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	90			90			60			60		
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		528			733			392			629	
Travel Time (s)		10.3			14.3			8.9			14.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	16.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↔		↖	↗		↖	↗	
Traffic Vol, veh/h	75	286	111	23	83	21	74	131	31	55	157	52
Future Vol, veh/h	75	286	111	23	83	21	74	131	31	55	157	52
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	80	304	118	24	88	22	79	139	33	59	167	55
Number of Lanes	0	1	1	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	21.1	13	12.9	14
HCM LOS	C	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	21%	0%	18%	100%	0%
Vol Thru, %	0%	81%	79%	0%	65%	0%	75%
Vol Right, %	0%	19%	0%	100%	17%	0%	25%
Sign Control	Stop						
Traffic Vol by Lane	74	162	361	111	127	55	209
LT Vol	74	0	75	0	23	55	0
Through Vol	0	131	286	0	83	0	157
RT Vol	0	31	0	111	21	0	52
Lane Flow Rate	79	172	384	118	135	59	222
Geometry Grp	7	7	7	7	6	7	7
Degree of Util (X)	0.167	0.335	0.716	0.193	0.272	0.123	0.426
Departure Headway (Hd)	7.659	7.008	6.71	5.893	7.244	7.595	6.904
Convergence, Y/N	Yes						
Cap	468	514	541	613	496	472	523
Service Time	5.402	4.752	4.41	3.593	5.287	5.338	4.647
HCM Lane V/C Ratio	0.169	0.335	0.71	0.192	0.272	0.125	0.424
HCM Control Delay	11.9	13.3	24.5	10	13	11.4	14.7
HCM Lane LOS	B	B	C	A	B	B	B
HCM 95th-tile Q	0.6	1.5	5.8	0.7	1.1	0.4	2.1

Lanes, Volumes, Timings  
 7: Cardenas Dwy./Project Dwy. 1 & 2nd St.

E+P PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 				 			 
Traffic Volume (vph)	0	408	30	0	196	41	0	0	81	0	0	41
Future Volume (vph)	0	408	30	0	196	41	0	0	81	0	0	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		319			197			217			156	
Travel Time (s)		6.2			3.8			4.9			3.5	
Confl. Peds. (#/hr)			5	5			5		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
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↓			↑↓				↑			↑
Traffic Vol, veh/h	0	408	30	0	196	41	0	0	81	0	0	41
Future Vol, veh/h	0	408	30	0	196	41	0	0	81	0	0	41
Conflicting Peds, #/hr	0	0	5	5	0	0	5	0	5	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	443	33	0	213	45	0	0	88	0	0	45

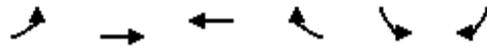
Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	-	0	0	-	-	0	-	-	248	-	-	129
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	752	0	0	897
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	745	-	-	897
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	10.5	9.2
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	745	-	-	-	-	897
HCM Lane V/C Ratio	0.118	-	-	-	-	0.05
HCM Control Delay (s)	10.5	-	-	-	-	9.2
HCM Lane LOS	B	-	-	-	-	A
HCM 95th %tile Q(veh)	0.4	-	-	-	-	0.2

Lanes, Volumes, Timings  
8: 2nd St. & Project Dwy. 2

E+P PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	96	393	184	25	65	53
Future Volume (vph)	96	393	184	25	65	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	245			50	0	0
Storage Lanes	0			1	1	0
Taper Length (ft)	90				90	
Link Speed (mph)		35	35		30	
Link Distance (ft)		197	196		131	
Travel Time (s)		3.8	3.8		3.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection						
Int Delay, s/veh	3.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	96	393	184	25	65	53
Future Vol, veh/h	96	393	184	25	65	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	50	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	104	427	200	27	71	58

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	227	0	0	849	114
Stage 1	-	-	-	214	-
Stage 2	-	-	-	635	-
Critical Hdwy	4.13	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	5.43	-
Follow-up Hdwy	2.219	-	-	3.519	3.319
Pot Cap-1 Maneuver	1340	-	-	315	918
Stage 1	-	-	-	802	-
Stage 2	-	-	-	527	-
Platoon blocked, %		-	-		
Mov Cap-1 Maneuver	1340	-	-	290	918
Mov Cap-2 Maneuver	-	-	-	290	-
Stage 1	-	-	-	739	-
Stage 2	-	-	-	527	-

Approach	EB	WB	SB
HCM Control Delay, s	1.6	0	17.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1340	-	-	-	419
HCM Lane V/C Ratio	0.078	-	-	-	0.306
HCM Control Delay (s)	7.9	-	-	-	17.3
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	1.3

**APPENDIX H**

**EXISTING PLUS PROJECT (E+P) CONDITIONS  
FREEWAY RAMP ANALYSIS WORKSHEETS**

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# HCS7 Freeway Diverge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing + Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 WB Off-Ramp @ Lincoln	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	70.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	2900	1000
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	7758	1019
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	8605	1130
Capacity (c), pc/h	14400	2000
Volume-to-Capacity Ratio (v/c)	0.60	0.57

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (Ds)	0.465
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1501
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	57.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	74.8
Flow in Lanes 1 and 2 (v12), pc/h	3451	Ramp Junction Speed (S), mi/h	64.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	22.4
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	24.9

# HCS7 Freeway Merge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing + Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 WB On-Ramp @ Lincoln	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA),ft	2500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	6759	791
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	7497	877
Capacity (c), pc/h	12000	2000
Volume-to-Capacity Ratio (v/c)	0.70	0.44

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.384
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1642
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	62.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.108	Outer Lanes Freeway Speed (SO), mi/h	71.3
Flow in Lanes 1 and 2 (v12), pc/h	2189	Ramp Junction Speed (S), mi/h	66.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	3066	Average Density (D), pc/mi/ln	25.1
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	27.2

# HCS7 Freeway Diverge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing + Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 EB Off-Ramp @ 2nd St	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	70.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	4900	1340
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided Two-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	8469	458
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	9393	508
Capacity (c), pc/h	11000	4000
Volume-to-Capacity Ratio (v/c)	0.85	0.13

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (Ds)	0.409
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2254
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	58.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	71.9
Flow in Lanes 1 and 2 (v12), pc/h	3006	Ramp Junction Speed (S), mi/h	65.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	28.5
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	18.0

# HCS7 Freeway Merge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing + Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 EB On-Ramp @ 2nd St	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA),ft	2300	1500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	8011	784
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	8885	870
Capacity (c), pc/h	14400	2000
Volume-to-Capacity Ratio (v/c)	0.68	0.44

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.350
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1999
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	63.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.109	Outer Lanes Freeway Speed (SO), mi/h	70.0
Flow in Lanes 1 and 2 (v12), pc/h	2666	Ramp Junction Speed (S), mi/h	66.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	3536	Average Density (D), pc/mi/ln	24.3
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	23.3

# HCS7 Freeway Diverge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing + Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 WB Off-Ramp @ Lincoln	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	2900	1000
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	8137	833
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	9025	924
Capacity (c), pc/h	14100	2000
Volume-to-Capacity Ratio (v/c)	0.64	0.46

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (Ds)	0.446
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1648
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	68.8
Flow in Lanes 1 and 2 (v12), pc/h	3472	Ramp Junction Speed (S), mi/h	60.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	24.7
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	25.1

# HCS7 Freeway Merge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing + Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 WB On-Ramp @ Lincoln	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	7	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA),ft	2500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	7304	642
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	8101	712
Capacity (c), pc/h	16800	2000
Volume-to-Capacity Ratio (v/c)	0.52	0.36

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.390
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1823
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	62.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.129	Outer Lanes Freeway Speed (SO), mi/h	70.6
Flow in Lanes 1 and 2 (v12), pc/h	2430	Ramp Junction Speed (S), mi/h	66.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	3142	Average Density (D), pc/mi/ln	18.9
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	27.8

# HCS7 Freeway Diverge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing + Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 EB Off-Ramp @ 2nd St	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	70.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	4900	1340
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided Two-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	8272	590
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	9175	654
Capacity (c), pc/h	11000	4000
Volume-to-Capacity Ratio (v/c)	0.83	0.16

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (Ds)	0.422
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2202
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	58.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	72.1
Flow in Lanes 1 and 2 (v12), pc/h	2936	Ramp Junction Speed (S), mi/h	65.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	27.9
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	17.4

# HCS7 Freeway Merge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing + Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 EB On-Ramp @ 2nd St	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA),ft	2300	1500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	7682	757
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	8520	840
Capacity (c), pc/h	14400	2000
Volume-to-Capacity Ratio (v/c)	0.65	0.42

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.332
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1917
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	64.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.113	Outer Lanes Freeway Speed (SO), mi/h	70.3
Flow in Lanes 1 and 2 (v12), pc/h	2556	Ramp Junction Speed (S), mi/h	67.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	3396	Average Density (D), pc/mi/ln	23.2
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	22.2

**APPENDIX I**

**EXISTING PLUS PROJECT (E+P) CONDITIONS  
FREEWAY SEGMENT ANALYSIS WORKSHEETS**

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# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing + Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 WB, east of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	7778	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1438
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.60
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	69.3
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	20.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing + Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 WB, between ramps	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	6759	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1499
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.62
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	69.0
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	21.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFSadj), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing + Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 WB, west of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	7550	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1675
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	67.4
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	24.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing + Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 EB, west of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8469	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1879
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.78
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	64.7
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	29.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing + Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 EB, between ramps	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8011	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (V <sub>p</sub> ), pc/h/ln	1777
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.74
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	66.1
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	26.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing + Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 EB, East of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8795	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1626
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.68
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	67.9
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	23.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing + Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 WB, east of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8137	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1504
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	68.9
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	21.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing + Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 WB, between ramps	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	7304	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (V <sub>p</sub> ), pc/h/ln	1620
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.68
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	68.0
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	23.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing + Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 WB, west of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	7946	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (V <sub>p</sub> ), pc/h/ln	1763
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.73
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	66.3
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	26.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing + Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 EB, west of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8272	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (V <sub>p</sub> ), pc/h/ln	1835
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.76
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	65.3
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	28.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing + Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 EB, between ramps	Unit	United States Customary

## Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	7682	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (V <sub>p</sub> ), pc/h/ln	1704
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.71
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	67.1
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	25.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	Existing + Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 EB, East of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8439	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1560
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	68.5
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	22.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFSadj), mi/h	70.0		

## **APPENDIX J**

**EXISTING PLUS AMBIENT PLUS PROJECT (E+A+P 2025) CONDITIONS  
INTERSECTION ANALYSIS CALCULATION WORKSHEETS**

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Lanes, Volumes, Timings  
1: Lincoln Ave. & Pomona Rd.

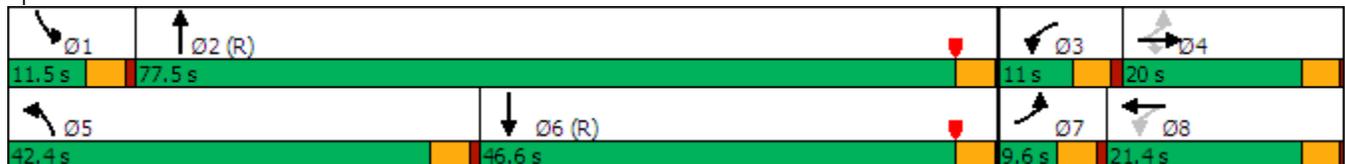
EAP (2025) AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	9	39	73	25	21	332	765	48	35	804	49
Future Volume (vph)	23	9	39	73	25	21	332	765	48	35	804	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		160	75		150	300		150	90		150
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	30			90			60			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		328			795			507			349	
Travel Time (s)		7.5			18.1			9.9			6.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8								
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	4.0	4.0	5.0	4.0		5.0	4.0		5.0	4.0	
Minimum Split (s)	9.5	20.0	20.0	9.5	20.0		9.5	20.0		9.5	20.0	
Total Split (s)	9.6	20.0	20.0	11.0	21.4		42.4	77.5		11.5	46.6	
Total Split (%)	8.0%	16.7%	16.7%	9.2%	17.8%		35.3%	64.6%		9.6%	38.8%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	0.5	0.5	1.0	0.5		1.0	0.5		1.0	0.5	
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)	4.5	4.0	4.0	4.5	4.0		4.5	4.0		4.5	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Lincoln Ave. & Pomona Rd.



HCM 6th Signalized Intersection Summary  
1: Lincoln Ave. & Pomona Rd.

EAP (2025) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	9	39	73	25	21	332	765	48	35	804	49
Future Volume (veh/h)	23	9	39	73	25	21	332	765	48	35	804	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	10	43	81	28	23	369	850	53	39	893	54
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	179	108	89	226	83	68	394	2432	152	54	1787	108
Arrive On Green	0.02	0.06	0.06	0.05	0.09	0.09	0.44	1.00	1.00	0.03	0.53	0.53
Sat Flow, veh/h	1781	1870	1544	1781	942	774	1781	3396	212	1781	3403	206
Grp Volume(v), veh/h	26	10	43	81	0	51	369	445	458	39	466	481
Grp Sat Flow(s),veh/h/ln	1781	1870	1544	1781	0	1715	1781	1777	1831	1781	1777	1832
Q Serve(g_s), s	1.6	0.6	3.2	5.0	0.0	3.4	23.7	0.0	0.0	2.6	20.3	20.3
Cycle Q Clear(g_c), s	1.6	0.6	3.2	5.0	0.0	3.4	23.7	0.0	0.0	2.6	20.3	20.3
Prop In Lane	1.00		1.00	1.00		0.45	1.00		0.12	1.00		0.11
Lane Grp Cap(c), veh/h	179	108	89	226	0	151	394	1272	1311	54	933	962
V/C Ratio(X)	0.15	0.09	0.48	0.36	0.00	0.34	0.94	0.35	0.35	0.72	0.50	0.50
Avail Cap(c_a), veh/h	212	249	206	226	0	249	563	1272	1311	104	933	962
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.79	0.79	0.79	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.3	53.6	54.8	48.6	0.0	51.5	32.6	0.0	0.0	57.7	18.3	18.3
Incr Delay (d2), s/veh	0.4	0.4	4.0	1.0	0.0	1.3	15.7	0.6	0.6	16.5	1.9	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.3	1.4	2.3	0.0	1.5	9.5	0.2	0.2	1.4	8.5	8.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.7	53.9	58.8	49.5	0.0	52.8	48.3	0.6	0.6	74.2	20.3	20.2
LnGrp LOS	D	D	E	D	A	D	D	A	A	E	C	C
Approach Vol, veh/h		79			132			1272			986	
Approach Delay, s/veh		55.8			50.8			14.4			22.4	
Approach LOS		E			D			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.1	89.9	11.0	10.9	31.1	67.0	7.4	14.5				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	7.0	73.5	6.5	16.0	37.9	42.6	5.1	17.4				
Max Q Clear Time (g_c+I1), s	4.6	2.0	7.0	5.2	25.7	22.3	3.6	5.4				
Green Ext Time (p_c), s	0.0	6.8	0.0	0.1	0.9	6.0	0.0	0.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			20.9									
HCM 6th LOS			C									

Lanes, Volumes, Timings  
2: Lincoln Ave. & SR-91 WB Ramps

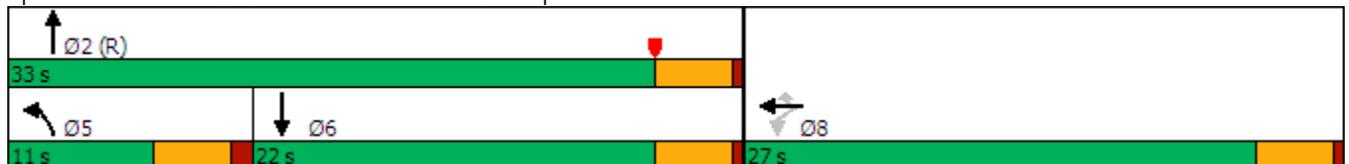
EAP (2025) AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	407	135	517	207	627	0	0	429	481
Future Volume (vph)	0	0	0	407	135	517	207	627	0	0	429	481
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	0		320	420		150	150		150
Storage Lanes	0		0	1		2	2		0	0		0
Taper Length (ft)	90			120			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			35				35
Link Distance (ft)		1035			1181			839				507
Travel Time (s)		23.5			26.8			16.3				9.9
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Shared Lane Traffic (%)				34%								
Turn Type				Perm	NA	Perm	Prot	NA				NA
Protected Phases					8		5	2				6
Permitted Phases				8		8						
Detector Phase				8	8	8	5	2				6
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0	5.0	4.0				4.0
Minimum Split (s)				20.0	20.0	20.0	9.5	20.0				20.0
Total Split (s)				27.0	27.0	27.0	11.0	33.0				22.0
Total Split (%)				45.0%	45.0%	45.0%	18.3%	55.0%				36.7%
Yellow Time (s)				3.5	3.5	3.5	3.5	3.5				3.5
All-Red Time (s)				0.5	0.5	0.5	1.0	0.5				0.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0				0.0
Total Lost Time (s)				4.0	4.0	4.0	4.5	4.0				4.0
Lead/Lag							Lead					Lag
Lead-Lag Optimize?							Yes					Yes
Recall Mode				None	None	None	None	C-Max				None

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT, Start of Yellow  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated

Splits and Phases: 2: Lincoln Ave. & SR-91 WB Ramps



HCM 6th Signalized Intersection Summary  
2: Lincoln Ave. & SR-91 WB Ramps

EAP (2025) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	407	135	517	207	627	0	0	429	481
Future Volume (veh/h)	0	0	0	407	135	517	207	627	0	0	429	481
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				288	346	550	220	667	0	0	456	512
Peak Hour Factor				0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				671	704	594	321	1742	0	0	573	508
Arrive On Green				0.38	0.38	0.38	0.12	0.65	0.00	0.00	0.43	0.43
Sat Flow, veh/h				1781	1870	1579	3456	3647	0	0	1870	1578
Grp Volume(v), veh/h				288	346	550	220	667	0	0	456	512
Grp Sat Flow(s),veh/h/ln				1781	1870	1579	1728	1777	0	0	1777	1578
Q Serve(g_s), s				7.2	8.5	20.0	3.7	5.2	0.0	0.0	13.4	19.3
Cycle Q Clear(g_c), s				7.2	8.5	20.0	3.7	5.2	0.0	0.0	13.4	19.3
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				671	704	594	321	1742	0	0	573	508
V/C Ratio(X)				0.43	0.49	0.93	0.69	0.38	0.00	0.00	0.80	1.01
Avail Cap(c_a), veh/h				683	717	605	374	1742	0	0	573	508
HCM Platoon Ratio				1.00	1.00	1.00	1.33	1.33	1.00	1.00	1.33	1.33
Upstream Filter(I)				1.00	1.00	1.00	0.89	0.89	0.00	0.00	0.86	0.86
Uniform Delay (d), s/veh				13.9	14.3	17.9	25.5	6.2	0.0	0.0	15.4	17.1
Incr Delay (d2), s/veh				0.4	0.5	20.1	3.7	0.6	0.0	0.0	6.7	38.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.7	3.3	9.7	1.5	1.5	0.0	0.0	5.1	10.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				14.3	14.8	38.0	29.2	6.8	0.0	0.0	22.2	56.0
LnGrp LOS				B	B	D	C	A	A	A	C	F
Approach Vol, veh/h				1184			887			968		
Approach Delay, s/veh				25.5			12.4			40.0		
Approach LOS				C			B			D		
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		33.4			10.1	23.3		26.6				
Change Period (Y+Rc), s		4.0			4.5	4.0		4.0				
Max Green Setting (Gmax), s		29.0			6.5	18.0		23.0				
Max Q Clear Time (g_c+I1), s		7.2			5.7	21.3		22.0				
Green Ext Time (p_c), s		4.5			0.1	0.0		0.6				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				26.3								
HCM 6th LOS				C								
<b>Notes</b>												
User approved volume balancing among the lanes for turning movement.												

Lanes, Volumes, Timings  
3: Lincoln Ave. & D St./2nd St.

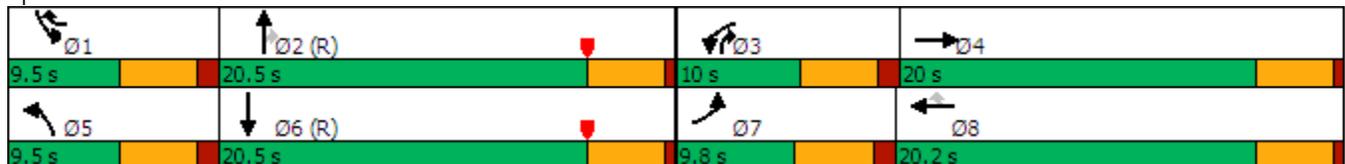
EAP (2025) AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	144	45	104	65	290	65	500	470	203	512	96
Future Volume (vph)	44	144	45	104	65	290	65	500	470	203	512	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		65	155		155	165		310	220		150
Storage Lanes	1		1	2		0	1		1	2		0
Taper Length (ft)	30			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		358			549			551			839	
Travel Time (s)		7.0			10.7			10.7			16.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases						8			2			
Detector Phase	7	4		3	8	1	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	
Minimum Split (s)	9.5	20.0		9.5	20.0	9.5	9.5	20.0	9.5	9.5	20.0	
Total Split (s)	9.8	20.0		10.0	20.2	9.5	9.5	20.5	10.0	9.5	20.5	
Total Split (%)	16.3%	33.3%		16.7%	33.7%	15.8%	15.8%	34.2%	16.7%	15.8%	34.2%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	0.5		1.0	0.5	1.0	1.0	0.5	1.0	1.0	0.5	
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)	4.5	4.0		4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow, Master Intersection  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 3: Lincoln Ave. & D St./2nd St.



HCM 6th Signalized Intersection Summary  
 3: Lincoln Ave. & D St./2nd St.

EAP (2025) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				 				 		 	 	 
Traffic Volume (veh/h)	44	144	45	104	65	290	65	500	470	203	512	96
Future Volume (veh/h)	44	144	45	104	65	290	65	500	470	203	512	96
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	46	150	47	108	68	302	68	521	490	211	533	100
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	79	262	82	240	406	473	101	1321	697	288	1190	222
Arrive On Green	0.04	0.19	0.19	0.02	0.07	0.07	0.06	0.37	0.37	0.08	0.40	0.40
Sat Flow, veh/h	1781	1363	427	3456	1870	1574	1781	3554	1579	3456	2985	558
Grp Volume(v), veh/h	46	0	197	108	68	302	68	521	490	211	316	317
Grp Sat Flow(s),veh/h/ln	1781	0	1790	1728	1870	1574	1781	1777	1579	1728	1777	1766
Q Serve(g_s), s	1.5	0.0	6.0	1.9	2.0	10.2	2.2	6.5	15.1	3.6	7.8	7.9
Cycle Q Clear(g_c), s	1.5	0.0	6.0	1.9	2.0	10.2	2.2	6.5	15.1	3.6	7.8	7.9
Prop In Lane	1.00		0.24	1.00		1.00	1.00		1.00	1.00		0.32
Lane Grp Cap(c), veh/h	79	0	343	240	406	473	101	1321	697	288	708	704
V/C Ratio(X)	0.58	0.00	0.57	0.45	0.17	0.64	0.68	0.39	0.70	0.73	0.45	0.45
Avail Cap(c_a), veh/h	157	0	477	317	505	557	148	1321	697	288	708	704
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.97	0.97	0.97	1.00	1.00	1.00	0.72	0.72	0.72
Uniform Delay (d), s/veh	28.1	0.0	22.0	28.2	22.8	21.6	27.8	13.9	13.6	26.8	13.2	13.2
Incr Delay (d2), s/veh	6.5	0.0	1.5	1.3	0.2	1.8	7.6	0.9	5.8	6.8	1.5	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	2.4	0.8	0.9	4.2	1.1	2.4	5.5	1.6	2.9	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.6	0.0	23.5	29.5	23.0	23.5	35.4	14.8	19.4	33.6	14.7	14.7
LnGrp LOS	C	A	C	C	C	C	D	B	B	C	B	B
Approach Vol, veh/h		243			478			1079			844	
Approach Delay, s/veh		25.6			24.7			18.2			19.4	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	26.3	8.7	15.5	7.9	27.9	7.2	17.0				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	5.0	16.5	5.5	16.0	5.0	16.5	5.3	16.2				
Max Q Clear Time (g_c+I1), s	5.6	17.1	3.9	8.0	4.2	9.9	3.5	12.2				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.6	0.0	2.1	0.0	0.6				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			20.4									
HCM 6th LOS			C									

Lanes, Volumes, Timings  
4: Lincoln Ave. & 6th St.

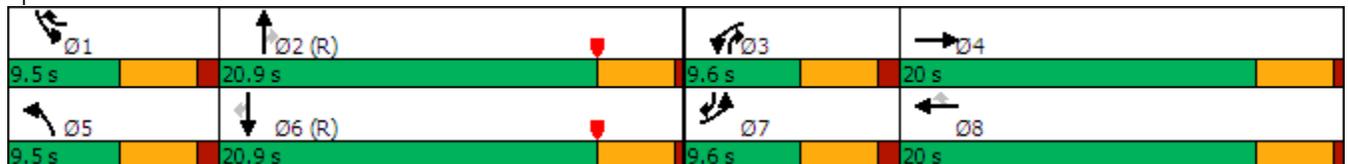
EAP (2025) AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	255	18	91	744	88	82	790	101	36	354	247
Future Volume (vph)	139	255	18	91	744	88	82	790	101	36	354	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	205		150	175		90	150		95	110		150
Storage Lanes	2		0	2		1	1		1	1		1
Taper Length (ft)	90			120			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		413			447			466			504	
Travel Time (s)		8.0			8.7			9.1			9.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0
Minimum Split (s)	9.5	20.0		9.5	20.0	9.5	9.5	20.0	9.5	9.5	20.0	9.5
Total Split (s)	9.6	20.0		9.6	20.0	9.5	9.5	20.9	9.6	9.5	20.9	9.6
Total Split (%)	16.0%	33.3%		16.0%	33.3%	15.8%	15.8%	34.8%	16.0%	15.8%	34.8%	16.0%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	0.5		1.0	0.5	1.0	1.0	0.5	1.0	1.0	0.5	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)	4.5	4.0		4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 4: Lincoln Ave. & 6th St.



HCM 6th Signalized Intersection Summary  
4: Lincoln Ave. & 6th St.

EAP (2025) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	139	255	18	91	744	88	82	790	101	36	354	247
Future Volume (veh/h)	139	255	18	91	744	88	82	790	101	36	354	247
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	154	283	20	101	827	98	91	878	112	40	393	274
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	266	916	64	234	935	479	116	1195	638	72	1107	613
Arrive On Green	0.08	0.27	0.27	0.07	0.26	0.26	0.07	0.34	0.34	0.04	0.31	0.31
Sat Flow, veh/h	3456	3367	237	3456	3554	1576	1781	3554	1578	1781	3554	1577
Grp Volume(v), veh/h	154	149	154	101	827	98	91	878	112	40	393	274
Grp Sat Flow(s),veh/h/ln	1728	1777	1826	1728	1777	1576	1781	1777	1578	1781	1777	1577
Q Serve(g_s), s	2.6	4.0	4.0	1.7	13.4	2.8	3.0	13.1	2.7	1.3	5.1	7.7
Cycle Q Clear(g_c), s	2.6	4.0	4.0	1.7	13.4	2.8	3.0	13.1	2.7	1.3	5.1	7.7
Prop In Lane	1.00		0.13	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	266	484	497	234	935	479	116	1195	638	72	1107	613
V/C Ratio(X)	0.58	0.31	0.31	0.43	0.88	0.20	0.78	0.73	0.18	0.55	0.36	0.45
Avail Cap(c_a), veh/h	294	484	497	294	948	485	148	1195	638	148	1107	613
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.8	17.3	17.4	26.9	21.2	15.5	27.6	17.6	11.5	28.3	16.0	13.6
Incr Delay (d2), s/veh	2.3	0.4	0.4	1.2	9.9	0.2	18.4	4.0	0.6	6.5	0.9	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	1.5	1.6	0.7	6.2	0.9	1.8	5.3	0.9	0.7	2.0	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.1	17.7	17.7	28.1	31.2	15.7	46.0	21.6	12.1	34.7	16.9	15.9
LnGrp LOS	C	B	B	C	C	B	D	C	B	C	B	B
Approach Vol, veh/h		457			1026			1081			707	
Approach Delay, s/veh		21.5			29.4			22.7			17.5	
Approach LOS		C			C			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.9	24.2	8.6	20.3	8.4	22.7	9.1	19.8				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	5.0	16.9	5.1	16.0	5.0	16.9	5.1	16.0				
Max Q Clear Time (g_c+I1), s	3.3	15.1	3.7	6.0	5.0	9.7	4.6	15.4				
Green Ext Time (p_c), s	0.0	1.1	0.0	1.1	0.0	2.1	0.0	0.4				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				23.5								
HCM 6th LOS				C								

Lanes, Volumes, Timings  
5: 2nd St. & SR-91 EB Ramps

EAP (2025) AM Peak Hour

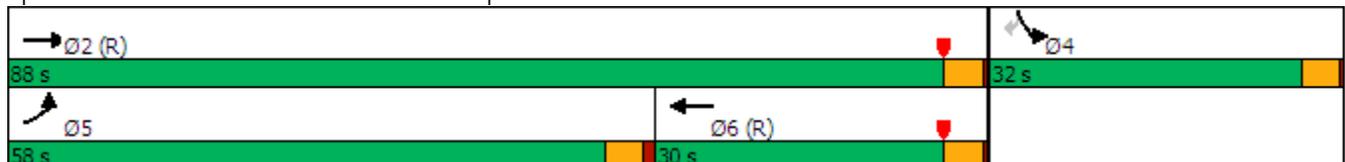


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖↗	↑	↕↔		↖↗	↗
Traffic Volume (vph)	694	116	156	121	173	303
Future Volume (vph)	694	116	156	121	173	303
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190			150	450	150
Storage Lanes	0			0	0	0
Taper Length (ft)	60				90	
Right Turn on Red				Yes		Yes
Link Speed (mph)		35	35		30	
Link Distance (ft)		549	319		407	
Travel Time (s)		10.7	6.2		9.3	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Shared Lane Traffic (%)						50%
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	5.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.5	20.0	20.0		20.0	20.0
Total Split (s)	58.0	88.0	30.0		32.0	32.0
Total Split (%)	48.3%	73.3%	25.0%		26.7%	26.7%
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	0.5	0.5		0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.0	4.0		4.0	4.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Recall Mode	None	C-Max	C-Max		Max	Max

Intersection Summary

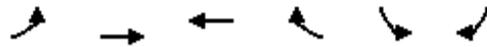
Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 5: 2nd St. & SR-91 EB Ramps



HCM 6th Signalized Intersection Summary  
5: 2nd St. & SR-91 EB Ramps

EAP (2025) AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	694	116	156	121	173	303
Future Volume (veh/h)	694	116	156	121	173	303
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	738	123	166	129	169	338
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	828	1309	827	602	416	740
Arrive On Green	0.40	1.00	0.42	0.42	0.23	0.23
Sat Flow, veh/h	3456	1870	2050	1425	1781	3170
Grp Volume(v), veh/h	738	123	150	145	169	338
Grp Sat Flow(s),veh/h/ln	1728	1870	1777	1604	1781	1585
Q Serve(g_s), s	23.9	0.0	6.4	6.9	9.6	11.0
Cycle Q Clear(g_c), s	23.9	0.0	6.4	6.9	9.6	11.0
Prop In Lane	1.00			0.89	1.00	1.00
Lane Grp Cap(c), veh/h	828	1309	751	678	416	740
V/C Ratio(X)	0.89	0.09	0.20	0.21	0.41	0.46
Avail Cap(c_a), veh/h	1541	1309	751	678	416	740
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.82	0.82	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.5	0.0	21.8	22.0	39.0	39.5
Incr Delay (d2), s/veh	3.0	0.1	0.6	0.7	2.9	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.8	0.0	2.8	2.7	4.6	10.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	37.5	0.1	22.4	22.7	41.9	41.5
LnGrp LOS	D	A	C	C	D	D
Approach Vol, veh/h		861	295		507	
Approach Delay, s/veh		32.1	22.6		41.6	
Approach LOS		C	C		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		88.0		32.0	33.3	54.7
Change Period (Y+Rc), s		4.0		4.0	4.5	4.0
Max Green Setting (Gmax), s		84.0		28.0	53.5	26.0
Max Q Clear Time (g_c+I1), s		2.0		13.0	25.9	8.9
Green Ext Time (p_c), s		0.7		1.7	2.9	1.5

Intersection Summary

HCM 6th Ctrl Delay	33.3
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings  
6: Buena Vista Ave. & 2nd St.

EAP (2025) AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	104	103	71	117	27	90	151	17	35	153	45
Future Volume (vph)	63	104	103	71	117	27	90	151	17	35	153	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		50	150		150	95		150	95		150
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	90			90			60			60		
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		528			733			392			629	
Travel Time (s)		10.3			14.3			8.9			14.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	14.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↔		↖	↗		↖	↗	
Traffic Vol, veh/h	63	104	103	71	117	27	90	151	17	35	153	45
Future Vol, veh/h	63	104	103	71	117	27	90	151	17	35	153	45
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	76	125	124	86	141	33	108	182	20	42	184	54
Number of Lanes	0	1	1	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	13.4	17.7	13.8	15
HCM LOS	B	C	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	38%	0%	33%	100%	0%
Vol Thru, %	0%	90%	62%	0%	54%	0%	77%
Vol Right, %	0%	10%	0%	100%	13%	0%	23%
Sign Control	Stop						
Traffic Vol by Lane	90	168	167	103	215	35	198
LT Vol	90	0	63	0	71	35	0
Through Vol	0	151	104	0	117	0	153
RT Vol	0	17	0	103	27	0	45
Lane Flow Rate	108	202	201	124	259	42	239
Geometry Grp	7	7	7	7	6	7	7
Degree of Util (X)	0.23	0.396	0.406	0.219	0.516	0.09	0.464
Departure Headway (Hd)	7.622	7.037	7.272	6.363	7.167	7.674	6.998
Convergence, Y/N	Yes						
Cap	471	510	495	563	503	467	515
Service Time	5.373	4.787	5.022	4.114	5.217	5.424	4.748
HCM Lane V/C Ratio	0.229	0.396	0.406	0.22	0.515	0.09	0.464
HCM Control Delay	12.6	14.4	14.9	10.9	17.7	11.2	15.7
HCM Lane LOS	B	B	B	B	C	B	C
HCM 95th-tile Q	0.9	1.9	1.9	0.8	2.9	0.3	2.4

Lanes, Volumes, Timings  
 7: Cardenas Dwy./Project Dwy. 1 & 2nd St.

EAP (2025) AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 				 			 
Traffic Volume (vph)	0	271	14	0	238	39	0	0	23	0	0	39
Future Volume (vph)	0	271	14	0	238	39	0	0	23	0	0	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		319			197			217			156	
Travel Time (s)		6.2			3.8			4.9			3.5	
Confl. Peds. (#/hr)			5	5			5		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
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑				↑			↑
Traffic Vol, veh/h	0	271	14	0	238	39	0	0	23	0	0	39
Future Vol, veh/h	0	271	14	0	238	39	0	0	23	0	0	39
Conflicting Peds, #/hr	0	0	5	5	0	0	5	0	5	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	295	15	0	259	42	0	0	25	0	0	42

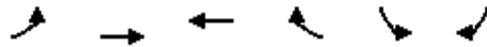
Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	-	0	0	-	-	0	-	-	165	-	-	151
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	850	0	0	868
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	842	-	-	868
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	9.4	9.4
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	842	-	-	-	-	868
HCM Lane V/C Ratio	0.03	-	-	-	-	0.049
HCM Control Delay (s)	9.4	-	-	-	-	9.4
HCM Lane LOS	A	-	-	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	-	0.2

Lanes, Volumes, Timings  
8: 2nd St. & Project Dwy. 2

EAP (2025) AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	91	203	227	25	65	50
Future Volume (vph)	91	203	227	25	65	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	245			50	0	0
Storage Lanes	0			1	1	0
Taper Length (ft)	90				90	
Link Speed (mph)		35	35		30	
Link Distance (ft)		197	196		131	
Travel Time (s)		3.8	3.8		3.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection						
Int Delay, s/veh	3.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	91	203	227	25	65	50
Future Vol, veh/h	91	203	227	25	65	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	50	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	99	221	247	27	71	54

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	274	0	-	0	680
Stage 1	-	-	-	-	261
Stage 2	-	-	-	-	419
Critical Hdwy	4.13	-	-	-	6.63
Critical Hdwy Stg 1	-	-	-	-	5.83
Critical Hdwy Stg 2	-	-	-	-	5.43
Follow-up Hdwy	2.219	-	-	-	3.519
Pot Cap-1 Maneuver	1288	-	-	-	400
Stage 1	-	-	-	-	760
Stage 2	-	-	-	-	663
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1288	-	-	-	369
Mov Cap-2 Maneuver	-	-	-	-	369
Stage 1	-	-	-	-	701
Stage 2	-	-	-	-	663

Approach	EB	WB	SB
HCM Control Delay, s	2.5	0	14.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1288	-	-	-	495
HCM Lane V/C Ratio	0.077	-	-	-	0.253
HCM Control Delay (s)	8	-	-	-	14.7
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	1

Lanes, Volumes, Timings  
1: Lincoln Ave. & Pomona Rd.

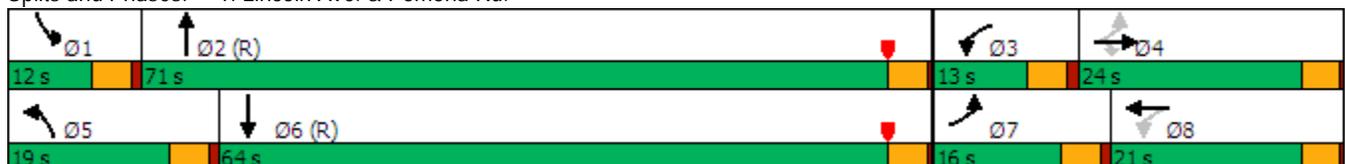
EAP (2022) PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	121	32	182	90	19	18	83	641	72	29	963	48
Future Volume (vph)	121	32	182	90	19	18	83	641	72	29	963	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		160	75		150	300		150	90		150
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	30			90			60			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		328			795			507			349	
Travel Time (s)		7.5			18.1			9.9			6.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8								
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	4.0	4.0	5.0	4.0		5.0	4.0		5.0	4.0	
Minimum Split (s)	9.5	20.0	20.0	9.5	20.0		9.5	20.0		9.5	20.0	
Total Split (s)	16.0	24.0	24.0	13.0	21.0		19.0	71.0		12.0	64.0	
Total Split (%)	13.3%	20.0%	20.0%	10.8%	17.5%		15.8%	59.2%		10.0%	53.3%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	0.5	0.5	1.0	0.5		1.0	0.5		1.0	0.5	
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)	4.5	4.0	4.0	4.5	4.0		4.5	4.0		4.5	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Lincoln Ave. & Pomona Rd.



HCM 6th Signalized Intersection Summary  
1: Lincoln Ave. & Pomona Rd.

EAP (2022) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	121	32	182	90	19	18	83	641	72	29	963	48
Future Volume (veh/h)	121	32	182	90	19	18	83	641	72	29	963	48
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	133	35	200	99	21	20	91	704	79	32	1058	53
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	344	269	226	314	110	105	114	2012	226	49	2026	101
Arrive On Green	0.08	0.14	0.14	0.06	0.13	0.13	0.13	1.00	1.00	0.03	0.59	0.59
Sat Flow, veh/h	1781	1870	1569	1781	875	833	1781	3220	361	1781	3443	172
Grp Volume(v), veh/h	133	35	200	99	0	41	91	388	395	32	546	565
Grp Sat Flow(s),veh/h/ln	1781	1870	1569	1781	0	1708	1781	1777	1804	1781	1777	1838
Q Serve(g_s), s	7.7	2.0	15.0	5.7	0.0	2.6	6.0	0.0	0.0	2.1	21.9	21.9
Cycle Q Clear(g_c), s	7.7	2.0	15.0	5.7	0.0	2.6	6.0	0.0	0.0	2.1	21.9	21.9
Prop In Lane	1.00		1.00	1.00		0.49	1.00		0.20	1.00		0.09
Lane Grp Cap(c), veh/h	344	269	226	314	0	215	114	1111	1127	49	1046	1082
V/C Ratio(X)	0.39	0.13	0.89	0.32	0.00	0.19	0.80	0.35	0.35	0.66	0.52	0.52
Avail Cap(c_a), veh/h	372	312	261	329	0	242	215	1111	1127	111	1046	1082
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.96	0.96	0.96	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.9	44.8	50.4	41.9	0.0	47.0	51.6	0.0	0.0	57.8	14.7	14.7
Incr Delay (d2), s/veh	0.7	0.2	26.1	0.6	0.0	0.4	11.7	0.8	0.8	14.0	1.9	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	0.9	7.5	2.6	0.0	1.1	2.9	0.3	0.3	1.1	8.9	9.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.6	45.0	76.5	42.5	0.0	47.4	63.3	0.8	0.8	71.9	16.5	16.5
LnGrp LOS	D	D	E	D	A	D	E	A	A	E	B	B
Approach Vol, veh/h		368			140			874			1143	
Approach Delay, s/veh		60.9			43.9			7.3			18.0	
Approach LOS		E			D			A			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.8	79.0	12.0	21.3	12.2	74.6	14.1	19.1				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	7.5	67.0	8.5	20.0	14.5	60.0	11.5	17.0				
Max Q Clear Time (g_c+I1), s	4.1	2.0	7.7	17.0	8.0	23.9	9.7	4.6				
Green Ext Time (p_c), s	0.0	5.6	0.0	0.2	0.1	8.8	0.1	0.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			22.0									
HCM 6th LOS			C									

Lanes, Volumes, Timings  
2: Lincoln Ave. & SR-91 WB Ramps

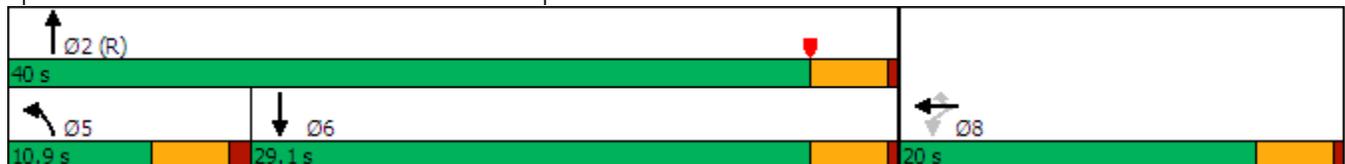
EAP (2022) PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	621	24	222	215	574	0	0	782	429
Future Volume (vph)	0	0	0	621	24	222	215	574	0	0	782	429
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	0		320	420		150	150		150
Storage Lanes	0		0	1		2	2		0	0		0
Taper Length (ft)	90			120			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			35				35
Link Distance (ft)		1035			1181			839				507
Travel Time (s)		23.5			26.8			16.3				9.9
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		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
Shared Lane Traffic (%)				48%								
Turn Type				Perm	NA	Perm	Prot	NA				NA
Protected Phases					8		5	2				6
Permitted Phases				8		8						
Detector Phase				8	8	8	5	2				6
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0	5.0	4.0				4.0
Minimum Split (s)				20.0	20.0	20.0	9.5	20.0				20.0
Total Split (s)				20.0	20.0	20.0	10.9	40.0				29.1
Total Split (%)				33.3%	33.3%	33.3%	18.2%	66.7%				48.5%
Yellow Time (s)				3.5	3.5	3.5	3.5	3.5				3.5
All-Red Time (s)				0.5	0.5	0.5	1.0	0.5				0.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0				0.0
Total Lost Time (s)				4.0	4.0	4.0	4.5	4.0				4.0
Lead/Lag							Lead					Lag
Lead-Lag Optimize?							Yes					Yes
Recall Mode				None	None	None	None	C-Max				None

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 2: Lincoln Ave. & SR-91 WB Ramps



HCM 6th Signalized Intersection Summary  
2: Lincoln Ave. & SR-91 WB Ramps

EAP (2022) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	621	24	222	215	574	0	0	782	429
Future Volume (veh/h)	0	0	0	621	24	222	215	574	0	0	782	429
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No		No			No
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				694	0	241	234	624	0	0	850	466
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				846	0	374	335	2236	0	0	1016	551
Arrive On Green				0.24	0.00	0.24	0.13	0.84	0.00	0.00	0.15	0.15
Sat Flow, veh/h				3563	0	1575	3456	3647	0	0	2316	1204
Grp Volume(v), veh/h				694	0	241	234	624	0	0	678	638
Grp Sat Flow(s),veh/h/ln				1781	0	1575	1728	1777	0	0	1777	1649
Q Serve(g_s), s				11.1	0.0	8.3	3.9	2.2	0.0	0.0	22.2	22.6
Cycle Q Clear(g_c), s				11.1	0.0	8.3	3.9	2.2	0.0	0.0	22.2	22.6
Prop In Lane				1.00		1.00	1.00		0.00	0.00		0.73
Lane Grp Cap(c), veh/h				846	0	374	335	2236	0	0	813	754
V/C Ratio(X)				0.82	0.00	0.64	0.70	0.28	0.00	0.00	0.83	0.85
Avail Cap(c_a), veh/h				950	0	420	369	2236	0	0	813	754
HCM Platoon Ratio				1.00	1.00	1.00	1.33	1.33	1.00	1.00	0.33	0.33
Upstream Filter(I)				1.00	0.00	1.00	0.88	0.88	0.00	0.00	0.83	0.83
Uniform Delay (d), s/veh				21.7	0.0	20.6	25.3	2.0	0.0	0.0	23.3	23.4
Incr Delay (d2), s/veh				5.3	0.0	2.8	4.5	0.3	0.0	0.0	6.3	7.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.9	0.0	3.1	1.7	0.5	0.0	0.0	11.6	11.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				26.9	0.0	23.4	29.8	2.3	0.0	0.0	29.6	30.9
LnGrp LOS				C	A	C	C	A	A	A	C	C
Approach Vol, veh/h					935			858			1316	
Approach Delay, s/veh					26.0			9.8			30.2	
Approach LOS					C			A			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		41.8			10.3	31.4		18.2				
Change Period (Y+Rc), s		4.0			4.5	4.0		4.0				
Max Green Setting (Gmax), s		36.0			6.4	25.1		16.0				
Max Q Clear Time (g_c+I1), s		4.2			5.9	24.6		13.1				
Green Ext Time (p_c), s		4.5			0.0	0.4		1.2				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				23.3								
HCM 6th LOS				C								
<b>Notes</b>												
User approved volume balancing among the lanes for turning movement.												

Lanes, Volumes, Timings  
3: Lincoln Ave. & D St./2nd St.

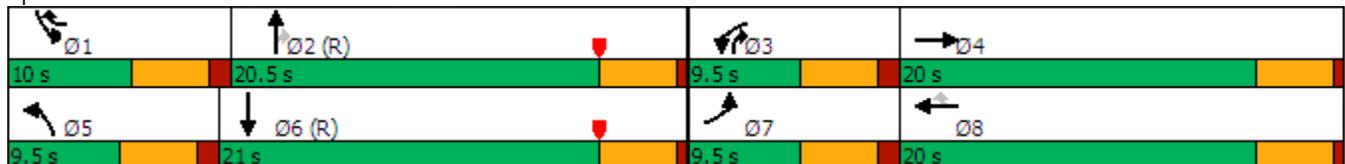
EAP (2022) PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	178	20	159	72	228	46	495	326	351	912	113
Future Volume (vph)	66	178	20	159	72	228	46	495	326	351	912	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		65	155		155	165		310	220		150
Storage Lanes	1		1	2		0	1		1	2		0
Taper Length (ft)	30			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		358			549			551			839	
Travel Time (s)		7.0			10.7			10.7			16.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases						8			2			
Detector Phase	7	4		3	8	1	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	
Minimum Split (s)	9.5	20.0		9.5	20.0	9.5	9.5	20.0	9.5	9.5	20.0	
Total Split (s)	9.5	20.0		9.5	20.0	10.0	9.5	20.5	9.5	10.0	21.0	
Total Split (%)	15.8%	33.3%		15.8%	33.3%	16.7%	15.8%	34.2%	15.8%	16.7%	35.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	0.5		1.0	0.5	1.0	1.0	0.5	1.0	1.0	0.5	
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)	4.5	4.0		4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow, Master Intersection  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated

Splits and Phases: 3: Lincoln Ave. & D St./2nd St.



HCM 6th Signalized Intersection Summary  
3: Lincoln Ave. & D St./2nd St.

EAP (2022) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				 				 		 	 	
Traffic Volume (veh/h)	66	178	20	159	72	228	46	495	326	351	912	113
Future Volume (veh/h)	66	178	20	159	72	228	46	495	326	351	912	113
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	69	187	21	167	76	240	48	521	343	369	960	119
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	101	270	30	270	346	436	82	1362	729	317	1364	169
Arrive On Green	0.06	0.16	0.16	0.03	0.06	0.06	0.05	0.38	0.38	0.09	0.43	0.43
Sat Flow, veh/h	1781	1650	185	3456	1870	1572	1781	3554	1579	3456	3180	394
Grp Volume(v), veh/h	69	0	208	167	76	240	48	521	343	369	536	543
Grp Sat Flow(s),veh/h/ln	1781	0	1835	1728	1870	1572	1781	1777	1579	1728	1777	1797
Q Serve(g_s), s	2.3	0.0	6.4	2.9	2.3	8.0	1.6	6.4	9.0	5.5	14.8	14.8
Cycle Q Clear(g_c), s	2.3	0.0	6.4	2.9	2.3	8.0	1.6	6.4	9.0	5.5	14.8	14.8
Prop In Lane	1.00		0.10	1.00		1.00	1.00		1.00	1.00		0.22
Lane Grp Cap(c), veh/h	101	0	300	270	346	436	82	1362	729	317	762	771
V/C Ratio(X)	0.68	0.00	0.69	0.62	0.22	0.55	0.59	0.38	0.47	1.16	0.70	0.70
Avail Cap(c_a), veh/h	148	0	489	288	499	565	148	1362	729	317	762	771
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.96	0.96	0.96	1.00	1.00	1.00	0.42	0.42	0.42
Uniform Delay (d), s/veh	27.8	0.0	23.7	28.3	24.1	21.4	28.1	13.4	11.1	27.2	14.0	14.0
Incr Delay (d2), s/veh	7.7	0.0	2.9	3.5	0.3	1.0	6.5	0.8	2.2	88.4	2.3	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	2.8	1.3	1.0	3.1	0.8	2.3	3.0	6.0	5.4	5.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.5	0.0	26.5	31.8	24.4	22.5	34.6	14.2	13.3	115.6	16.3	16.3
LnGrp LOS	D	A	C	C	C	C	C	B	B	F	B	B
Approach Vol, veh/h		277			483			912			1448	
Approach Delay, s/veh		28.8			26.0			14.9			41.6	
Approach LOS		C			C			B			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.0	27.0	9.2	13.8	7.3	29.7	7.9	15.1				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	5.5	16.5	5.0	16.0	5.0	17.0	5.0	16.0				
Max Q Clear Time (g_c+I1), s	7.5	11.0	4.9	8.4	3.6	16.8	4.3	10.0				
Green Ext Time (p_c), s	0.0	2.3	0.0	0.6	0.0	0.1	0.0	0.6				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			30.3									
HCM 6th LOS			C									

Lanes, Volumes, Timings  
4: Lincoln Ave. & 6th St.

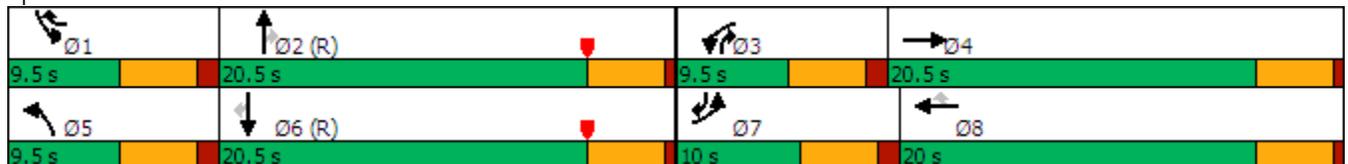
EAP (2022) PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	244	810	75	198	501	132	43	489	152	99	742	212
Future Volume (vph)	244	810	75	198	501	132	43	489	152	99	742	212
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	205		150	175		90	150		95	110		150
Storage Lanes	2		0	2		1	1		1	1		1
Taper Length (ft)	90			120			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		413			447			466			504	
Travel Time (s)		8.0			8.7			9.1			9.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0
Minimum Split (s)	9.5	20.0		9.5	20.0	9.5	9.5	20.0	9.5	9.5	20.0	9.5
Total Split (s)	10.0	20.5		9.5	20.0	9.5	9.5	20.5	9.5	9.5	20.5	10.0
Total Split (%)	16.7%	34.2%		15.8%	33.3%	15.8%	15.8%	34.2%	15.8%	15.8%	34.2%	16.7%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	0.5		1.0	0.5	1.0	1.0	0.5	1.0	1.0	0.5	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)	4.5	4.0		4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 4: Lincoln Ave. & 6th St.



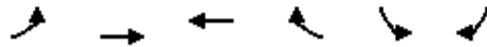
HCM 6th Signalized Intersection Summary  
4: Lincoln Ave. & 6th St.

EAP (2022) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	244	810	75	198	501	132	43	489	152	99	742	212
Future Volume (veh/h)	244	810	75	198	501	132	43	489	152	99	742	212
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	249	827	77	202	511	135	44	499	155	101	757	216
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	317	903	84	288	948	535	77	1016	583	129	1120	642
Arrive On Green	0.09	0.28	0.28	0.08	0.27	0.27	0.04	0.29	0.29	0.07	0.32	0.32
Sat Flow, veh/h	3456	3284	306	3456	3554	1576	1781	3554	1577	1781	3554	1578
Grp Volume(v), veh/h	249	447	457	202	511	135	44	499	155	101	757	216
Grp Sat Flow(s),veh/h/ln	1728	1777	1813	1728	1777	1576	1781	1777	1577	1781	1777	1578
Q Serve(g_s), s	4.2	14.6	14.6	3.4	7.4	3.7	1.5	7.0	4.1	3.3	11.1	5.6
Cycle Q Clear(g_c), s	4.2	14.6	14.6	3.4	7.4	3.7	1.5	7.0	4.1	3.3	11.1	5.6
Prop In Lane	1.00		0.17	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	317	489	499	288	948	535	77	1016	583	129	1120	642
V/C Ratio(X)	0.79	0.92	0.92	0.70	0.54	0.25	0.57	0.49	0.27	0.78	0.68	0.34
Avail Cap(c_a), veh/h	317	489	499	288	948	535	148	1016	583	148	1120	642
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.7	21.1	21.1	26.8	18.8	14.3	28.2	17.8	13.2	27.4	17.9	12.2
Incr Delay (d2), s/veh	12.3	22.0	21.7	7.4	0.6	0.2	6.5	1.7	1.1	20.6	3.3	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	8.3	8.5	1.6	2.8	1.2	0.7	2.8	1.5	2.1	4.5	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.0	43.0	42.7	34.2	19.5	14.6	34.6	19.5	14.4	47.9	21.2	13.6
LnGrp LOS	D	D	D	C	B	B	C	B	B	D	C	B
Approach Vol, veh/h		1153			848			698			1074	
Approach Delay, s/veh		42.0			22.2			19.3			22.2	
Approach LOS		D			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.9	21.1	9.5	20.5	7.1	22.9	10.0	20.0				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	5.0	16.5	5.0	16.5	5.0	16.5	5.5	16.0				
Max Q Clear Time (g_c+I1), s	5.3	9.0	5.4	16.6	3.5	13.1	6.2	9.4				
Green Ext Time (p_c), s	0.0	2.2	0.0	0.0	0.0	1.8	0.0	2.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				27.7								
HCM 6th LOS				C								

Lanes, Volumes, Timings  
5: 2nd St. & SR-91 EB Ramps

EAP (2022) PM Peak Hour

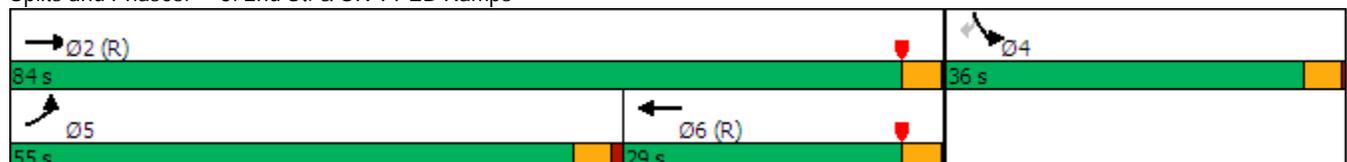


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	684	168	141	104	296	317
Future Volume (vph)	684	168	141	104	296	317
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190			150	450	150
Storage Lanes	0			0	0	0
Taper Length (ft)	60				90	
Right Turn on Red				Yes		Yes
Link Speed (mph)		35	35		30	
Link Distance (ft)		549	319		407	
Travel Time (s)		10.7	6.2		9.3	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)						39%
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	5.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.5	20.0	20.0		20.0	20.0
Total Split (s)	55.0	84.0	29.0		36.0	36.0
Total Split (%)	45.8%	70.0%	24.2%		30.0%	30.0%
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	0.5	0.5		0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.0	4.0		4.0	4.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Recall Mode	None	C-Max	C-Max		Max	Max

Intersection Summary

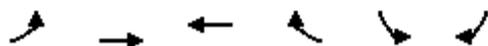
Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 5: 2nd St. & SR-91 EB Ramps



HCM 6th Signalized Intersection Summary  
5: 2nd St. & SR-91 EB Ramps

EAP (2022) PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	684	168	141	104	296	317
Future Volume (veh/h)	684	168	141	104	296	317
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	752	185	155	114	440	224
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	842	1247	774	533	950	423
Arrive On Green	0.41	1.00	0.39	0.39	0.27	0.27
Sat Flow, veh/h	3456	1870	2100	1381	3563	1585
Grp Volume(v), veh/h	752	185	136	133	440	224
Grp Sat Flow(s),veh/h/ln	1728	1870	1777	1611	1781	1585
Q Serve(g_s), s	24.3	0.0	6.1	6.6	12.4	14.5
Cycle Q Clear(g_c), s	24.3	0.0	6.1	6.6	12.4	14.5
Prop In Lane	1.00			0.86	1.00	1.00
Lane Grp Cap(c), veh/h	842	1247	685	621	950	423
V/C Ratio(X)	0.89	0.15	0.20	0.21	0.46	0.53
Avail Cap(c_a), veh/h	1454	1247	685	621	950	423
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.81	0.81	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.1	0.0	24.5	24.7	36.8	37.6
Incr Delay (d2), s/veh	3.3	0.2	0.6	0.8	1.6	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.0	0.1	2.7	2.7	5.6	13.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	37.4	0.2	25.2	25.5	38.4	42.3
LnGrp LOS	D	A	C	C	D	D
Approach Vol, veh/h		937	269		664	
Approach Delay, s/veh		30.1	25.3		39.7	
Approach LOS		C	C		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		84.0		36.0	33.7	50.3
Change Period (Y+Rc), s		4.0		4.0	4.5	4.0
Max Green Setting (Gmax), s		80.0		32.0	50.5	25.0
Max Q Clear Time (g_c+I1), s		2.0		16.5	26.3	8.6
Green Ext Time (p_c), s		1.1		2.2	2.9	1.3

Intersection Summary

HCM 6th Ctrl Delay	32.8
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings  
6: Buena Vista Ave. & 2nd St.

EAP (2022) PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	297	115	24	86	22	77	136	32	57	163	54
Future Volume (vph)	78	297	115	24	86	22	77	136	32	57	163	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		50	150		150	95		150	95		150
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	90			90			60			60		
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		528			733			392			629	
Travel Time (s)		10.3			14.3			8.9			14.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											

Intersection	
Intersection Delay, s/veh	18.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕		↕	↕		↕	↕	
Traffic Vol, veh/h	78	297	115	24	86	22	77	136	32	57	163	54
Future Vol, veh/h	78	297	115	24	86	22	77	136	32	57	163	54
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	83	316	122	26	91	23	82	145	34	61	173	57
Number of Lanes	0	1	1	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	23.7	13.5	13.3	14.7
HCM LOS	C	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	21%	0%	18%	100%	0%
Vol Thru, %	0%	81%	79%	0%	65%	0%	75%
Vol Right, %	0%	19%	0%	100%	17%	0%	25%
Sign Control	Stop						
Traffic Vol by Lane	77	168	375	115	132	57	217
LT Vol	77	0	78	0	24	57	0
Through Vol	0	136	297	0	86	0	163
RT Vol	0	32	0	115	22	0	54
Lane Flow Rate	82	179	399	122	140	61	231
Geometry Grp	7	7	7	7	6	7	7
Degree of Util (X)	0.178	0.355	0.757	0.204	0.289	0.13	0.452
Departure Headway (Hd)	7.802	7.152	6.83	6.012	7.404	7.735	7.043
Convergence, Y/N	Yes						
Cap	460	502	535	601	484	463	510
Service Time	5.555	4.904	4.53	3.712	5.459	5.485	4.793
HCM Lane V/C Ratio	0.178	0.357	0.746	0.203	0.289	0.132	0.453
HCM Control Delay	12.2	13.8	27.8	10.2	13.5	11.6	15.5
HCM Lane LOS	B	B	D	B	B	B	C
HCM 95th-tile Q	0.6	1.6	6.6	0.8	1.2	0.4	2.3

Lanes, Volumes, Timings  
 7: Cardenas Dwy./Project Dwy. 1 & 2nd St.

EAP (2022) PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 				 			 
Traffic Volume (vph)	0	422	31	0	204	41	0	0	84	0	0	41
Future Volume (vph)	0	422	31	0	204	41	0	0	84	0	0	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		319			197			217			156	
Travel Time (s)		6.2			3.8			4.9			3.5	
Confl. Peds. (#/hr)			5	5			5		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
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑				↑			↑
Traffic Vol, veh/h	0	422	31	0	204	41	0	0	84	0	0	41
Future Vol, veh/h	0	422	31	0	204	41	0	0	84	0	0	41
Conflicting Peds, #/hr	0	0	5	5	0	0	5	0	5	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	459	34	0	222	45	0	0	91	0	0	45

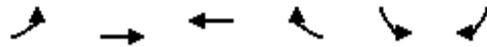
Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	-	0	0	-	-	0	-	-	257	-	-	134
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	742	0	0	890
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	735	-	-	890
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	10.6	9.3
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	735	-	-	-	-	890
HCM Lane V/C Ratio	0.124	-	-	-	-	0.05
HCM Control Delay (s)	10.6	-	-	-	-	9.3
HCM Lane LOS	B	-	-	-	-	A
HCM 95th %tile Q(veh)	0.4	-	-	-	-	0.2

Lanes, Volumes, Timings  
8: 2nd St. & Project Dwy. 2

EAP (2022) PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	96	411	192	25	65	53
Future Volume (vph)	96	411	192	25	65	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	245			50	0	0
Storage Lanes	0			1	1	0
Taper Length (ft)	90				90	
Link Speed (mph)		35	35		30	
Link Distance (ft)		197	196		131	
Travel Time (s)		3.8	3.8		3.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection						
Int Delay, s/veh	3.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↙	↑	↑↑		↘	
Traffic Vol, veh/h	96	411	192	25	65	53
Future Vol, veh/h	96	411	192	25	65	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	50	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	104	447	209	27	71	58

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	236	0	-	0	878 118
Stage 1	-	-	-	-	223 -
Stage 2	-	-	-	-	655 -
Critical Hdwy	4.13	-	-	-	6.63 6.93
Critical Hdwy Stg 1	-	-	-	-	5.83 -
Critical Hdwy Stg 2	-	-	-	-	5.43 -
Follow-up Hdwy	2.219	-	-	-	3.519 3.319
Pot Cap-1 Maneuver	1330	-	-	-	303 912
Stage 1	-	-	-	-	793 -
Stage 2	-	-	-	-	516 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1330	-	-	-	279 912
Mov Cap-2 Maneuver	-	-	-	-	279 -
Stage 1	-	-	-	-	731 -
Stage 2	-	-	-	-	516 -

Approach	EB	WB	SB
HCM Control Delay, s	1.5	0	18
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1330	-	-	-	405
HCM Lane V/C Ratio	0.078	-	-	-	0.317
HCM Control Delay (s)	7.9	-	-	-	18
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	1.3

**APPENDIX K**

**EXISTING PLUS AMBIENT PLUS PROJECT (E+A+P 2025) CONDITIONS  
FREEWAY RAMP ANALYSIS WORKSHEETS**

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# HCS7 Freeway Diverge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	EAP (2025)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 WB Off-Ramp @ Lincoln	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	70.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	2900	1000
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	8092	1060
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	8975	1176
Capacity (c), pc/h	14400	2000
Volume-to-Capacity Ratio (v/c)	0.62	0.59

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (Ds)	0.469
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1567
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	56.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	74.6
Flow in Lanes 1 and 2 (v12), pc/h	3598	Ramp Junction Speed (S), mi/h	64.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	23.4
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	26.2

# HCS7 Freeway Merge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	EAP (2025)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 WB On-Ramp @ Lincoln	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA),ft	2500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	7032	823
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	7799	913
Capacity (c), pc/h	12000	2000
Volume-to-Capacity Ratio (v/c)	0.73	0.46

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.390
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1673
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	62.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.104	Outer Lanes Freeway Speed (SO), mi/h	71.2
Flow in Lanes 1 and 2 (v12), pc/h	2231	Ramp Junction Speed (S), mi/h	66.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	3144	Average Density (D), pc/mi/ln	26.2
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	27.8

# HCS7 Freeway Diverge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	EAP (2025)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 EB Off-Ramp @ 2nd St	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	70.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	4900	1340
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided Two-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	8811	476
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	9773	528
Capacity (c), pc/h	11000	4000
Volume-to-Capacity Ratio (v/c)	0.89	0.13

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (Ds)	0.411
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2346
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	58.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	71.5
Flow in Lanes 1 and 2 (v12), pc/h	3127	Ramp Junction Speed (S), mi/h	65.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	29.8
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	19.1

# HCS7 Freeway Merge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	EAP (2025)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 EB On-Ramp @ 2nd St	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA),ft	2300	1500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	8332	815
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	9241	904
Capacity (c), pc/h	14400	2000
Volume-to-Capacity Ratio (v/c)	0.70	0.45

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.370
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2079
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	63.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.105	Outer Lanes Freeway Speed (SO), mi/h	69.7
Flow in Lanes 1 and 2 (v12), pc/h	2772	Ramp Junction Speed (S), mi/h	66.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	3676	Average Density (D), pc/mi/ln	25.5
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	24.4

# HCS7 Freeway Diverge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	EAP (2025)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 WB Off-Ramp @ Lincoln	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	2900	1000
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	8465	866
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	9389	961
Capacity (c), pc/h	14100	2000
Volume-to-Capacity Ratio (v/c)	0.67	0.48

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (Ds)	0.449
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1715
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	68.5
Flow in Lanes 1 and 2 (v12), pc/h	3612	Ramp Junction Speed (S), mi/h	60.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	25.8
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	26.3

# HCS7 Freeway Merge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	EAP (2025)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 WB On-Ramp @ Lincoln	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	7	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA),ft	2500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	7599	668
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	8428	741
Capacity (c), pc/h	16800	2000
Volume-to-Capacity Ratio (v/c)	0.55	0.37

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.403
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1897
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	61.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.125	Outer Lanes Freeway Speed (SO), mi/h	70.4
Flow in Lanes 1 and 2 (v12), pc/h	2528	Ramp Junction Speed (S), mi/h	66.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	3269	Average Density (D), pc/mi/ln	19.8
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	28.8

# HCS7 Freeway Diverge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	EAP (2025)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 EB Off-Ramp @ 2nd St	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	70.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	4900	1340
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided Two-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	8595	613
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	9533	680
Capacity (c), pc/h	11000	4000
Volume-to-Capacity Ratio (v/c)	0.87	0.17

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (Ds)	0.424
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	2288
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	58.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	71.8
Flow in Lanes 1 and 2 (v12), pc/h	3051	Ramp Junction Speed (S), mi/h	65.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	29.1
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	18.4

# HCS7 Freeway Merge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	EAP (2025)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 EB On-Ramp @ 2nd St	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA),ft	2300	1500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	7982	787
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	8853	873
Capacity (c), pc/h	14400	2000
Volume-to-Capacity Ratio (v/c)	0.68	0.44

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.349
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1992
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	63.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.109	Outer Lanes Freeway Speed (SO), mi/h	70.0
Flow in Lanes 1 and 2 (v12), pc/h	2656	Ramp Junction Speed (S), mi/h	66.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	3529	Average Density (D), pc/mi/ln	24.2
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	23.3

**APPENDIX L**

**EXISTING PLUS AMBIENT PLUS PROJECT (E+A+P 2025) CONDITIONS  
FREEWAY SEGMENT ANALYSIS WORKSHEETS**

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# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	EAP (2025)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 WB, east of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8092	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1496
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.62
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	69.0
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	21.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	EAP (2025)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 WB, between ramps	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	7032	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1560
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	68.5
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	22.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	EAP (2025)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 WB, west of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	7855	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1742
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.73
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	66.6
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	26.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	EAP (2025)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 EB, west of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8811	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1955
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.81
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	63.4
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	30.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	EAP (2025)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 EB, between ramps	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8335	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (V <sub>p</sub> ), pc/h/ln	1849
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.77
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	65.1
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	28.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	EAP (2025)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 EB, East of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	9150	Heavy Vehicle Adjustment Factor (fhv)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1692
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	67.2
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	25.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFSadj), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	EAP (2025)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 WB, east of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8465	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (V <sub>p</sub> ), pc/h/ln	1565
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	68.5
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	22.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	EAP (2025)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 WB, between ramps	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	7599	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1686
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	67.3
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	25.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	EAP (2025)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 WB, west of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8267	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1834
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.76
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	65.3
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	28.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	EAP (2025)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 EB, west of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8595	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1907
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.79
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	64.2
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	29.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	EAP (2025)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 EB, between ramps	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	7982	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1771
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.74
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	66.2
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	26.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	EAP (2023)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 EB, East of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8769	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1621
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.68
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	67.9
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	23.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

## **APPENDIX M**

**EXISTING PLUS AMBIENT PLUS CUMULATIVE PLUS PROJECT  
(E+A+P+C 2025) CONDITIONS  
INTERSECTION ANALYSIS CALCULATION WORKSHEETS**

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Lanes, Volumes, Timings  
1: Lincoln Ave. & Pomona Rd.

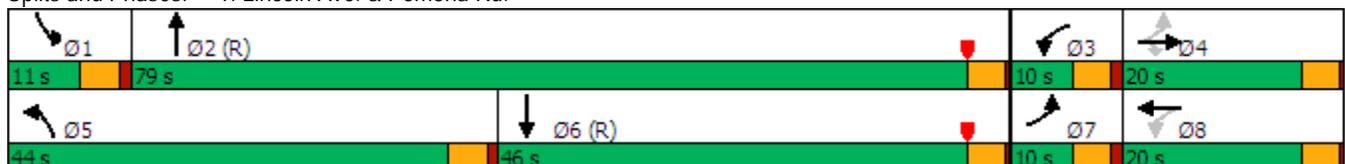
EAPC (2025) AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	9	47	73	25	21	390	773	48	35	817	49
Future Volume (vph)	23	9	47	73	25	21	390	773	48	35	817	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		160	75		150	300		150	90		150
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	30			90			60			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		328			795			507			349	
Travel Time (s)		7.5			18.1			9.9			6.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8								
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	4.0	4.0	5.0	4.0		5.0	4.0		5.0	4.0	
Minimum Split (s)	10.0	20.0	20.0	10.0	20.0		10.0	20.0		10.0	20.0	
Total Split (s)	10.0	20.0	20.0	10.0	20.0		44.0	79.0		11.0	46.0	
Total Split (%)	8.3%	16.7%	16.7%	8.3%	16.7%		36.7%	65.8%		9.2%	38.3%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	0.5	0.5	1.0	0.5		1.0	0.5		1.0	0.5	
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)	4.5	4.0	4.0	4.5	4.0		4.5	4.0		4.5	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Lincoln Ave. & Pomona Rd.



HCM 6th Signalized Intersection Summary  
1: Lincoln Ave. & Pomona Rd.

EAPC (2025) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	9	47	73	25	21	390	773	48	35	817	49
Future Volume (veh/h)	23	9	47	73	25	21	390	773	48	35	817	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	10	52	81	28	23	433	859	53	39	908	54
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	178	117	97	217	79	65	457	2446	151	54	1682	100
Arrive On Green	0.02	0.06	0.06	0.05	0.08	0.08	0.50	1.00	1.00	0.03	0.49	0.49
Sat Flow, veh/h	1781	1870	1547	1781	941	773	1781	3399	210	1781	3407	203
Grp Volume(v), veh/h	26	10	52	81	0	51	433	449	463	39	474	488
Grp Sat Flow(s),veh/h/ln	1781	1870	1547	1781	0	1715	1781	1777	1832	1781	1777	1833
Q Serve(g_s), s	1.6	0.6	3.9	5.1	0.0	3.4	27.7	0.0	0.0	2.6	22.1	22.1
Cycle Q Clear(g_c), s	1.6	0.6	3.9	5.1	0.0	3.4	27.7	0.0	0.0	2.6	22.1	22.1
Prop In Lane	1.00		1.00	1.00		0.45	1.00		0.11	1.00		0.11
Lane Grp Cap(c), veh/h	178	117	97	217	0	145	457	1279	1318	54	877	905
V/C Ratio(X)	0.15	0.09	0.54	0.37	0.00	0.35	0.95	0.35	0.35	0.72	0.54	0.54
Avail Cap(c_a), veh/h	216	249	206	217	0	229	586	1279	1318	96	877	905
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.95	1.95	1.95	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.75	0.75	0.75	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.8	53.0	54.6	49.9	0.0	51.9	29.3	0.0	0.0	57.7	21.0	21.0
Incr Delay (d2), s/veh	0.4	0.3	4.5	1.1	0.0	1.5	18.1	0.6	0.6	16.5	2.4	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.3	1.6	2.3	0.0	1.5	11.0	0.2	0.2	1.4	9.5	9.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.2	53.3	59.1	50.9	0.0	53.3	47.3	0.6	0.6	74.2	23.4	23.3
LnGrp LOS	D	D	E	D	A	D	D	A	A	E	C	C
Approach Vol, veh/h		88			132			1345			1001	
Approach Delay, s/veh		56.1			51.8			15.6			25.3	
Approach LOS		E			D			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.1	90.3	10.0	11.5	35.3	63.2	7.4	14.1				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	6.5	75.0	5.5	16.0	39.5	42.0	5.5	16.0				
Max Q Clear Time (g_c+I1), s	4.6	2.0	7.1	5.9	29.7	24.1	3.6	5.4				
Green Ext Time (p_c), s	0.0	6.9	0.0	0.1	1.0	5.8	0.0	0.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			22.6									
HCM 6th LOS			C									

Lanes, Volumes, Timings  
2: Lincoln Ave. & SR-91 WB Ramps

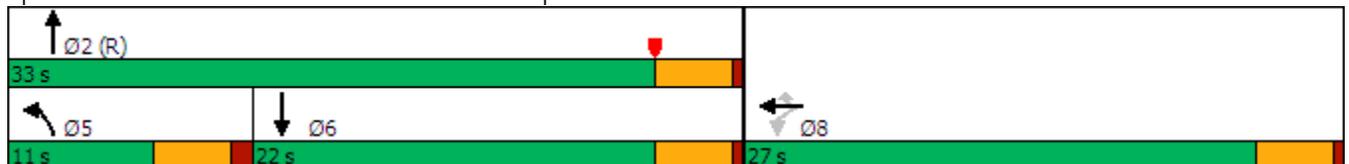
EAPC (2025) AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	421	135	546	224	664	0	0	449	481
Future Volume (vph)	0	0	0	421	135	546	224	664	0	0	449	481
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	0		320	420		150	150		150
Storage Lanes	0		0	1		2	2		0	0		0
Taper Length (ft)	90			120			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			35				35
Link Distance (ft)		1035			1181			839				507
Travel Time (s)		23.5			26.8			16.3				9.9
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Shared Lane Traffic (%)				35%								
Turn Type				Perm	NA	Perm	Prot	NA				NA
Protected Phases					8		5	2				6
Permitted Phases				8		8						
Detector Phase				8	8	8	5	2				6
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0	5.0	4.0				4.0
Minimum Split (s)				20.0	20.0	20.0	9.5	20.0				20.0
Total Split (s)				27.0	27.0	27.0	11.0	33.0				22.0
Total Split (%)				45.0%	45.0%	45.0%	18.3%	55.0%				36.7%
Yellow Time (s)				3.5	3.5	3.5	3.5	3.5				3.5
All-Red Time (s)				0.5	0.5	0.5	1.0	0.5				0.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0				0.0
Total Lost Time (s)				4.0	4.0	4.0	4.5	4.0				4.0
Lead/Lag							Lead					Lag
Lead-Lag Optimize?							Yes					Yes
Recall Mode				None	None	None	None	C-Max				None

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT, Start of Yellow  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated

Splits and Phases: 2: Lincoln Ave. & SR-91 WB Ramps



HCM 6th Signalized Intersection Summary  
2: Lincoln Ave. & SR-91 WB Ramps

EAPC (2025) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	421	135	546	224	664	0	0	449	481
Future Volume (veh/h)	0	0	0	421	135	546	224	664	0	0	449	481
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				296	357	581	238	706	0	0	478	512
Peak Hour Factor				0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				683	717	605	341	1718	0	0	550	488
Arrive On Green				0.38	0.38	0.38	0.10	0.48	0.00	0.00	0.41	0.41
Sat Flow, veh/h				1781	1870	1579	3456	3647	0	0	1870	1577
Grp Volume(v), veh/h				296	357	581	238	706	0	0	478	512
Grp Sat Flow(s),veh/h/ln				1781	1870	1579	1728	1777	0	0	1777	1577
Q Serve(g_s), s				7.4	8.7	21.5	4.0	7.7	0.0	0.0	14.8	18.6
Cycle Q Clear(g_c), s				7.4	8.7	21.5	4.0	7.7	0.0	0.0	14.8	18.6
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				683	717	605	341	1718	0	0	550	488
V/C Ratio(X)				0.43	0.50	0.96	0.70	0.41	0.00	0.00	0.87	1.05
Avail Cap(c_a), veh/h				683	717	605	374	1718	0	0	550	488
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33
Upstream Filter(I)				1.00	1.00	1.00	0.87	0.87	0.00	0.00	0.83	0.83
Uniform Delay (d), s/veh				13.7	14.1	18.1	26.2	10.0	0.0	0.0	16.5	17.6
Incr Delay (d2), s/veh				0.4	0.5	26.8	4.4	0.6	0.0	0.0	11.9	50.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.7	3.4	11.3	1.7	2.6	0.0	0.0	6.3	11.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				14.1	14.6	44.9	30.6	10.6	0.0	0.0	28.5	68.1
LnGrp LOS				B	B	D	C	B	A	A	C	F
Approach Vol, veh/h				1234			944			990		
Approach Delay, s/veh				28.8			15.7			49.0		
Approach LOS				C			B			D		
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		33.0			10.4	22.6		27.0				
Change Period (Y+Rc), s		4.0			4.5	4.0		4.0				
Max Green Setting (Gmax), s		29.0			6.5	18.0		23.0				
Max Q Clear Time (g_c+I1), s		9.7			6.0	20.6		23.5				
Green Ext Time (p_c), s		4.6			0.0	0.0		0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				31.2								
HCM 6th LOS				C								
<b>Notes</b>												
User approved volume balancing among the lanes for turning movement.												

Lanes, Volumes, Timings  
3: Lincoln Ave. & D St./2nd St.

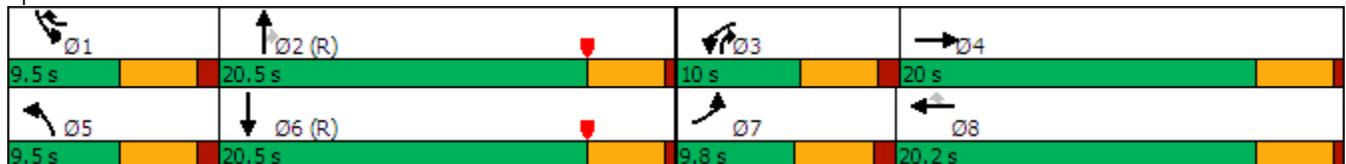
EAPC (2025) AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	145	53	123	67	302	67	542	481	212	537	96
Future Volume (vph)	44	145	53	123	67	302	67	542	481	212	537	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		65	155		155	165		310	220		150
Storage Lanes	1		1	2		0	1		1	2		0
Taper Length (ft)	30			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		358			549			551			839	
Travel Time (s)		7.0			10.7			10.7			16.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases						8			2			
Detector Phase	7	4		3	8	1	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	
Minimum Split (s)	9.5	20.0		9.5	20.0	9.5	9.5	20.0	9.5	9.5	20.0	
Total Split (s)	9.8	20.0		10.0	20.2	9.5	9.5	20.5	10.0	9.5	20.5	
Total Split (%)	16.3%	33.3%		16.7%	33.7%	15.8%	15.8%	34.2%	16.7%	15.8%	34.2%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	0.5		1.0	0.5	1.0	1.0	0.5	1.0	1.0	0.5	
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)	4.5	4.0		4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow, Master Intersection  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 3: Lincoln Ave. & D St./2nd St.



HCM 6th Signalized Intersection Summary  
3: Lincoln Ave. & D St./2nd St.

EAPC (2025) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	145	53	123	67	302	67	542	481	212	537	96
Future Volume (veh/h)	44	145	53	123	67	302	67	542	481	212	537	96
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	46	151	55	128	70	315	70	565	501	221	559	100
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	79	254	92	254	417	483	102	1299	693	288	1178	210
Arrive On Green	0.04	0.19	0.19	0.02	0.07	0.07	0.06	0.37	0.37	0.08	0.39	0.39
Sat Flow, veh/h	1781	1305	475	3456	1870	1574	1781	3554	1579	3456	3010	537
Grp Volume(v), veh/h	46	0	206	128	70	315	70	565	501	221	329	330
Grp Sat Flow(s),veh/h/ln	1781	0	1780	1728	1870	1574	1781	1777	1579	1728	1777	1770
Q Serve(g_s), s	1.5	0.0	6.3	2.2	2.1	10.6	2.3	7.2	15.6	3.8	8.3	8.4
Cycle Q Clear(g_c), s	1.5	0.0	6.3	2.2	2.1	10.6	2.3	7.2	15.6	3.8	8.3	8.4
Prop In Lane	1.00		0.27	1.00		1.00	1.00		1.00	1.00		0.30
Lane Grp Cap(c), veh/h	79	0	346	254	417	483	102	1299	693	288	696	693
V/C Ratio(X)	0.58	0.00	0.60	0.50	0.17	0.65	0.68	0.43	0.72	0.77	0.47	0.48
Avail Cap(c_a), veh/h	157	0	475	317	505	557	148	1299	693	288	696	693
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.97	0.97	0.97	1.00	1.00	1.00	0.68	0.68	0.68
Uniform Delay (d), s/veh	28.1	0.0	22.0	28.2	22.6	21.6	27.7	14.4	13.8	26.9	13.6	13.7
Incr Delay (d2), s/veh	6.5	0.0	1.6	1.5	0.2	2.1	7.8	1.1	6.4	8.3	1.6	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	2.6	0.9	0.9	4.4	1.1	2.7	5.8	1.8	3.1	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.6	0.0	23.7	29.7	22.7	23.7	35.6	15.4	20.3	35.2	15.2	15.2
LnGrp LOS	C	A	C	C	C	C	D	B	C	D	B	B
Approach Vol, veh/h		252			513			1136			880	
Approach Delay, s/veh		25.7			25.1			18.8			20.2	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	25.9	8.9	15.7	7.9	27.5	7.2	17.4				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	5.0	16.5	5.5	16.0	5.0	16.5	5.3	16.2				
Max Q Clear Time (g_c+I1), s	5.8	17.6	4.2	8.3	4.3	10.4	3.5	12.6				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.6	0.0	2.0	0.0	0.5				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			21.0									
HCM 6th LOS			C									

Lanes, Volumes, Timings  
4: Lincoln Ave. & 6th St.

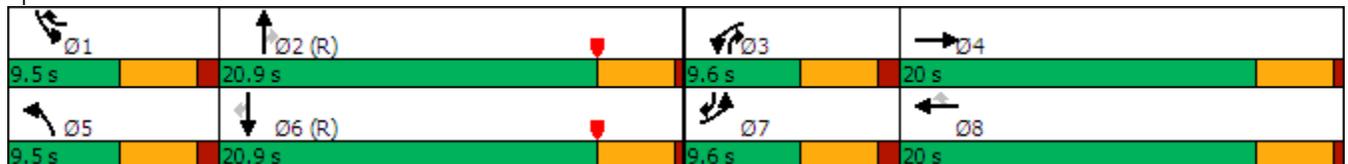
EAPC (2025) AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	299	20	91	761	98	85	824	102	67	361	261
Future Volume (vph)	150	299	20	91	761	98	85	824	102	67	361	261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	205		150	175		90	150		95	110		150
Storage Lanes	2		0	2		1	1		1	1		1
Taper Length (ft)	90			120			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		413			447			466			504	
Travel Time (s)		8.0			8.7			9.1			9.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0
Minimum Split (s)	9.5	20.0		9.5	20.0	9.5	9.5	20.0	9.5	9.5	20.0	9.5
Total Split (s)	9.6	20.0		9.6	20.0	9.5	9.5	20.9	9.6	9.5	20.9	9.6
Total Split (%)	16.0%	33.3%		16.0%	33.3%	15.8%	15.8%	34.8%	16.0%	15.8%	34.8%	16.0%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	0.5		1.0	0.5	1.0	1.0	0.5	1.0	1.0	0.5	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)	4.5	4.0		4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 4: Lincoln Ave. & 6th St.



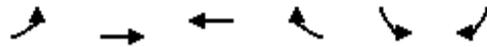
HCM 6th Signalized Intersection Summary  
4: Lincoln Ave. & 6th St.

EAPC (2025) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	299	20	91	761	98	85	824	102	67	361	261
Future Volume (veh/h)	150	299	20	91	761	98	85	824	102	67	361	261
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	167	332	22	101	846	109	94	916	113	74	401	290
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	270	932	61	234	943	512	120	1116	603	105	1086	606
Arrive On Green	0.08	0.28	0.28	0.07	0.27	0.27	0.07	0.31	0.31	0.06	0.31	0.31
Sat Flow, veh/h	3456	3383	223	3456	3554	1576	1781	3554	1577	1781	3554	1577
Grp Volume(v), veh/h	167	174	180	101	846	109	94	916	113	74	401	290
Grp Sat Flow(s),veh/h/ln	1728	1777	1829	1728	1777	1576	1781	1777	1577	1781	1777	1577
Q Serve(g_s), s	2.8	4.7	4.8	1.7	13.8	3.0	3.1	14.3	2.9	2.4	5.3	8.3
Cycle Q Clear(g_c), s	2.8	4.7	4.8	1.7	13.8	3.0	3.1	14.3	2.9	2.4	5.3	8.3
Prop In Lane	1.00		0.12	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	270	490	504	234	943	512	120	1116	603	105	1086	606
V/C Ratio(X)	0.62	0.35	0.36	0.43	0.90	0.21	0.78	0.82	0.19	0.70	0.37	0.48
Avail Cap(c_a), veh/h	294	490	504	294	948	514	148	1116	603	148	1086	606
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.8	17.4	17.5	26.9	21.3	14.7	27.5	19.0	12.3	27.7	16.3	14.0
Incr Delay (d2), s/veh	3.4	0.4	0.4	1.2	11.2	0.2	19.1	6.8	0.7	8.3	1.0	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	1.8	1.9	0.7	6.5	1.0	1.9	6.2	1.0	1.2	2.1	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.2	17.9	17.9	28.1	32.4	14.9	46.6	25.8	13.0	36.0	17.3	16.6
LnGrp LOS	C	B	B	C	C	B	D	C	B	D	B	B
Approach Vol, veh/h		521			1056			1123			765	
Approach Delay, s/veh		21.8			30.2			26.3			18.8	
Approach LOS		C			C			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.0	22.8	8.6	20.5	8.5	22.3	9.2	19.9				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	5.0	16.9	5.1	16.0	5.0	16.9	5.1	16.0				
Max Q Clear Time (g_c+I1), s	4.4	16.3	3.7	6.8	5.1	10.3	4.8	15.8				
Green Ext Time (p_c), s	0.0	0.4	0.0	1.3	0.0	2.0	0.0	0.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				25.2								
HCM 6th LOS				C								

Lanes, Volumes, Timings  
5: 2nd St. & SR-91 EB Ramps

EAPC (2025) AM Peak Hour

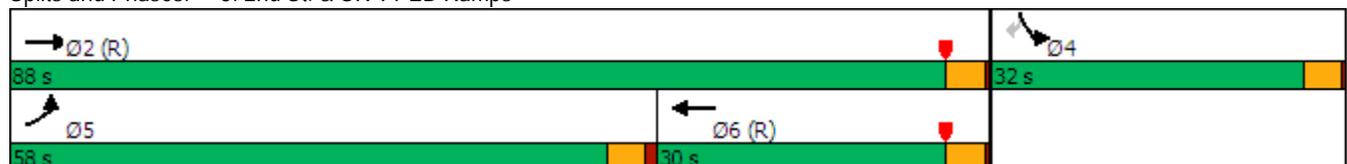


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖↗	↑	↕↔		↖↗	↗
Traffic Volume (vph)	707	124	173	128	177	319
Future Volume (vph)	707	124	173	128	177	319
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190			150	450	150
Storage Lanes	0			0	0	0
Taper Length (ft)	60				90	
Right Turn on Red				Yes		Yes
Link Speed (mph)		35	35		30	
Link Distance (ft)		549	319		407	
Travel Time (s)		10.7	6.2		9.3	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Shared Lane Traffic (%)						50%
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	5.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.5	20.0	20.0		20.0	20.0
Total Split (s)	58.0	88.0	30.0		32.0	32.0
Total Split (%)	48.3%	73.3%	25.0%		26.7%	26.7%
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	0.5	0.5		0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.0	4.0		4.0	4.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Recall Mode	None	C-Max	C-Max		Max	Max

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 5: 2nd St. & SR-91 EB Ramps



# HCM 6th Signalized Intersection Summary

## 5: 2nd St. & SR-91 EB Ramps

EAPC (2025) AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	707	124	173	128	177	319
Future Volume (veh/h)	707	124	173	128	177	319
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	752	132	184	136	176	352
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	845	1309	834	582	416	740
Arrive On Green	0.39	1.00	0.42	0.42	0.23	0.23
Sat Flow, veh/h	3456	1870	2088	1392	1781	3170
Grp Volume(v), veh/h	752	132	163	157	176	352
Grp Sat Flow(s),veh/h/ln	1728	1870	1777	1610	1781	1585
Q Serve(g_s), s	24.4	0.0	7.0	7.6	10.1	11.5
Cycle Q Clear(g_c), s	24.4	0.0	7.0	7.6	10.1	11.5
Prop In Lane	1.00			0.86	1.00	1.00
Lane Grp Cap(c), veh/h	845	1309	743	673	416	740
V/C Ratio(X)	0.89	0.10	0.22	0.23	0.42	0.48
Avail Cap(c_a), veh/h	1541	1309	743	673	416	740
HCM Platoon Ratio	1.60	1.60	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.80	0.80	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.0	0.0	22.4	22.5	39.1	39.7
Incr Delay (d2), s/veh	2.8	0.1	0.7	0.8	3.1	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.2	0.0	3.1	3.0	4.8	10.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	37.9	0.1	23.0	23.3	42.3	41.9
LnGrp LOS	D	A	C	C	D	D
Approach Vol, veh/h		884	320		528	
Approach Delay, s/veh		32.2	23.2		42.0	
Approach LOS		C	C		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		88.0		32.0	33.8	54.2
Change Period (Y+Rc), s		4.0		4.0	4.5	4.0
Max Green Setting (Gmax), s		84.0		28.0	53.5	26.0
Max Q Clear Time (g_c+I1), s		2.0		13.5	26.4	9.6
Green Ext Time (p_c), s		0.8		1.7	2.9	1.6

### Intersection Summary

HCM 6th Ctrl Delay	33.5
HCM 6th LOS	C

### Notes

User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings  
6: Buena Vista Ave. & 2nd St.

EAPC (2025) AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	112	113	73	119	28	110	155	19	36	164	48
Future Volume (vph)	65	112	113	73	119	28	110	155	19	36	164	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		50	150		150	95		150	95		150
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	90			90			60			60		
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		528			733			392			629	
Travel Time (s)		10.3			14.3			8.9			14.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	16
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕		↕	↕		↕	↕	
Traffic Vol, veh/h	65	112	113	73	119	28	110	155	19	36	164	48
Future Vol, veh/h	65	112	113	73	119	28	110	155	19	36	164	48
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	78	135	136	88	143	34	133	187	23	43	198	58
Number of Lanes	0	1	1	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	14.4	19.3	14.7	16.6
HCM LOS	B	C	B	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	37%	0%	33%	100%	0%
Vol Thru, %	0%	89%	63%	0%	54%	0%	77%
Vol Right, %	0%	11%	0%	100%	13%	0%	23%
Sign Control	Stop						
Traffic Vol by Lane	110	174	177	113	220	36	212
LT Vol	110	0	65	0	73	36	0
Through Vol	0	155	112	0	119	0	164
RT Vol	0	19	0	113	28	0	48
Lane Flow Rate	133	210	213	136	265	43	255
Geometry Grp	7	7	7	7	6	7	7
Degree of Util (X)	0.289	0.423	0.446	0.25	0.549	0.095	0.514
Departure Headway (Hd)	7.85	7.258	7.521	6.616	7.453	7.92	7.243
Convergence, Y/N	Yes						
Cap	457	495	478	542	482	452	496
Service Time	5.613	5.02	5.281	4.375	5.515	5.684	5.006
HCM Lane V/C Ratio	0.291	0.424	0.446	0.251	0.55	0.095	0.514
HCM Control Delay	13.8	15.3	16.2	11.6	19.3	11.5	17.5
HCM Lane LOS	B	C	C	B	C	B	C
HCM 95th-tile Q	1.2	2.1	2.3	1	3.3	0.3	2.9

Lanes, Volumes, Timings  
7: Cardenas Dwy./Project Dwy. 1 & 2nd St.

EAPC (2025) AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 				 			 
Traffic Volume (vph)	0	283	14	0	262	39	0	0	23	0	0	39
Future Volume (vph)	0	283	14	0	262	39	0	0	23	0	0	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		319			197			217			156	
Travel Time (s)		6.2			3.8			4.9			3.5	
Confl. Peds. (#/hr)			5	5			5		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
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑				↑			↑
Traffic Vol, veh/h	0	283	14	0	262	39	0	0	23	0	0	39
Future Vol, veh/h	0	283	14	0	262	39	0	0	23	0	0	39
Conflicting Peds, #/hr	0	0	5	5	0	0	5	0	5	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	308	15	0	285	42	0	0	25	0	0	42

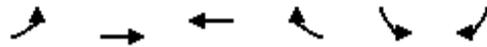
Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	-	0	0	-	-	0	-	-	172	-	-	164
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	842	0	0	852
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	834	-	-	852
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	9.5	9.4
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	834	-	-	-	-	852
HCM Lane V/C Ratio	0.03	-	-	-	-	0.05
HCM Control Delay (s)	9.5	-	-	-	-	9.4
HCM Lane LOS	A	-	-	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	-	0.2

Lanes, Volumes, Timings  
8: 2nd St. & Project Dwy. 2

EAPC (2025) AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	91	215	251	25	65	50
Future Volume (vph)	91	215	251	25	65	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	245			50	0	0
Storage Lanes	0			1	1	0
Taper Length (ft)	90				90	
Link Speed (mph)		35	35		30	
Link Distance (ft)		197	196		131	
Travel Time (s)		3.8	3.8		3.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection						
Int Delay, s/veh	3.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	91	215	251	25	65	50
Future Vol, veh/h	91	215	251	25	65	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	50	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	99	234	273	27	71	54

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	300	0	-	0	719 150
Stage 1	-	-	-	-	287 -
Stage 2	-	-	-	-	432 -
Critical Hdwy	4.13	-	-	-	6.63 6.93
Critical Hdwy Stg 1	-	-	-	-	5.83 -
Critical Hdwy Stg 2	-	-	-	-	5.43 -
Follow-up Hdwy	2.219	-	-	-	3.519 3.319
Pot Cap-1 Maneuver	1260	-	-	-	379 870
Stage 1	-	-	-	-	737 -
Stage 2	-	-	-	-	654 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1260	-	-	-	349 870
Mov Cap-2 Maneuver	-	-	-	-	349 -
Stage 1	-	-	-	-	679 -
Stage 2	-	-	-	-	654 -

Approach	EB	WB	SB
HCM Control Delay, s	2.4	0	15.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1260	-	-	-	472
HCM Lane V/C Ratio	0.079	-	-	-	0.265
HCM Control Delay (s)	8.1	-	-	-	15.4
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	1.1

Lanes, Volumes, Timings  
1: Lincoln Ave. & Pomona Rd.

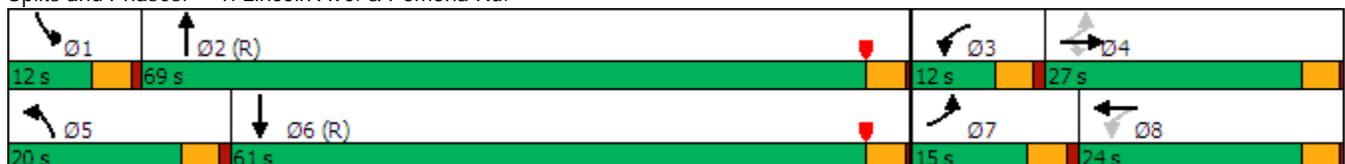
EAPC (2025) PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	121	32	232	90	19	18	91	658	72	29	978	48
Future Volume (vph)	121	32	232	90	19	18	91	658	72	29	978	48
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		160	75		150	300		150	90		150
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	30			90			60			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		328			795			507			349	
Travel Time (s)		7.5			18.1			9.9			6.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8								
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	4.0	4.0	5.0	4.0		5.0	4.0		5.0	4.0	
Minimum Split (s)	9.5	20.0	20.0	9.5	20.0		9.5	20.0		9.5	20.0	
Total Split (s)	15.0	27.0	27.0	12.0	24.0		20.0	69.0		12.0	61.0	
Total Split (%)	12.5%	22.5%	22.5%	10.0%	20.0%		16.7%	57.5%		10.0%	50.8%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	0.5	0.5	1.0	0.5		1.0	0.5		1.0	0.5	
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)	4.5	4.0	4.0	4.5	4.0		4.5	4.0		4.5	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Lincoln Ave. & Pomona Rd.



HCM 6th Signalized Intersection Summary  
1: Lincoln Ave. & Pomona Rd.

EAPC (2025) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	121	32	232	90	19	18	91	658	72	29	978	48
Future Volume (veh/h)	121	32	232	90	19	18	91	658	72	29	978	48
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	133	35	255	99	21	20	100	723	79	32	1075	53
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	387	332	279	341	141	134	124	1915	209	49	1899	94
Arrive On Green	0.08	0.18	0.18	0.06	0.16	0.16	0.14	1.00	1.00	0.03	0.55	0.55
Sat Flow, veh/h	1781	1870	1572	1781	876	835	1781	3229	353	1781	3446	170
Grp Volume(v), veh/h	133	35	255	99	0	41	100	398	404	32	554	574
Grp Sat Flow(s),veh/h/ln	1781	1870	1572	1781	0	1711	1781	1777	1805	1781	1777	1839
Q Serve(g_s), s	7.4	1.9	19.1	5.5	0.0	2.5	6.5	0.0	0.0	2.1	24.4	24.4
Cycle Q Clear(g_c), s	7.4	1.9	19.1	5.5	0.0	2.5	6.5	0.0	0.0	2.1	24.4	24.4
Prop In Lane	1.00		1.00	1.00		0.49	1.00		0.20	1.00		0.09
Lane Grp Cap(c), veh/h	387	332	279	341	0	274	124	1054	1071	49	979	1013
V/C Ratio(X)	0.34	0.11	0.91	0.29	0.00	0.15	0.81	0.38	0.38	0.66	0.57	0.57
Avail Cap(c_a), veh/h	405	358	301	345	0	285	230	1054	1071	111	979	1013
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.7	41.3	48.4	38.6	0.0	43.3	50.9	0.0	0.0	57.8	17.6	17.6
Incr Delay (d2), s/veh	0.5	0.1	29.4	0.5	0.0	0.2	11.1	1.0	1.0	14.0	2.4	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	0.9	9.7	2.5	0.0	1.1	3.1	0.3	0.3	1.1	10.2	10.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.2	41.5	77.8	39.1	0.0	43.6	62.0	1.0	1.0	71.9	20.0	19.9
LnGrp LOS	D	D	E	D	A	D	E	A	A	E	B	B
Approach Vol, veh/h		423			140			902			1160	
Approach Delay, s/veh		62.4			40.4			7.7			21.3	
Approach LOS		E			D			A			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.8	75.2	11.7	25.3	12.8	70.1	13.8	23.2				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	7.5	65.0	7.5	23.0	15.5	57.0	10.5	20.0				
Max Q Clear Time (g_c+I1), s	4.1	2.0	7.5	21.1	8.5	26.4	9.4	4.5				
Green Ext Time (p_c), s	0.0	5.8	0.0	0.2	0.1	8.6	0.0	0.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			24.3									
HCM 6th LOS			C									

Lanes, Volumes, Timings  
2: Lincoln Ave. & SR-91 WB Ramps

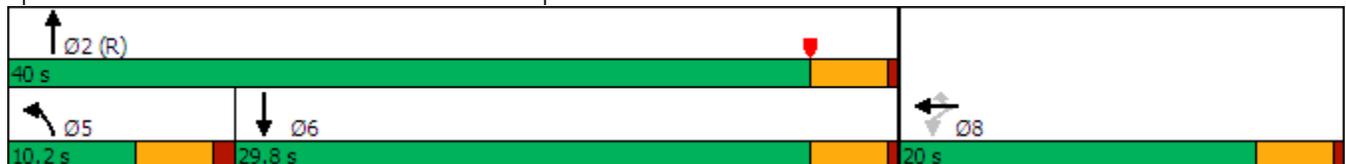
EAPC (2025) PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	657	24	226	242	595	0	0	847	429
Future Volume (vph)	0	0	0	657	24	226	242	595	0	0	847	429
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	0		320	420		150	150		150
Storage Lanes	0		0	1		2	2		0	0		0
Taper Length (ft)	90			120			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			35				35
Link Distance (ft)		1035			1181			839				507
Travel Time (s)		23.5			26.8			16.3				9.9
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		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
Shared Lane Traffic (%)				48%								
Turn Type				Perm	NA	Perm	Prot	NA				NA
Protected Phases					8		5	2				6
Permitted Phases				8		8						
Detector Phase				8	8	8	5	2				6
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0	5.0	4.0				4.0
Minimum Split (s)				20.0	20.0	20.0	9.5	20.0				20.0
Total Split (s)				20.0	20.0	20.0	10.2	40.0				29.8
Total Split (%)				33.3%	33.3%	33.3%	17.0%	66.7%				49.7%
Yellow Time (s)				3.5	3.5	3.5	3.5	3.5				3.5
All-Red Time (s)				0.5	0.5	0.5	1.0	0.5				0.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0				0.0
Total Lost Time (s)				4.0	4.0	4.0	4.5	4.0				4.0
Lead/Lag							Lead					Lag
Lead-Lag Optimize?							Yes					Yes
Recall Mode				None	None	None	None	C-Max				None

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 2: Lincoln Ave. & SR-91 WB Ramps



HCM 6th Signalized Intersection Summary  
2: Lincoln Ave. & SR-91 WB Ramps

EAPC (2025) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	657	24	226	242	595	0	0	847	429
Future Volume (veh/h)	0	0	0	657	24	226	242	595	0	0	847	429
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				733	0	246	263	647	0	0	921	466
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				874	0	387	328	2208	0	0	1035	516
Arrive On Green				0.25	0.00	0.25	0.13	0.83	0.00	0.00	0.30	0.30
Sat Flow, veh/h				3563	0	1575	3456	3647	0	0	2388	1143
Grp Volume(v), veh/h				733	0	246	263	647	0	0	710	677
Grp Sat Flow(s),veh/h/ln				1781	0	1575	1728	1777	0	0	1777	1660
Q Serve(g_s), s				11.7	0.0	8.4	4.4	2.5	0.0	0.0	22.8	23.5
Cycle Q Clear(g_c), s				11.7	0.0	8.4	4.4	2.5	0.0	0.0	22.8	23.5
Prop In Lane				1.00		1.00	1.00		0.00	0.00		0.69
Lane Grp Cap(c), veh/h				874	0	387	328	2208	0	0	802	749
V/C Ratio(X)				0.84	0.00	0.64	0.80	0.29	0.00	0.00	0.89	0.90
Avail Cap(c_a), veh/h				950	0	420	328	2208	0	0	802	749
HCM Platoon Ratio				1.00	1.00	1.00	1.33	1.33	1.00	1.00	0.67	0.67
Upstream Filter(I)				1.00	0.00	1.00	0.86	0.86	0.00	0.00	0.81	0.81
Uniform Delay (d), s/veh				21.5	0.0	20.2	25.7	2.2	0.0	0.0	19.5	19.7
Incr Delay (d2), s/veh				6.3	0.0	2.8	11.6	0.3	0.0	0.0	9.7	12.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.2	0.0	3.1	2.2	0.6	0.0	0.0	11.4	11.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				27.8	0.0	23.0	37.2	2.5	0.0	0.0	29.1	31.8
LnGrp LOS				C	A	C	D	A	A	A	C	C
Approach Vol, veh/h					979			910			1387	
Approach Delay, s/veh					26.6			12.5			30.4	
Approach LOS					C			B			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		41.3			10.2	31.1		18.7				
Change Period (Y+Rc), s		4.0			4.5	4.0		4.0				
Max Green Setting (Gmax), s		36.0			5.7	25.8		16.0				
Max Q Clear Time (g_c+I1), s		4.5			6.4	25.5		13.7				
Green Ext Time (p_c), s		4.7			0.0	0.2		1.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				24.3								
HCM 6th LOS				C								
<b>Notes</b>												
User approved volume balancing among the lanes for turning movement.												

Lanes, Volumes, Timings  
3: Lincoln Ave. & D St./2nd St.

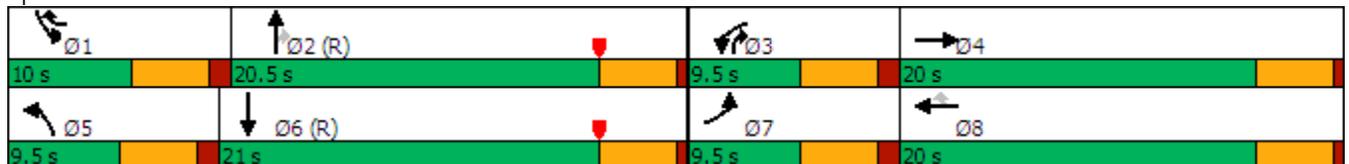
EAPC (2025) PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	180	24	172	74	237	55	534	352	388	975	113
Future Volume (vph)	66	180	24	172	74	237	55	534	352	388	975	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		65	155		155	165		310	220		150
Storage Lanes	1		1	2		0	1		1	2		0
Taper Length (ft)	30			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		358			549			551			839	
Travel Time (s)		7.0			10.7			10.7			16.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases						8			2			
Detector Phase	7	4		3	8	1	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	
Minimum Split (s)	9.5	20.0		9.5	20.0	9.5	9.5	20.0	9.5	9.5	20.0	
Total Split (s)	9.5	20.0		9.5	20.0	10.0	9.5	20.5	9.5	10.0	21.0	
Total Split (%)	15.8%	33.3%		15.8%	33.3%	16.7%	15.8%	34.2%	15.8%	16.7%	35.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	0.5		1.0	0.5	1.0	1.0	0.5	1.0	1.0	0.5	
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)	4.5	4.0		4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow, Master Intersection  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated

Splits and Phases: 3: Lincoln Ave. & D St./2nd St.



HCM 6th Signalized Intersection Summary  
3: Lincoln Ave. & D St./2nd St.

EAPC (2025) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				 				 		 	 	 
Traffic Volume (veh/h)	66	180	24	172	74	237	55	534	352	388	975	113
Future Volume (veh/h)	66	180	24	172	74	237	55	534	352	388	975	113
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	69	189	25	181	78	249	58	562	371	408	1026	119
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	101	267	35	280	354	443	92	1345	726	317	1342	156
Arrive On Green	0.06	0.17	0.17	0.03	0.06	0.06	0.05	0.38	0.38	0.09	0.42	0.42
Sat Flow, veh/h	1781	1616	214	3456	1870	1573	1781	3554	1579	3456	3206	372
Grp Volume(v), veh/h	69	0	214	181	78	249	58	562	371	408	568	577
Grp Sat Flow(s),veh/h/ln	1781	0	1830	1728	1870	1573	1781	1777	1579	1728	1777	1801
Q Serve(g_s), s	2.3	0.0	6.6	3.1	2.4	8.3	1.9	7.0	10.0	5.5	16.4	16.4
Cycle Q Clear(g_c), s	2.3	0.0	6.6	3.1	2.4	8.3	1.9	7.0	10.0	5.5	16.4	16.4
Prop In Lane	1.00		0.12	1.00		1.00	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	101	0	303	280	354	443	92	1345	726	317	744	754
V/C Ratio(X)	0.68	0.00	0.71	0.65	0.22	0.56	0.63	0.42	0.51	1.29	0.76	0.76
Avail Cap(c_a), veh/h	148	0	488	288	499	565	148	1345	726	317	744	754
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.96	0.96	0.96	1.00	1.00	1.00	0.34	0.34	0.34
Uniform Delay (d), s/veh	27.8	0.0	23.7	28.3	23.9	21.4	27.9	13.8	11.5	27.2	14.9	14.9
Incr Delay (d2), s/veh	7.7	0.0	3.0	4.6	0.3	1.1	6.9	1.0	2.6	137.7	2.6	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	2.9	1.4	1.0	3.3	0.9	2.6	3.4	8.2	6.0	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.5	0.0	26.7	32.9	24.2	22.5	34.8	14.7	14.0	165.0	17.5	17.5
LnGrp LOS	D	A	C	C	C	C	C	B	B	F	B	B
Approach Vol, veh/h		283			508			991			1553	
Approach Delay, s/veh		28.8			26.5			15.6			56.2	
Approach LOS		C			C			B			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.0	26.7	9.4	13.9	7.6	29.1	7.9	15.4				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	5.5	16.5	5.0	16.0	5.0	17.0	5.0	16.0				
Max Q Clear Time (g_c+I1), s	7.5	12.0	5.1	8.6	3.9	18.4	4.3	10.3				
Green Ext Time (p_c), s	0.0	2.1	0.0	0.6	0.0	0.0	0.0	0.6				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			37.3									
HCM 6th LOS			D									

Lanes, Volumes, Timings  
4: Lincoln Ave. & 6th St.

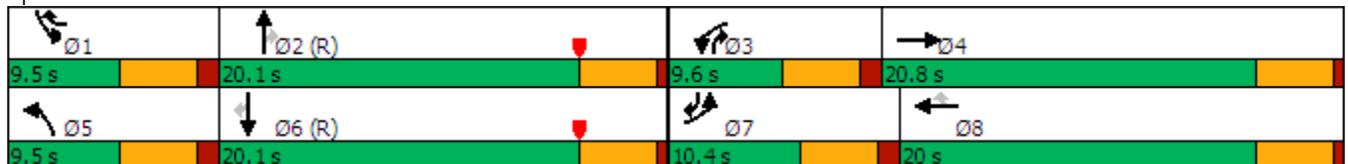
EAPC (2025) PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	273	843	81	199	559	170	50	498	154	114	773	246
Future Volume (vph)	273	843	81	199	559	170	50	498	154	114	773	246
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	205		150	175		90	150		95	110		150
Storage Lanes	2		0	2		1	1		1	1		1
Taper Length (ft)	90			120			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		413			447			466			504	
Travel Time (s)		8.0			8.7			9.1			9.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0
Minimum Split (s)	9.5	20.0		9.5	20.0	9.5	9.5	20.0	9.5	9.5	20.0	9.5
Total Split (s)	10.4	20.8		9.6	20.0	9.5	9.5	20.1	9.6	9.5	20.1	10.4
Total Split (%)	17.3%	34.7%		16.0%	33.3%	15.8%	15.8%	33.5%	16.0%	15.8%	33.5%	17.3%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	0.5		1.0	0.5	1.0	1.0	0.5	1.0	1.0	0.5	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)	4.5	4.0		4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated

Splits and Phases: 4: Lincoln Ave. & 6th St.



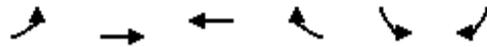
HCM 6th Signalized Intersection Summary  
4: Lincoln Ave. & 6th St.

EAPC (2025) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 	 		 	 	 	 	 
Traffic Volume (veh/h)	273	843	81	199	559	170	50	498	154	114	773	246
Future Volume (veh/h)	273	843	81	199	559	170	50	498	154	114	773	246
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	279	860	83	203	570	173	51	508	157	116	789	251
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	340	916	88	294	948	552	85	954	558	148	1080	635
Arrive On Green	0.10	0.28	0.28	0.09	0.27	0.27	0.05	0.27	0.27	0.08	0.30	0.30
Sat Flow, veh/h	3456	3273	316	3456	3554	1576	1781	3554	1576	1781	3554	1577
Grp Volume(v), veh/h	279	467	476	203	570	173	51	508	157	116	789	251
Grp Sat Flow(s),veh/h/ln	1728	1777	1812	1728	1777	1576	1781	1777	1576	1781	1777	1577
Q Serve(g_s), s	4.8	15.4	15.4	3.4	8.4	4.8	1.7	7.3	4.3	3.8	11.9	6.8
Cycle Q Clear(g_c), s	4.8	15.4	15.4	3.4	8.4	4.8	1.7	7.3	4.3	3.8	11.9	6.8
Prop In Lane	1.00		0.17	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	340	498	507	294	948	552	85	954	558	148	1080	635
V/C Ratio(X)	0.82	0.94	0.94	0.69	0.60	0.31	0.60	0.53	0.28	0.78	0.73	0.40
Avail Cap(c_a), veh/h	340	498	507	294	948	552	148	954	558	148	1080	635
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.5	21.1	21.1	26.7	19.2	14.2	28.0	18.7	13.9	27.0	18.7	12.7
Incr Delay (d2), s/veh	14.8	25.8	25.5	6.7	1.1	0.3	6.6	2.1	1.3	23.3	4.4	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	9.2	9.3	1.6	3.2	1.5	0.8	3.0	1.5	2.5	5.0	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.3	46.9	46.6	33.4	20.3	14.6	34.6	20.9	15.2	50.3	23.0	14.6
LnGrp LOS	D	D	D	C	C	B	C	C	B	D	C	B
Approach Vol, veh/h		1222			946			716			1156	
Approach Delay, s/veh		45.5			22.1			20.6			23.9	
Approach LOS		D			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	20.1	9.6	20.8	7.4	22.2	10.4	20.0				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	5.0	16.1	5.1	16.8	5.0	16.1	5.9	16.0				
Max Q Clear Time (g_c+I1), s	5.8	9.3	5.4	17.4	3.7	13.9	6.8	10.4				
Green Ext Time (p_c), s	0.0	2.1	0.0	0.0	0.0	1.3	0.0	2.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				29.4								
HCM 6th LOS				C								

Lanes, Volumes, Timings  
5: 2nd St. & SR-91 EB Ramps

EAPC (2025) PM Peak Hour

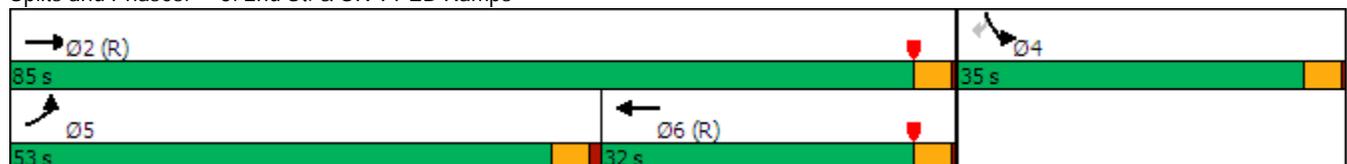


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖↗	↑	↕↔		↖↗	↗
Traffic Volume (vph)	732	187	154	109	306	328
Future Volume (vph)	732	187	154	109	306	328
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190			150	450	150
Storage Lanes	0			0	0	0
Taper Length (ft)	60				90	
Right Turn on Red				Yes		Yes
Link Speed (mph)		35	35		30	
Link Distance (ft)		549	319		407	
Travel Time (s)		10.7	6.2		9.3	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)						39%
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	5.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.5	20.0	20.0		20.0	20.0
Total Split (s)	53.0	85.0	32.0		35.0	35.0
Total Split (%)	44.2%	70.8%	26.7%		29.2%	29.2%
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	0.5	0.5		0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.0	4.0		4.0	4.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Recall Mode	None	C-Max	C-Max		Max	Max

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 5: 2nd St. & SR-91 EB Ramps



HCM 6th Signalized Intersection Summary  
 5: 2nd St. & SR-91 EB Ramps

EAPC (2025) PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	732	187	154	109	306	328
Future Volume (veh/h)	732	187	154	109	306	328
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	804	205	169	120	455	232
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	893	1262	771	515	920	409
Arrive On Green	0.43	1.00	0.38	0.38	0.26	0.26
Sat Flow, veh/h	3456	1870	2127	1359	3563	1585
Grp Volume(v), veh/h	804	205	146	143	455	232
Grp Sat Flow(s),veh/h/ln	1728	1870	1777	1615	1781	1585
Q Serve(g_s), s	26.0	0.0	6.7	7.2	13.0	15.3
Cycle Q Clear(g_c), s	26.0	0.0	6.7	7.2	13.0	15.3
Prop In Lane	1.00			0.84	1.00	1.00
Lane Grp Cap(c), veh/h	893	1262	674	612	920	409
V/C Ratio(X)	0.90	0.16	0.22	0.23	0.49	0.57
Avail Cap(c_a), veh/h	1397	1262	674	612	920	409
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.76	0.76	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.7	0.0	25.2	25.4	37.8	38.7
Incr Delay (d2), s/veh	4.2	0.2	0.7	0.9	1.9	5.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.6	0.1	2.9	2.9	5.9	14.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	36.9	0.2	25.9	26.3	39.7	44.2
LnGrp LOS	D	A	C	C	D	D
Approach Vol, veh/h		1009	289		687	
Approach Delay, s/veh		29.5	26.1		41.3	
Approach LOS		C	C		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		85.0		35.0	35.5	49.5
Change Period (Y+Rc), s		4.0		4.0	4.5	4.0
Max Green Setting (Gmax), s		81.0		31.0	48.5	28.0
Max Q Clear Time (g_c+I1), s		2.0		17.3	28.0	9.2
Green Ext Time (p_c), s		1.2		2.2	3.1	1.5

Intersection Summary

HCM 6th Ctrl Delay	33.1
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings  
6: Buena Vista Ave. & 2nd St.

EAPC (2025) PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	304	135	30	87	23	91	148	33	58	169	56
Future Volume (vph)	82	304	135	30	87	23	91	148	33	58	169	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		50	150		150	95		150	95		150
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	90			90			60			60		
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		528			733			392			629	
Travel Time (s)		10.3			14.3			8.9			14.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											

Intersection	
Intersection Delay, s/veh	19.9
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↔		↖	↗		↖	↗	
Traffic Vol, veh/h	82	304	135	30	87	23	91	148	33	58	169	56
Future Vol, veh/h	82	304	135	30	87	23	91	148	33	58	169	56
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	87	323	144	32	93	24	97	157	35	62	180	60
Number of Lanes	0	1	1	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	26.6	14.3	14.3	15.7
HCM LOS	D	B	B	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	21%	0%	21%	100%	0%
Vol Thru, %	0%	82%	79%	0%	62%	0%	75%
Vol Right, %	0%	18%	0%	100%	16%	0%	25%
Sign Control	Stop						
Traffic Vol by Lane	91	181	386	135	140	58	225
LT Vol	91	0	82	0	30	58	0
Through Vol	0	148	304	0	87	0	169
RT Vol	0	33	0	135	23	0	56
Lane Flow Rate	97	193	411	144	149	62	239
Geometry Grp	7	7	7	7	6	7	7
Degree of Util (X)	0.215	0.394	0.798	0.246	0.318	0.137	0.484
Departure Headway (Hd)	8.005	7.36	6.995	6.174	7.675	7.972	7.278
Convergence, Y/N	Yes						
Cap	448	489	517	582	468	450	495
Service Time	5.759	5.113	4.74	3.918	5.737	5.725	5.031
HCM Lane V/C Ratio	0.217	0.395	0.795	0.247	0.318	0.138	0.483
HCM Control Delay	13	14.9	32.1	10.9	14.3	12	16.7
HCM Lane LOS	B	B	D	B	B	B	C
HCM 95th-tile Q	0.8	1.9	7.5	1	1.4	0.5	2.6

Lanes, Volumes, Timings  
7: Cardenas Dwy./Project Dwy. 1 & 2nd St.

EAPC (2025) PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 				 			 
Traffic Volume (vph)	0	451	31	0	222	41	0	0	84	0	0	41
Future Volume (vph)	0	451	31	0	222	41	0	0	84	0	0	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		319			197			217			156	
Travel Time (s)		6.2			3.8			4.9			3.5	
Confl. Peds. (#/hr)			5	5			5		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
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑				↑			↑
Traffic Vol, veh/h	0	451	31	0	222	41	0	0	84	0	0	41
Future Vol, veh/h	0	451	31	0	222	41	0	0	84	0	0	41
Conflicting Peds, #/hr	0	0	5	5	0	0	5	0	5	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	490	34	0	241	45	0	0	91	0	0	45

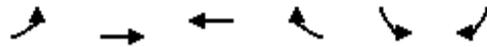
Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	-	0	0	-	-	0	-	-	272	-	-	143
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	726	0	0	879
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	719	-	-	879
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	10.7	9.3
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	719	-	-	-	-	879
HCM Lane V/C Ratio	0.127	-	-	-	-	0.051
HCM Control Delay (s)	10.7	-	-	-	-	9.3
HCM Lane LOS	B	-	-	-	-	A
HCM 95th %tile Q(veh)	0.4	-	-	-	-	0.2

Lanes, Volumes, Timings  
8: 2nd St. & Project Dwy. 2

EAPC (2025) PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	96	440	210	25	65	53
Future Volume (vph)	96	440	210	25	65	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	245			50	0	0
Storage Lanes	0			1	1	0
Taper Length (ft)	90				90	
Link Speed (mph)		35	35		30	
Link Distance (ft)		197	196		131	
Travel Time (s)		3.8	3.8		3.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection						
Int Delay, s/veh	3.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	96	440	210	25	65	53
Future Vol, veh/h	96	440	210	25	65	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	50	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	104	478	228	27	71	58

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	255	0	-	0	928 128
Stage 1	-	-	-	-	242 -
Stage 2	-	-	-	-	686 -
Critical Hdwy	4.13	-	-	-	6.63 6.93
Critical Hdwy Stg 1	-	-	-	-	5.83 -
Critical Hdwy Stg 2	-	-	-	-	5.43 -
Follow-up Hdwy	2.219	-	-	-	3.519 3.319
Pot Cap-1 Maneuver	1309	-	-	-	282 899
Stage 1	-	-	-	-	776 -
Stage 2	-	-	-	-	499 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1309	-	-	-	260 899
Mov Cap-2 Maneuver	-	-	-	-	260 -
Stage 1	-	-	-	-	715 -
Stage 2	-	-	-	-	499 -

Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	19.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1309	-	-	-	382
HCM Lane V/C Ratio	0.08	-	-	-	0.336
HCM Control Delay (s)	8	-	-	-	19.1
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	1.4

**PROJECT ACCESS QUEUEING ANALYSIS SUMMARY FOR  
EXISTING PLUS AMBIENT PLUS PROJECT PLUS CUMULATIVE (2025) CONDITIONS**

ID	Intersection	Turning Movement Lane	Proposed Storage Length Provided <sup>2</sup> (feet)	95th Percentile Queue Length Per Lane (feet) <sup>1</sup>	
				AM	PM
7	Cardenas Dwy. - Project Dwy. 1 / 2nd St.	SBR	>50	49	46
8	Project Dwy. 2 / 2nd St.	EBL	245	45	48
		SBL/R	>50	76	82

<sup>1</sup> Queue length calculated using Synchro 10 with SimTraffic.

Intersection: 7: Cardenas Dwy./Project Dwy. 1 & 2nd St.

Movement	EB	EB	WB	NB	SB
Directions Served	T	TR	TR	R	R
Maximum Queue (ft)	12	8	15	20	41
Average Queue (ft)	2	2	4	10	28
95th Queue (ft)	18	17	20	28	49
Link Distance (ft)	220	220	147	160	110
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 8: 2nd St. & Project Dwy. 2

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	35	63
Average Queue (ft)	19	42
95th Queue (ft)	45	76
Link Distance (ft)	147	84
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 0
------------------------------

Intersection: 7: Cardenas Dwy./Project Dwy. 1 & 2nd St.

Movement	EB	WB	WB	NB	SB
Directions Served	TR	T	TR	R	R
Maximum Queue (ft)	17	4	5	50	34
Average Queue (ft)	3	1	1	30	25
95th Queue (ft)	27	9	9	55	46
Link Distance (ft)	220	147	147	160	110
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 8: 2nd St. & Project Dwy. 2

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	37	80
Average Queue (ft)	18	50
95th Queue (ft)	48	82
Link Distance (ft)	147	84
Upstream Blk Time (%)		1
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 0
------------------------------

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**APPENDIX N**

**EXISTING PLUS AMBIENT PLUS CUMULATIVE PLUS PROJECT  
(E+A+P+C 2025) CONDITIONS  
FREEWAY RAMP ANALYSIS WORKSHEETS**

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# HCS7 Freeway Diverge Report

## Project Information

Analyst		Date	3/15/24
Agency	Trames Solutions, Inc.	Analysis Year	EAPC (2025)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 WB Off-Ramp @ Lincoln	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	70.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	2900	1000
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	8135	1103
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	9023	1223
Capacity (c), pc/h	14400	2000
Volume-to-Capacity Ratio (v/c)	0.63	0.61

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (Ds)	0.473
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1564
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	56.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	74.6
Flow in Lanes 1 and 2 (v12), pc/h	3640	Ramp Junction Speed (S), mi/h	63.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	23.6
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	26.6

# HCS7 Freeway Merge Report

## Project Information

Analyst		Date	3/15/24
Agency	Trames Solutions, Inc.	Analysis Year	EAPC (2025)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 WB On-Ramp @ Lincoln	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA),ft	2500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	7032	840
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fhv)	0.980	0.980
Flow Rate (vi),pc/h	7799	932
Capacity (c), pc/h	12000	2000
Volume-to-Capacity Ratio (v/c)	0.73	0.47

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.392
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1673
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	62.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.101	Outer Lanes Freeway Speed (SO), mi/h	71.2
Flow in Lanes 1 and 2 (v12), pc/h	2231	Ramp Junction Speed (S), mi/h	66.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	3163	Average Density (D), pc/mi/ln	26.2
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	27.9

# HCS7 Freeway Diverge Report

## Project Information

Analyst		Date	3/15/24
Agency	Trames Solutions, Inc.	Analysis Year	EAPC (2025)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 EB Off-Ramp @ 2nd St	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	70.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	4900	1340
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided Two-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	8831	496
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	9795	550
Capacity (c), pc/h	11000	4000
Volume-to-Capacity Ratio (v/c)	0.89	0.14

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (Ds)	0.412
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	2351
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	58.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	71.5
Flow in Lanes 1 and 2 (v12), pc/h	3134	Ramp Junction Speed (S), mi/h	65.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	29.8
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	19.1

# HCS7 Freeway Merge Report

## Project Information

Analyst		Date	3/15/24
Agency	Trames Solutions, Inc.	Analysis Year	EAPC (2025)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 EB On-Ramp @ 2nd St	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA),ft	2300	1500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	8335	835
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	9245	926
Capacity (c), pc/h	14400	2000
Volume-to-Capacity Ratio (v/c)	0.71	0.46

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.374
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	2080
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	62.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.102	Outer Lanes Freeway Speed (SO), mi/h	69.7
Flow in Lanes 1 and 2 (v12), pc/h	2774	Ramp Junction Speed (S), mi/h	66.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	3700	Average Density (D), pc/mi/ln	25.6
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	24.6

# HCS7 Freeway Diverge Report

## Project Information

Analyst		Date	3/15/24
Agency	Trames Solutions, Inc.	Analysis Year	EAPC (2025)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 WB Off-Ramp @ Lincoln	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	2900	1000
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	8505	906
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fhv)	0.980	0.980
Flow Rate (vi),pc/h	9433	1005
Capacity (c), pc/h	14100	2000
Volume-to-Capacity Ratio (v/c)	0.67	0.50

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (Ds)	0.453
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1712
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	68.5
Flow in Lanes 1 and 2 (v12), pc/h	3651	Ramp Junction Speed (S), mi/h	60.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	26.0
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	26.7

# HCS7 Freeway Merge Report

## Project Information

Analyst		Date	3/15/24
Agency	Trames Solutions, Inc.	Analysis Year	EAPC (2025)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 WB On-Ramp @ Lincoln	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	7	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA),ft	2500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	7599	695
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fhv)	0.980	0.980
Flow Rate (vi),pc/h	8428	771
Capacity (c), pc/h	16800	2000
Volume-to-Capacity Ratio (v/c)	0.55	0.39

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.406
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1897
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	61.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.121	Outer Lanes Freeway Speed (SO), mi/h	70.4
Flow in Lanes 1 and 2 (v12), pc/h	2528	Ramp Junction Speed (S), mi/h	66.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	3299	Average Density (D), pc/mi/ln	19.9
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	29.0

# HCS7 Freeway Diverge Report

## Project Information

Analyst		Date	3/15/24
Agency	Trames Solutions, Inc.	Analysis Year	EAPC (2025)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 EB Off-Ramp @ 2nd St	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	70.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	4900	1340
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided Two-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	8616	634
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	9556	703
Capacity (c), pc/h	11000	4000
Volume-to-Capacity Ratio (v/c)	0.87	0.18

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (Ds)	0.426
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	2293
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	58.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	71.7
Flow in Lanes 1 and 2 (v12), pc/h	3058	Ramp Junction Speed (S), mi/h	65.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	29.1
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	18.5

# HCS7 Freeway Merge Report

## Project Information

Analyst		Date	3/15/24
Agency	Trames Solutions, Inc.	Analysis Year	EAPC (2025)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 EB On-Ramp @ 2nd St	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA),ft	2300	1500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	7982	840
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	8853	932
Capacity (c), pc/h	14400	2000
Volume-to-Capacity Ratio (v/c)	0.68	0.47

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.357
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1992
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	63.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.101	Outer Lanes Freeway Speed (SO), mi/h	70.0
Flow in Lanes 1 and 2 (v12), pc/h	2656	Ramp Junction Speed (S), mi/h	66.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	3588	Average Density (D), pc/mi/ln	24.4
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	23.7

**APPENDIX O**

**EXISTING PLUS AMBIENT PLUS CUMULATIVE PLUS PROJECT  
(E+A+P+C 2025) CONDITIONS  
FREEWAY SEGMENT ANALYSIS WORKSHEETS**

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# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	3/15/24
Agency	Trames Solutions, Inc.	Analysis Year	EAPC (2025)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 WB, east of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8135	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1504
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	68.9
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	21.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	EAPC (2025)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 WB, between ramps	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	7032	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1560
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	68.5
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	22.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	3/15/24
Agency	Trames Solutions, Inc.	Analysis Year	EAPC (2025)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 WB, west of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	7872	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1746
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.73
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	66.5
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	26.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFSadj), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	3/15/24
Agency	Trames Solutions, Inc.	Analysis Year	EAPC (2025)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 EB, west of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8831	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1959
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.82
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	63.3
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	30.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFSadj), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	EAPC (2025)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 EB, between ramps	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8335	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1849
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.77
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	65.1
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	28.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFSadj), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	3/15/24
Agency	Trames Solutions, Inc.	Analysis Year	EAPC (2025)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 EB, East of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	9170	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1695
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.71
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	67.2
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	25.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFSadj), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	3/15/24
Agency	Trames Solutions, Inc.	Analysis Year	EAPC (2025)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 WB, east of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8505	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1572
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.66
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	68.4
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	23.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	EAPC (2025)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 WB, between ramps	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	7599	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1686
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	67.3
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	25.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	3/15/24
Agency	Trames Solutions, Inc.	Analysis Year	EAPC (2025)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 WB, west of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8294	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1840
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.77
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	65.3
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	28.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	3/15/24
Agency	Trames Solutions, Inc.	Analysis Year	EAPC (2025)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 EB, west of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8616	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1911
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.80
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	64.1
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	29.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	EAPC (2025)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 EB, between ramps	Unit	United States Customary

## Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	7982	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1771
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.74
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	66.2
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	26.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	3/15/24
Agency	Trames Solutions, Inc.	Analysis Year	EAPC (2025)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 EB, East of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8822	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1631
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.68
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	67.8
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	24.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

**APPENDIX P**

**2040 WITHOUT PROJECT CONDITIONS  
INTERSECTION ANALYSIS CALCULATION WORKSHEETS**

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Lanes, Volumes, Timings  
1: Lincoln Ave. & Pomona Rd.

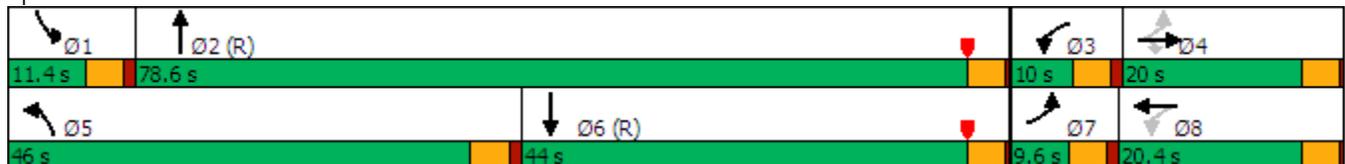
2040NP AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	10	46	93	26	22	454	898	67	37	853	51
Future Volume (vph)	24	10	46	93	26	22	454	898	67	37	853	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		160	75		150	300		150	90		150
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	30			90			60			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		328			795			507			349	
Travel Time (s)		7.5			18.1			9.9			6.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8								
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	4.0	4.0	5.0	4.0		5.0	4.0		5.0	4.0	
Minimum Split (s)	9.5	20.0	20.0	9.5	20.0		9.5	20.0		9.5	20.0	
Total Split (s)	9.6	20.0	20.0	10.0	20.4		46.0	78.6		11.4	44.0	
Total Split (%)	8.0%	16.7%	16.7%	8.3%	17.0%		38.3%	65.5%		9.5%	36.7%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	0.5	0.5	1.0	0.5		1.0	0.5		1.0	0.5	
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)	4.5	4.0	4.0	4.5	4.0		4.5	4.0		4.5	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Lincoln Ave. & Pomona Rd.



HCM 6th Signalized Intersection Summary  
1: Lincoln Ave. & Pomona Rd.

2040NP AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	10	46	93	26	22	454	898	67	37	853	51
Future Volume (veh/h)	24	10	46	93	26	22	454	898	67	37	853	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	25	11	48	98	27	23	478	945	71	39	898	54
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	175	113	93	214	76	65	499	2417	182	54	1606	97
Arrive On Green	0.02	0.06	0.06	0.05	0.08	0.08	0.56	1.00	1.00	0.03	0.47	0.47
Sat Flow, veh/h	1781	1870	1546	1781	924	787	1781	3349	252	1781	3404	205
Grp Volume(v), veh/h	25	11	48	98	0	50	478	501	515	39	469	483
Grp Sat Flow(s),veh/h/ln	1781	1870	1546	1781	0	1711	1781	1777	1824	1781	1777	1832
Q Serve(g_s), s	1.6	0.7	3.6	5.5	0.0	3.3	30.5	0.0	0.0	2.6	22.7	22.7
Cycle Q Clear(g_c), s	1.6	0.7	3.6	5.5	0.0	3.3	30.5	0.0	0.0	2.6	22.7	22.7
Prop In Lane	1.00		1.00	1.00		0.46	1.00		0.14	1.00		0.11
Lane Grp Cap(c), veh/h	175	113	93	214	0	142	499	1282	1316	54	838	864
V/C Ratio(X)	0.14	0.10	0.51	0.46	0.00	0.35	0.96	0.39	0.39	0.72	0.56	0.56
Avail Cap(c_a), veh/h	209	249	206	214	0	234	616	1282	1316	102	838	864
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.64	0.64	0.64	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.1	53.3	54.7	50.7	0.0	52.0	25.7	0.0	0.0	57.7	22.7	22.7
Incr Delay (d2), s/veh	0.4	0.4	4.3	1.5	0.0	1.5	17.5	0.6	0.6	16.5	2.7	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.3	1.5	2.9	0.0	1.5	11.1	0.2	0.2	1.4	9.9	10.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.4	53.6	59.0	52.2	0.0	53.5	43.2	0.6	0.6	74.2	25.4	25.4
LnGrp LOS	D	D	E	D	A	D	D	A	A	E	C	C
Approach Vol, veh/h		84			148			1494			991	
Approach Delay, s/veh		56.0			52.6			14.2			27.3	
Approach LOS		E			D			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.1	90.6	10.0	11.3	38.1	60.6	7.3	13.9				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	6.9	74.6	5.5	16.0	41.5	40.0	5.1	16.4				
Max Q Clear Time (g_c+I1), s	4.6	2.0	7.5	5.6	32.5	24.7	3.6	5.3				
Green Ext Time (p_c), s	0.0	8.2	0.0	0.1	1.1	5.3	0.0	0.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				22.4								
HCM 6th LOS				C								

Lanes, Volumes, Timings  
 2: Lincoln Ave. & SR-91 WB Ramps

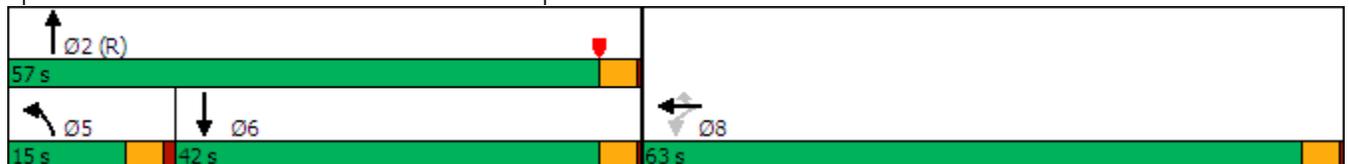
2040NP AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	580	142	735	235	684	0	0	461	505
Future Volume (vph)	0	0	0	580	142	735	235	684	0	0	461	505
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	0		320	420		150	150		150
Storage Lanes	0		0	1		2	2		0	0		0
Taper Length (ft)	90			120			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			35				35
Link Distance (ft)		1035			1181			839				507
Travel Time (s)		23.5			26.8			16.3				9.9
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)				38%								
Turn Type				Perm	NA	Perm	Prot	NA				NA
Protected Phases					8		5	2				6
Permitted Phases				8		8						
Detector Phase				8	8	8	5	2				6
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0	5.0	4.0				4.0
Minimum Split (s)				20.0	20.0	20.0	9.5	20.0				20.0
Total Split (s)				63.0	63.0	63.0	15.0	57.0				42.0
Total Split (%)				52.5%	52.5%	52.5%	12.5%	47.5%				35.0%
Yellow Time (s)				3.5	3.5	3.5	3.5	3.5				3.5
All-Red Time (s)				0.5	0.5	0.5	1.0	0.5				0.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0				0.0
Total Lost Time (s)				4.0	4.0	4.0	4.5	4.0				4.0
Lead/Lag							Lead					Lag
Lead-Lag Optimize?							Yes					Yes
Recall Mode				None	None	None	None	C-Max				None

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:NBT, Start of Yellow  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated

Splits and Phases: 2: Lincoln Ave. & SR-91 WB Ramps



HCM 6th Signalized Intersection Summary  
2: Lincoln Ave. & SR-91 WB Ramps

2040NP AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	580	142	735	235	684	0	0	461	505
Future Volume (veh/h)	0	0	0	580	142	735	235	684	0	0	461	505
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				380	472	774	247	720	0	0	485	532
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				876	920	777	297	1570	0	0	566	502
Arrive On Green				0.49	0.49	0.49	0.17	0.88	0.00	0.00	0.11	0.11
Sat Flow, veh/h				1781	1870	1580	3456	3647	0	0	1870	1578
Grp Volume(v), veh/h				380	472	774	247	720	0	0	485	532
Grp Sat Flow(s),veh/h/ln				1781	1870	1580	1728	1777	0	0	1777	1578
Q Serve(g_s), s				16.5	20.6	58.6	8.3	4.8	0.0	0.0	32.2	38.2
Cycle Q Clear(g_c), s				16.5	20.6	58.6	8.3	4.8	0.0	0.0	32.2	38.2
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				876	920	777	297	1570	0	0	566	502
V/C Ratio(X)				0.43	0.51	1.00	0.83	0.46	0.00	0.00	0.86	1.06
Avail Cap(c_a), veh/h				876	920	777	302	1570	0	0	566	502
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	0.33	0.33
Upstream Filter(I)				1.00	1.00	1.00	0.86	0.86	0.00	0.00	0.78	0.78
Uniform Delay (d), s/veh				19.7	20.7	30.4	48.9	4.2	0.0	0.0	51.0	53.7
Incr Delay (d2), s/veh				0.3	0.5	31.3	15.3	0.8	0.0	0.0	10.0	52.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				6.9	9.0	28.1	3.9	1.4	0.0	0.0	16.9	23.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				20.0	21.2	61.7	64.2	5.0	0.0	0.0	61.1	106.0
LnGrp LOS				C	C	E	E	A	A	A	E	F
Approach Vol, veh/h				1626			967			1017		
Approach Delay, s/veh				40.2			20.1			84.6		
Approach LOS				D			C			F		
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		57.0			14.8	42.2		63.0				
Change Period (Y+Rc), s		4.0			4.5	4.0		4.0				
Max Green Setting (Gmax), s		53.0			10.5	38.0		59.0				
Max Q Clear Time (g_c+I1), s		6.8			10.3	40.2		60.6				
Green Ext Time (p_c), s		5.6			0.0	0.0		0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				47.3								
HCM 6th LOS				D								
<b>Notes</b>												
User approved volume balancing among the lanes for turning movement.												

Lanes, Volumes, Timings  
3: Lincoln Ave. & D St./2nd St.

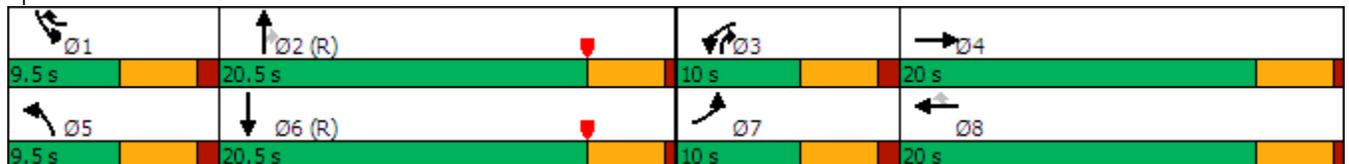
2040NP AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	155	68	102	70	333	86	540	482	198	690	117
Future Volume (vph)	46	155	68	102	70	333	86	540	482	198	690	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		65	155		155	165		310	220		150
Storage Lanes	1		1	2		0	1		1	2		0
Taper Length (ft)	30			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		358			549			551			839	
Travel Time (s)		7.0			10.7			10.7			16.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases						8			2			
Detector Phase	7	4		3	8	1	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	
Minimum Split (s)	9.5	20.0		9.5	20.0	9.5	9.5	20.0	9.5	9.5	20.0	
Total Split (s)	10.0	20.0		10.0	20.0	9.5	9.5	20.5	10.0	9.5	20.5	
Total Split (%)	16.7%	33.3%		16.7%	33.3%	15.8%	15.8%	34.2%	16.7%	15.8%	34.2%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	0.5		1.0	0.5	1.0	1.0	0.5	1.0	1.0	0.5	
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)	4.5	4.0		4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow, Master Intersection  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 3: Lincoln Ave. & D St./2nd St.



HCM 6th Signalized Intersection Summary  
3: Lincoln Ave. & D St./2nd St.

2040NP AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	155	68	102	70	333	86	540	482	198	690	117
Future Volume (veh/h)	46	155	68	102	70	333	86	540	482	198	690	117
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	48	161	71	106	73	347	90	562	502	206	719	122
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	82	263	116	239	445	507	115	1243	661	288	1118	190
Arrive On Green	0.05	0.21	0.21	0.02	0.08	0.08	0.06	0.35	0.35	0.08	0.37	0.37
Sat Flow, veh/h	1781	1227	541	3456	1870	1575	1781	3554	1578	3456	3036	515
Grp Volume(v), veh/h	48	0	232	106	73	347	90	562	502	206	421	420
Grp Sat Flow(s),veh/h/ln	1781	0	1768	1728	1870	1575	1781	1777	1578	1728	1777	1774
Q Serve(g_s), s	1.6	0.0	7.1	1.8	2.2	11.7	3.0	7.3	16.3	3.5	11.8	11.8
Cycle Q Clear(g_c), s	1.6	0.0	7.1	1.8	2.2	11.7	3.0	7.3	16.3	3.5	11.8	11.8
Prop In Lane	1.00		0.31	1.00		1.00	1.00		1.00	1.00		0.29
Lane Grp Cap(c), veh/h	82	0	379	239	445	507	115	1243	661	288	654	653
V/C Ratio(X)	0.59	0.00	0.61	0.44	0.16	0.69	0.78	0.45	0.76	0.72	0.64	0.64
Avail Cap(c_a), veh/h	163	0	472	317	499	552	148	1243	661	288	654	653
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.96	0.96	0.96	1.00	1.00	1.00	0.60	0.60	0.60
Uniform Delay (d), s/veh	28.1	0.0	21.3	28.2	22.1	21.5	27.6	15.1	14.9	26.8	15.7	15.7
Incr Delay (d2), s/veh	6.5	0.0	1.6	1.2	0.2	3.0	18.0	1.2	8.0	5.0	2.9	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	2.8	0.8	0.9	5.1	1.8	2.8	6.3	1.5	4.6	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.6	0.0	22.9	29.4	22.2	24.6	45.6	16.3	22.8	31.8	18.6	18.6
LnGrp LOS	C	A	C	C	C	C	D	B	C	C	B	B
Approach Vol, veh/h		280			526			1154			1047	
Approach Delay, s/veh		24.9			25.2			21.4			21.2	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	25.0	8.6	16.9	8.4	26.1	7.3	18.3				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	5.0	16.5	5.5	16.0	5.0	16.5	5.5	16.0				
Max Q Clear Time (g_c+I1), s	5.5	18.3	3.8	9.1	5.0	13.8	3.6	13.7				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.7	0.0	1.4	0.0	0.4				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				22.3								
HCM 6th LOS				C								

Lanes, Volumes, Timings  
4: Lincoln Ave. & 6th St.

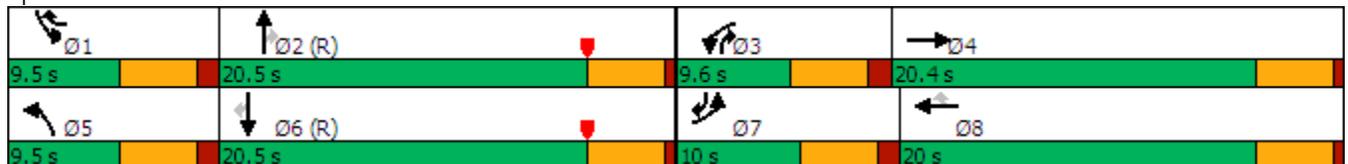
2040NP AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	195	410	21	96	884	95	89	857	107	67	371	434
Future Volume (vph)	195	410	21	96	884	95	89	857	107	67	371	434
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	205		150	175		90	150		95	110		150
Storage Lanes	2		0	2		1	1		1	1		1
Taper Length (ft)	90			120			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		413			447			466			504	
Travel Time (s)		8.0			8.7			9.1			9.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0
Minimum Split (s)	9.5	20.0		9.5	20.0	9.5	9.5	20.0	9.5	9.5	20.0	9.5
Total Split (s)	10.0	20.4		9.6	20.0	9.5	9.5	20.5	9.6	9.5	20.5	10.0
Total Split (%)	16.7%	34.0%		16.0%	33.3%	15.8%	15.8%	34.2%	16.0%	15.8%	34.2%	16.7%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	0.5		1.0	0.5	1.0	1.0	0.5	1.0	1.0	0.5	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)	4.5	4.0		4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated

Splits and Phases: 4: Lincoln Ave. & 6th St.



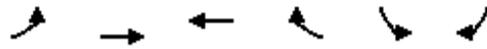
HCM 6th Signalized Intersection Summary  
4: Lincoln Ave. & 6th St.

2040NP AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	195	410	21	96	884	95	89	857	107	67	371	434
Future Volume (veh/h)	195	410	21	96	884	95	89	857	107	67	371	434
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	205	432	22	101	931	100	94	902	113	71	391	457
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	304	986	50	234	948	512	120	1081	587	103	1047	604
Arrive On Green	0.09	0.29	0.29	0.07	0.27	0.27	0.07	0.30	0.30	0.06	0.29	0.29
Sat Flow, veh/h	3456	3440	175	3456	3554	1576	1781	3554	1577	1781	3554	1577
Grp Volume(v), veh/h	205	223	231	101	931	100	94	902	113	71	391	457
Grp Sat Flow(s),veh/h/ln	1728	1777	1838	1728	1777	1576	1781	1777	1577	1781	1777	1577
Q Serve(g_s), s	3.5	6.1	6.2	1.7	15.6	2.7	3.1	14.2	2.9	2.3	5.2	15.1
Cycle Q Clear(g_c), s	3.5	6.1	6.2	1.7	15.6	2.7	3.1	14.2	2.9	2.3	5.2	15.1
Prop In Lane	1.00		0.10	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	304	509	527	234	948	512	120	1081	587	103	1047	604
V/C Ratio(X)	0.67	0.44	0.44	0.43	0.98	0.20	0.78	0.83	0.19	0.69	0.37	0.76
Avail Cap(c_a), veh/h	317	509	527	294	948	512	148	1081	587	148	1047	604
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.5	17.4	17.5	26.9	21.9	14.6	27.5	19.5	12.7	27.7	16.8	16.1
Incr Delay (d2), s/veh	5.3	0.6	0.6	1.2	24.9	0.2	19.1	7.6	0.7	7.9	1.0	8.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	2.3	2.4	0.7	9.0	0.9	1.9	6.3	1.0	1.2	2.0	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.8	18.0	18.0	28.1	46.8	14.8	46.6	27.1	13.5	35.7	17.8	24.7
LnGrp LOS	C	B	B	C	D	B	D	C	B	D	B	C
Approach Vol, veh/h		659			1132			1109			919	
Approach Delay, s/veh		22.3			42.3			27.3			22.6	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.0	22.3	8.6	21.2	8.5	21.7	9.8	20.0				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	5.0	16.5	5.1	16.4	5.0	16.5	5.5	16.0				
Max Q Clear Time (g_c+I1), s	4.3	16.2	3.7	8.2	5.1	17.1	5.5	17.6				
Green Ext Time (p_c), s	0.0	0.2	0.0	1.6	0.0	0.0	0.0	0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				29.8								
HCM 6th LOS				C								

Lanes, Volumes, Timings  
5: 2nd St. & SR-91 EB Ramps

2040NP AM Peak Hour

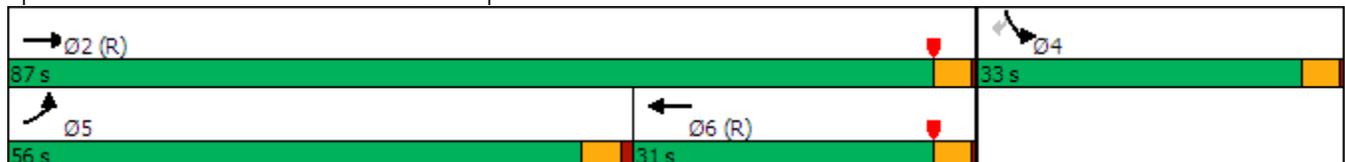


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖↗	↑	↕↔		↖↗	↗
Traffic Volume (vph)	737	179	170	176	265	335
Future Volume (vph)	737	179	170	176	265	335
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190			150	450	150
Storage Lanes	0			0	0	0
Taper Length (ft)	60				90	
Right Turn on Red				Yes		Yes
Link Speed (mph)		35	35		30	
Link Distance (ft)		549	319		407	
Travel Time (s)		10.7	6.2		9.3	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						43%
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	5.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.5	20.0	20.0		20.0	20.0
Total Split (s)	56.0	87.0	31.0		33.0	33.0
Total Split (%)	46.7%	72.5%	25.8%		27.5%	27.5%
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	0.5	0.5		0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.0	4.0		4.0	4.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Recall Mode	None	C-Max	C-Max		Max	Max

Intersection Summary

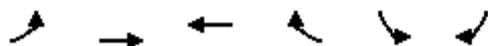
Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 5: 2nd St. & SR-91 EB Ramps



HCM 6th Signalized Intersection Summary  
5: 2nd St. & SR-91 EB Ramps

2040NP AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	737	179	170	176	265	335
Future Volume (veh/h)	737	179	170	176	265	335
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	776	188	179	185	211	426
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	888	1294	706	626	430	766
Arrive On Green	0.26	0.69	0.40	0.40	0.24	0.24
Sat Flow, veh/h	3456	1870	1870	1575	1781	3170
Grp Volume(v), veh/h	776	188	179	185	211	426
Grp Sat Flow(s),veh/h/ln	1728	1870	1777	1575	1781	1585
Q Serve(g_s), s	25.8	4.1	8.1	9.6	12.2	14.1
Cycle Q Clear(g_c), s	25.8	4.1	8.1	9.6	12.2	14.1
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	888	1294	706	626	430	766
V/C Ratio(X)	0.87	0.15	0.25	0.30	0.49	0.56
Avail Cap(c_a), veh/h	1483	1294	706	626	430	766
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.79	0.79	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.7	6.3	24.2	24.7	39.1	39.9
Incr Delay (d2), s/veh	2.7	0.2	0.9	1.2	4.0	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.2	1.6	3.6	3.8	5.8	12.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.4	6.5	25.1	25.9	43.1	42.8
LnGrp LOS	D	A	C	C	D	D
Approach Vol, veh/h		964	364		637	
Approach Delay, s/veh		37.8	25.5		42.9	
Approach LOS		D	C		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		87.0		33.0	35.3	51.7
Change Period (Y+Rc), s		4.0		4.0	4.5	4.0
Max Green Setting (Gmax), s		83.0		29.0	51.5	27.0
Max Q Clear Time (g_c+I1), s		6.1		16.1	27.8	11.6
Green Ext Time (p_c), s		1.1		2.1	3.0	1.9

Intersection Summary

HCM 6th Ctrl Delay	37.2
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings  
6: Buena Vista Ave. & 2nd St.

2040NP AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	104	105	75	119	31	105	194	20	38	172	51
Future Volume (vph)	108	104	105	75	119	31	105	194	20	38	172	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		50	150		150	95		150	95		150
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	90			90			60			60		
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		528			733			392			629	
Travel Time (s)		10.3			14.3			8.9			14.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		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
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	15.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↔		↖	↗		↖	↗	
Traffic Vol, veh/h	108	104	105	75	119	31	105	194	20	38	172	51
Future Vol, veh/h	108	104	105	75	119	31	105	194	20	38	172	51
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	117	113	114	82	129	34	114	211	22	41	187	55
Number of Lanes	0	1	1	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	14.9	17.7	14.9	15.7
HCM LOS	B	C	B	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	51%	0%	33%	100%	0%
Vol Thru, %	0%	91%	49%	0%	53%	0%	77%
Vol Right, %	0%	9%	0%	100%	14%	0%	23%
Sign Control	Stop						
Traffic Vol by Lane	105	214	212	105	225	38	223
LT Vol	105	0	108	0	75	38	0
Through Vol	0	194	104	0	119	0	172
RT Vol	0	20	0	105	31	0	51
Lane Flow Rate	114	233	230	114	245	41	242
Geometry Grp	7	7	7	7	6	7	7
Degree of Util (X)	0.245	0.461	0.478	0.206	0.502	0.09	0.482
Departure Headway (Hd)	7.716	7.136	7.473	6.497	7.391	7.833	7.155
Convergence, Y/N	Yes						
Cap	465	505	482	551	487	457	502
Service Time	5.472	4.891	5.228	4.251	5.449	5.59	4.911
HCM Lane V/C Ratio	0.245	0.461	0.477	0.207	0.503	0.09	0.482
HCM Control Delay	13	15.9	16.9	10.9	17.7	11.4	16.4
HCM Lane LOS	B	C	C	B	C	B	C
HCM 95th-tile Q	1	2.4	2.5	0.8	2.8	0.3	2.6

Lanes, Volumes, Timings  
7: Cardenas Dwy. & 2nd St.

2040NP AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↑↑	
Traffic Volume (vph)	421	23	16	310	36	24
Future Volume (vph)	421	23	16	310	36	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	35			35	30	
Link Distance (ft)	319			197	217	
Travel Time (s)	6.2			3.8	4.9	
Confl. Peds. (#/hr)		5	5		5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection						
Int Delay, s/veh	1.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↑↓	
Traffic Vol, veh/h	421	23	16	310	36	24
Future Vol, veh/h	421	23	16	310	36	24
Conflicting Peds, #/hr	0	5	5	0	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	458	25	17	337	39	26

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	488	0	684
Stage 1	-	-	-	-	476
Stage 2	-	-	-	-	208
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	1071	-	382
Stage 1	-	-	-	-	591
Stage 2	-	-	-	-	807
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1066	-	371
Mov Cap-2 Maneuver	-	-	-	-	371
Stage 1	-	-	-	-	588
Stage 2	-	-	-	-	787

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	14
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	464	-	-	1066	-
HCM Lane V/C Ratio	0.141	-	-	0.016	-
HCM Control Delay (s)	14	-	-	8.4	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-

Lanes, Volumes, Timings  
1: Lincoln Ave. & Pomona Rd.

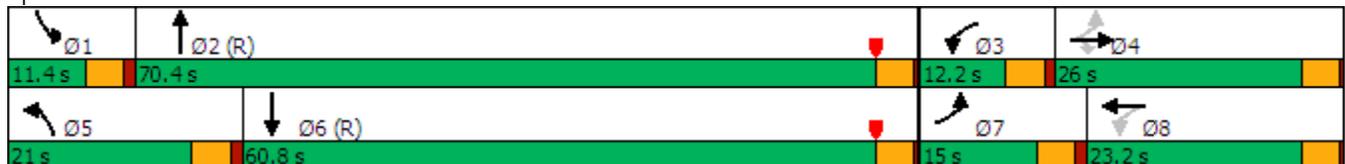
2040NP PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	34	239	100	20	19	109	729	109	30	1020	50
Future Volume (vph)	127	34	239	100	20	19	109	729	109	30	1020	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		160	75		150	300		150	90		150
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	30			90			60			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		328			795			507			349	
Travel Time (s)		7.5			18.1			9.9			6.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8								
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	4.0	4.0	5.0	4.0		5.0	4.0		5.0	4.0	
Minimum Split (s)	9.5	20.0	20.0	9.5	20.0		9.5	20.0		9.5	20.0	
Total Split (s)	15.0	26.0	26.0	12.2	23.2		21.0	70.4		11.4	60.8	
Total Split (%)	12.5%	21.7%	21.7%	10.2%	19.3%		17.5%	58.7%		9.5%	50.7%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	0.5	0.5	1.0	0.5		1.0	0.5		1.0	0.5	
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)	4.5	4.0	4.0	4.5	4.0		4.5	4.0		4.5	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Lincoln Ave. & Pomona Rd.



HCM 6th Signalized Intersection Summary  
1: Lincoln Ave. & Pomona Rd.

2040NP PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	127	34	239	100	20	19	109	729	109	30	1020	50
Future Volume (veh/h)	127	34	239	100	20	19	109	729	109	30	1020	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	134	36	252	105	21	20	115	767	115	32	1074	53
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	388	328	275	345	141	134	140	1835	275	49	1865	92
Arrive On Green	0.08	0.18	0.18	0.06	0.16	0.16	0.16	1.00	1.00	0.03	0.54	0.54
Sat Flow, veh/h	1781	1870	1571	1781	876	835	1781	3097	464	1781	3446	170
Grp Volume(v), veh/h	134	36	252	105	0	41	115	440	442	32	554	573
Grp Sat Flow(s),veh/h/ln	1781	1870	1571	1781	0	1711	1781	1777	1784	1781	1777	1839
Q Serve(g_s), s	7.4	1.9	18.9	5.8	0.0	2.5	7.5	0.0	0.0	2.1	24.9	24.9
Cycle Q Clear(g_c), s	7.4	1.9	18.9	5.8	0.0	2.5	7.5	0.0	0.0	2.1	24.9	24.9
Prop In Lane	1.00		1.00	1.00		0.49	1.00		0.26	1.00		0.09
Lane Grp Cap(c), veh/h	388	328	275	345	0	275	140	1053	1057	49	962	995
V/C Ratio(X)	0.34	0.11	0.92	0.30	0.00	0.15	0.82	0.42	0.42	0.66	0.58	0.58
Avail Cap(c_a), veh/h	405	343	288	347	0	275	245	1053	1057	102	962	995
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.92	0.92	0.92	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.6	41.6	48.6	38.4	0.0	43.3	49.8	0.0	0.0	57.8	18.3	18.3
Incr Delay (d2), s/veh	0.5	0.1	31.2	0.5	0.0	0.2	10.5	1.1	1.1	14.0	2.5	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	0.9	9.8	2.6	0.0	1.1	3.5	0.3	0.3	1.1	10.5	10.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.2	41.8	79.8	38.9	0.0	43.6	60.2	1.1	1.1	71.9	20.9	20.8
LnGrp LOS	D	D	E	D	A	D	E	A	A	E	C	C
Approach Vol, veh/h		422			146			997			1159	
Approach Delay, s/veh		63.3			40.2			7.9			22.2	
Approach LOS		E			D			A			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.8	75.1	12.1	25.0	13.9	69.0	13.9	23.3				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	6.9	66.4	7.7	22.0	16.5	56.8	10.5	19.2				
Max Q Clear Time (g_c+I1), s	4.1	2.0	7.8	20.9	9.5	26.9	9.4	4.5				
Green Ext Time (p_c), s	0.0	6.7	0.0	0.1	0.1	8.6	0.0	0.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			24.3									
HCM 6th LOS			C									

Lanes, Volumes, Timings  
2: Lincoln Ave. & SR-91 WB Ramps

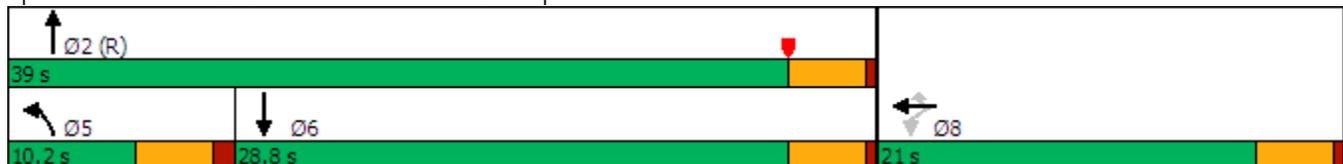
2040NP PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	852	25	337	251	610	0	0	874	450
Future Volume (vph)	0	0	0	852	25	337	251	610	0	0	874	450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	0		320	420		150	150		150
Storage Lanes	0		0	1		2	2		0	0		0
Taper Length (ft)	90			120			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			35				35
Link Distance (ft)		1035			1181			839				507
Travel Time (s)		23.5			26.8			16.3				9.9
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)				49%								
Turn Type				Perm	NA	Perm	Prot	NA				NA
Protected Phases					8		5	2				6
Permitted Phases				8		8						
Detector Phase				8	8	8	5	2				6
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0	5.0	4.0				4.0
Minimum Split (s)				20.0	20.0	20.0	9.5	20.0				20.0
Total Split (s)				21.0	21.0	21.0	10.2	39.0				28.8
Total Split (%)				35.0%	35.0%	35.0%	17.0%	65.0%				48.0%
Yellow Time (s)				3.5	3.5	3.5	3.5	3.5				3.5
All-Red Time (s)				0.5	0.5	0.5	1.0	0.5				0.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0				0.0
Total Lost Time (s)				4.0	4.0	4.0	4.5	4.0				4.0
Lead/Lag							Lead					Lag
Lead-Lag Optimize?							Yes					Yes
Recall Mode				None	None	None	None	C-Max				None

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT, Start of Yellow  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated

Splits and Phases: 2: Lincoln Ave. & SR-91 WB Ramps



HCM 6th Signalized Intersection Summary  
 2: Lincoln Ave. & SR-91 WB Ramps

2040NP PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	852	25	337	251	610	0	0	874	450
Future Volume (veh/h)	0	0	0	852	25	337	251	610	0	0	874	450
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				916	0	355	264	642	0	0	920	474
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				1007	0	446	328	2075	0	0	944	478
Arrive On Green				0.28	0.00	0.28	0.13	0.78	0.00	0.00	0.28	0.28
Sat Flow, veh/h				3563	0	1577	3456	3647	0	0	2373	1155
Grp Volume(v), veh/h				916	0	355	264	642	0	0	714	680
Grp Sat Flow(s),veh/h/ln				1781	0	1577	1728	1777	0	0	1777	1658
Q Serve(g_s), s				14.9	0.0	12.5	4.5	3.2	0.0	0.0	23.8	24.5
Cycle Q Clear(g_c), s				14.9	0.0	12.5	4.5	3.2	0.0	0.0	23.8	24.5
Prop In Lane				1.00		1.00	1.00		0.00	0.00		0.70
Lane Grp Cap(c), veh/h				1007	0	446	328	2075	0	0	736	686
V/C Ratio(X)				0.91	0.00	0.80	0.80	0.31	0.00	0.00	0.97	0.99
Avail Cap(c_a), veh/h				1009	0	447	328	2075	0	0	736	686
HCM Platoon Ratio				1.00	1.00	1.00	1.33	1.33	1.00	1.00	0.67	0.67
Upstream Filter(I)				1.00	0.00	1.00	0.86	0.86	0.00	0.00	0.80	0.80
Uniform Delay (d), s/veh				20.8	0.0	19.9	25.7	3.1	0.0	0.0	21.3	21.6
Incr Delay (d2), s/veh				11.9	0.0	9.7	11.8	0.3	0.0	0.0	22.6	28.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				7.3	0.0	5.4	2.2	0.8	0.0	0.0	14.4	14.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				32.7	0.0	29.6	37.5	3.5	0.0	0.0	43.9	50.1
LnGrp LOS				C	A	C	D	A	A	A	D	D
Approach Vol, veh/h					1271			906			1394	
Approach Delay, s/veh					31.8			13.4			46.9	
Approach LOS					C			B			D	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		39.0			10.2	28.8		21.0				
Change Period (Y+Rc), s		4.0			4.5	4.0		4.0				
Max Green Setting (Gmax), s		35.0			5.7	24.8		17.0				
Max Q Clear Time (g_c+I1), s		5.2			6.5	26.5		16.9				
Green Ext Time (p_c), s		4.6			0.0	0.0		0.1				

Intersection Summary

HCM 6th Ctrl Delay	33.0
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings  
3: Lincoln Ave. & D St./2nd St.

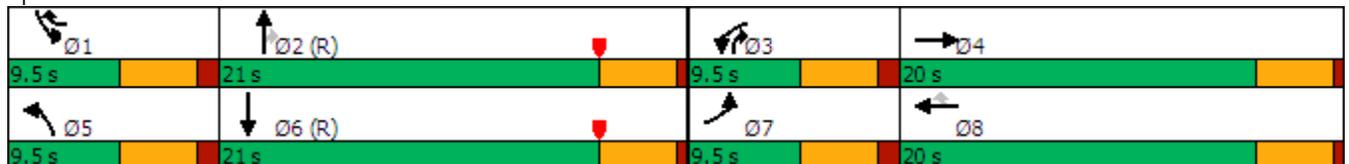
2040NP PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	190	27	158	93	269	67	523	353	373	1092	141
Future Volume (vph)	69	190	27	158	93	269	67	523	353	373	1092	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		65	155		155	165		310	220		150
Storage Lanes	1		1	2		0	1		1	2		0
Taper Length (ft)	30			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		358			549			551			839	
Travel Time (s)		7.0			10.7			10.7			16.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases						8			2			
Detector Phase	7	4		3	8	1	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	
Minimum Split (s)	9.5	20.0		9.5	20.0	9.5	9.5	20.0	9.5	9.5	20.0	
Total Split (s)	9.5	20.0		9.5	20.0	9.5	9.5	21.0	9.5	9.5	21.0	
Total Split (%)	15.8%	33.3%		15.8%	33.3%	15.8%	15.8%	35.0%	15.8%	15.8%	35.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	0.5		1.0	0.5	1.0	1.0	0.5	1.0	1.0	0.5	
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)	4.5	4.0		4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow, Master Intersection  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated

Splits and Phases: 3: Lincoln Ave. & D St./2nd St.



HCM 6th Signalized Intersection Summary  
3: Lincoln Ave. & D St./2nd St.

2040NP PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				 				 		 	 	
Traffic Volume (veh/h)	69	190	27	158	93	269	67	523	353	373	1092	141
Future Volume (veh/h)	69	190	27	158	93	269	67	523	353	373	1092	141
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	73	200	28	166	98	283	71	551	372	393	1149	148
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	104	299	42	270	385	456	103	1312	706	288	1249	160
Arrive On Green	0.06	0.19	0.19	0.08	0.21	0.21	0.08	0.52	0.52	0.12	0.55	0.55
Sat Flow, veh/h	1781	1603	224	3456	1870	1573	1781	3554	1579	3456	3164	407
Grp Volume(v), veh/h	73	0	228	166	98	283	71	551	372	393	644	653
Grp Sat Flow(s),veh/h/ln	1781	0	1828	1728	1870	1573	1781	1777	1579	1728	1777	1794
Q Serve(g_s), s	2.4	0.0	7.0	2.8	2.6	9.4	2.3	5.7	8.9	5.0	19.8	19.9
Cycle Q Clear(g_c), s	2.4	0.0	7.0	2.8	2.6	9.4	2.3	5.7	8.9	5.0	19.8	19.9
Prop In Lane	1.00		0.12	1.00		1.00	1.00		1.00	1.00		0.23
Lane Grp Cap(c), veh/h	104	0	340	270	385	456	103	1312	706	288	701	708
V/C Ratio(X)	0.70	0.00	0.67	0.62	0.25	0.62	0.69	0.42	0.53	1.36	0.92	0.92
Avail Cap(c_a), veh/h	148	0	487	288	499	552	148	1312	706	288	701	708
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.40	1.40	1.40	1.40	1.40	1.40
Upstream Filter(I)	1.00	0.00	1.00	0.93	0.93	0.93	1.00	1.00	1.00	0.22	0.22	0.22
Uniform Delay (d), s/veh	27.7	0.0	22.7	26.8	20.0	18.5	27.0	10.5	8.9	26.5	12.6	12.6
Incr Delay (d2), s/veh	8.1	0.0	2.3	3.3	0.3	1.4	7.9	1.0	2.8	169.1	5.5	5.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	2.9	1.2	1.1	3.2	1.1	2.0	2.7	8.6	5.6	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.9	0.0	25.0	30.1	20.3	19.9	35.0	11.5	11.7	195.6	18.1	18.3
LnGrp LOS	D	A	C	C	C	B	C	B	B	F	B	B
Approach Vol, veh/h		301			547			994			1690	
Approach Delay, s/veh		27.6			23.1			13.3			59.5	
Approach LOS		C			C			B			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	26.1	9.2	15.2	8.0	27.7	8.0	16.3				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	5.0	17.0	5.0	16.0	5.0	17.0	5.0	16.0				
Max Q Clear Time (g_c+I1), s	7.0	10.9	4.8	9.0	4.3	21.9	4.4	11.4				
Green Ext Time (p_c), s	0.0	2.6	0.0	0.6	0.0	0.0	0.0	0.7				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			38.1									
HCM 6th LOS			D									
<b>Notes</b>												
User approved pedestrian interval to be less than phase max green.												

Lanes, Volumes, Timings  
4: Lincoln Ave. & 6th St.

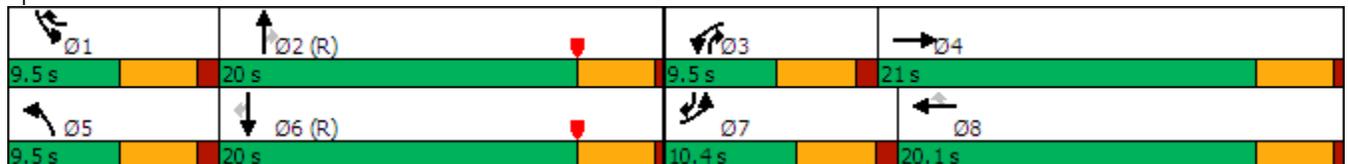
2040NP PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	281	883	85	209	583	170	53	515	160	116	856	293
Future Volume (vph)	281	883	85	209	583	170	53	515	160	116	856	293
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	205		150	175		90	150		95	110		150
Storage Lanes	2		0	2		1	1		1	1		1
Taper Length (ft)	90			120			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		413			447			466			504	
Travel Time (s)		8.0			8.7			9.1			9.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0
Minimum Split (s)	9.5	20.0		9.5	20.0	9.5	9.5	20.0	9.5	9.5	20.0	9.5
Total Split (s)	10.4	21.0		9.5	20.1	9.5	9.5	20.0	9.5	9.5	20.0	10.4
Total Split (%)	17.3%	35.0%		15.8%	33.5%	15.8%	15.8%	33.3%	15.8%	15.8%	33.3%	17.3%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	0.5		1.0	0.5	1.0	1.0	0.5	1.0	1.0	0.5	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)	4.5	4.0		4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated

Splits and Phases: 4: Lincoln Ave. & 6th St.



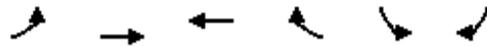
HCM 6th Signalized Intersection Summary  
4: Lincoln Ave. & 6th St.

2040NP PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	281	883	85	209	583	170	53	515	160	116	856	293
Future Volume (veh/h)	281	883	85	209	583	170	53	515	160	116	856	293
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	287	901	87	213	595	173	54	526	163	118	873	299
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	340	927	90	288	954	555	88	948	552	148	1068	630
Arrive On Green	0.10	0.28	0.28	0.08	0.27	0.27	0.05	0.27	0.27	0.08	0.30	0.30
Sat Flow, veh/h	3456	3272	316	3456	3554	1576	1781	3554	1576	1781	3554	1577
Grp Volume(v), veh/h	287	489	499	213	595	173	54	526	163	118	873	299
Grp Sat Flow(s),veh/h/ln	1728	1777	1811	1728	1777	1576	1781	1777	1576	1781	1777	1577
Q Serve(g_s), s	4.9	16.3	16.3	3.6	8.8	4.8	1.8	7.6	4.5	3.9	13.7	8.4
Cycle Q Clear(g_c), s	4.9	16.3	16.3	3.6	8.8	4.8	1.8	7.6	4.5	3.9	13.7	8.4
Prop In Lane	1.00		0.17	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	340	503	513	288	954	555	88	948	552	148	1068	630
V/C Ratio(X)	0.84	0.97	0.97	0.74	0.62	0.31	0.61	0.56	0.30	0.79	0.82	0.47
Avail Cap(c_a), veh/h	340	503	513	288	954	555	148	948	552	148	1068	630
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.6	21.3	21.3	26.9	19.3	14.2	28.0	18.9	14.1	27.0	19.5	13.4
Incr Delay (d2), s/veh	17.4	32.8	32.5	9.7	1.3	0.3	6.7	2.3	1.4	25.1	7.0	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	10.5	10.7	1.8	3.4	1.5	0.9	3.1	1.6	2.6	6.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.0	54.1	53.7	36.6	20.6	14.5	34.7	21.3	15.5	52.1	26.4	15.9
LnGrp LOS	D	D	D	D	C	B	C	C	B	D	C	B
Approach Vol, veh/h		1275			981			743			1290	
Approach Delay, s/veh		51.7			23.0			21.0			26.3	
Approach LOS		D			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	20.0	9.5	21.0	7.5	22.0	10.4	20.1				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	5.0	16.0	5.0	17.0	5.0	16.0	5.9	16.1				
Max Q Clear Time (g_c+I1), s	5.9	9.6	5.6	18.3	3.8	15.7	6.9	10.8				
Green Ext Time (p_c), s	0.0	2.1	0.0	0.0	0.0	0.2	0.0	2.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				32.2								
HCM 6th LOS				C								

Lanes, Volumes, Timings  
5: 2nd St. & SR-91 EB Ramps

2040NP PM Peak Hour

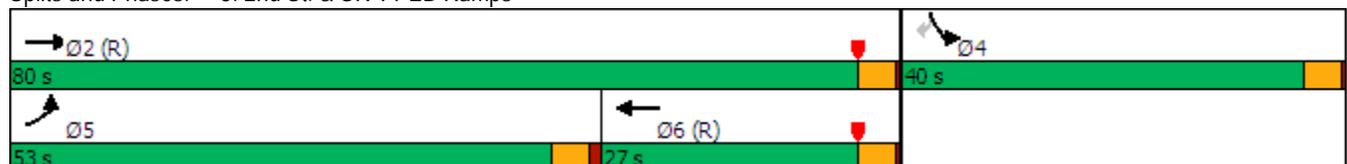


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖↗	↑	↕↔		↖↗	↗
Traffic Volume (vph)	769	178	179	168	490	341
Future Volume (vph)	769	178	179	168	490	341
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190			150	450	150
Storage Lanes	0			0	0	0
Taper Length (ft)	60				90	
Right Turn on Red				Yes		Yes
Link Speed (mph)		35	35		30	
Link Distance (ft)		549	319		407	
Travel Time (s)		10.7	6.2		9.3	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						24%
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	5.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.5	20.0	20.0		20.0	20.0
Total Split (s)	53.0	80.0	27.0		40.0	40.0
Total Split (%)	44.2%	66.7%	22.5%		33.3%	33.3%
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	0.5	0.5		0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.0	4.0		4.0	4.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Recall Mode	None	C-Max	C-Max		Max	Max

Intersection Summary

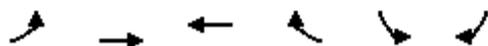
Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 5: 2nd St. & SR-91 EB Ramps



HCM 6th Signalized Intersection Summary  
5: 2nd St. & SR-91 EB Ramps

2040NP PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	769	178	179	168	490	341
Future Volume (veh/h)	769	178	179	168	490	341
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	809	187	188	177	579	292
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	919	1185	587	519	1069	476
Arrive On Green	0.28	0.66	0.35	0.35	0.30	0.30
Sat Flow, veh/h	3456	1870	1873	1571	3563	1585
Grp Volume(v), veh/h	809	187	188	177	579	292
Grp Sat Flow(s),veh/h/ln	1728	1870	1777	1573	1781	1585
Q Serve(g_s), s	26.9	4.5	9.3	10.0	16.3	19.0
Cycle Q Clear(g_c), s	26.9	4.5	9.3	10.0	16.3	19.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	919	1185	586	519	1069	476
V/C Ratio(X)	0.88	0.16	0.32	0.34	0.54	0.61
Avail Cap(c_a), veh/h	1397	1185	586	519	1069	476
HCM Platoon Ratio	1.05	1.05	1.05	1.05	1.00	1.00
Upstream Filter(I)	0.74	0.74	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.4	8.1	29.3	29.5	35.1	36.0
Incr Delay (d2), s/veh	3.4	0.2	1.4	1.8	2.0	5.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.6	1.8	4.2	4.0	7.4	17.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	44.9	8.3	30.8	31.3	37.1	41.9
LnGrp LOS	D	A	C	C	D	D
Approach Vol, veh/h		996	365		871	
Approach Delay, s/veh		38.0	31.0		38.7	
Approach LOS		D	C		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		80.0		40.0	36.4	43.6
Change Period (Y+Rc), s		4.0		4.0	4.5	4.0
Max Green Setting (Gmax), s		76.0		36.0	48.5	23.0
Max Q Clear Time (g_c+I1), s		6.5		21.0	28.9	12.0
Green Ext Time (p_c), s		1.1		3.0	3.0	1.6

Intersection Summary

HCM 6th Ctrl Delay	37.1
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings  
6: Buena Vista Ave. & 2nd St.

2040NP PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	94	354	138	31	84	24	82	155	34	61	177	55
Future Volume (vph)	94	354	138	31	84	24	82	155	34	61	177	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		50	150		150	95		150	95		150
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	90			90			60			60		
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		528			733			392			629	
Travel Time (s)		10.3			14.3			8.9			14.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		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
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											

Intersection	
Intersection Delay, s/veh	31.2
Intersection LOS	D

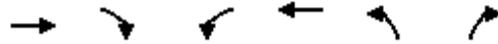
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↔		↖	↗		↖	↗	
Traffic Vol, veh/h	94	354	138	31	84	24	82	155	34	61	177	55
Future Vol, veh/h	94	354	138	31	84	24	82	155	34	61	177	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	102	385	150	34	91	26	89	168	37	66	192	60
Number of Lanes	0	1	1	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	48.8	15.3	15.7	17.8
HCM LOS	E	C	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	21%	0%	22%	100%	0%
Vol Thru, %	0%	82%	79%	0%	60%	0%	76%
Vol Right, %	0%	18%	0%	100%	17%	0%	24%
Sign Control	Stop						
Traffic Vol by Lane	82	189	448	138	139	61	232
LT Vol	82	0	94	0	31	61	0
Through Vol	0	155	354	0	84	0	177
RT Vol	0	34	0	138	24	0	55
Lane Flow Rate	89	205	487	150	151	66	252
Geometry Grp	7	7	7	7	6	7	7
Degree of Util (X)	0.208	0.444	0.972	0.265	0.34	0.154	0.537
Departure Headway (Hd)	8.419	7.772	7.183	6.361	8.09	8.352	7.664
Convergence, Y/N	Yes						
Cap	425	462	506	563	443	428	469
Service Time	6.192	5.544	4.941	4.119	6.173	6.123	5.435
HCM Lane V/C Ratio	0.209	0.444	0.962	0.266	0.341	0.154	0.537
HCM Control Delay	13.4	16.7	60.3	11.4	15.3	12.7	19.1
HCM Lane LOS	B	C	F	B	C	B	C
HCM 95th-tile Q	0.8	2.2	12.6	1.1	1.5	0.5	3.1

Lanes, Volumes, Timings  
 7: Cardenas Dwy. & 2nd St.

2040NP PM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↑↑	
Traffic Volume (vph)	623	45	23	289	58	85
Future Volume (vph)	623	45	23	289	58	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	35			35	30	
Link Distance (ft)	319			197	217	
Travel Time (s)	6.2			3.8	4.9	
Confl. Peds. (#/hr)		5	5		5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection						
Int Delay, s/veh	2.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↑↑	
Traffic Vol, veh/h	623	45	23	289	58	85
Future Vol, veh/h	623	45	23	289	58	85
Conflicting Peds, #/hr	0	5	5	0	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	677	49	25	314	63	92

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	731	0	919
Stage 1	-	-	-	-	707
Stage 2	-	-	-	-	212
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	869	-	270
Stage 1	-	-	-	-	450
Stage 2	-	-	-	-	803
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	865	-	258
Mov Cap-2 Maneuver	-	-	-	-	258
Stage 1	-	-	-	-	448
Stage 2	-	-	-	-	771

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	19.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	395	-	-	865	-
HCM Lane V/C Ratio	0.394	-	-	0.029	-
HCM Control Delay (s)	19.9	-	-	9.3	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1.8	-	-	0.1	-

**APPENDIX Q**

**2040 WITHOUT PROJECT CONDITIONS  
FREEWAY RAMP ANALYSIS WORKSHEETS**

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# HCS7 Freeway Diverge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040NP
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 WB Off-Ramp @ Lincoln	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	70.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	2900	1000
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	8979	1457
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	9959	1616
Capacity (c), pc/h	14400	2000
Volume-to-Capacity Ratio (v/c)	0.69	0.81

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (Ds)	0.508
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1651
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	55.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	74.3
Flow in Lanes 1 and 2 (v12), pc/h	4168	Ramp Junction Speed (S), mi/h	62.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	26.5
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	31.1

# HCS7 Freeway Merge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040NP
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 WB On-Ramp @ Lincoln	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA),ft	2500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	7522	882
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	8343	978
Capacity (c), pc/h	12000	2000
Volume-to-Capacity Ratio (v/c)	0.78	0.49

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.413
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1790
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	61.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.096	Outer Lanes Freeway Speed (SO), mi/h	70.8
Flow in Lanes 1 and 2 (v12), pc/h	2386	Ramp Junction Speed (S), mi/h	66.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	3364	Average Density (D), pc/mi/ln	28.2
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	29.5

# HCS7 Freeway Diverge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040NP
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 EB Off-Ramp @ 2nd St	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	70.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	4900	1340
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided Two-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	9170	600
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	10171	665
Capacity (c), pc/h	11000	4000
Volume-to-Capacity Ratio (v/c)	0.92	0.17

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (Ds)	0.423
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2441
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	58.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	71.2
Flow in Lanes 1 and 2 (v12), pc/h	3255	Ramp Junction Speed (S), mi/h	65.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	31.1
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	20.2

# HCS7 Freeway Merge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040NP
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 EB On-Ramp @ 2nd St	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA),ft	2300	1500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	8570	913
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	9505	1013
Capacity (c), pc/h	14400	2000
Volume-to-Capacity Ratio (v/c)	0.73	0.51

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.402
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	2138
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	62.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.091	Outer Lanes Freeway Speed (SO), mi/h	69.5
Flow in Lanes 1 and 2 (v12), pc/h	2852	Ramp Junction Speed (S), mi/h	65.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	3865	Average Density (D), pc/mi/ln	26.7
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	25.8

# HCS7 Freeway Diverge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040NP
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 WB Off-Ramp @ Lincoln	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	2900	1000
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	9110	1214
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	10104	1346
Capacity (c), pc/h	14100	2000
Volume-to-Capacity Ratio (v/c)	0.72	0.67

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (Ds)	0.484
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1758
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	53.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	68.4
Flow in Lanes 1 and 2 (v12), pc/h	4063	Ramp Junction Speed (S), mi/h	59.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	28.2
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	30.2

# HCS7 Freeway Merge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040NP
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 WB On-Ramp @ Lincoln	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	7	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA),ft	2500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	7896	726
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	8758	805
Capacity (c), pc/h	16800	2000
Volume-to-Capacity Ratio (v/c)	0.57	0.40

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.421
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1971
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	61.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.117	Outer Lanes Freeway Speed (SO), mi/h	70.1
Flow in Lanes 1 and 2 (v12), pc/h	2627	Ramp Junction Speed (S), mi/h	65.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	3432	Average Density (D), pc/mi/ln	20.8
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	30.1

# HCS7 Freeway Diverge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040NP
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 EB Off-Ramp @ 2nd St	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	70.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	4900	1340
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided Two-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	9726	831
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	10787	922
Capacity (c), pc/h	11000	4000
Volume-to-Capacity Ratio (v/c)	0.98	0.23

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (Ds)	0.446
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2589
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	57.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	70.6
Flow in Lanes 1 and 2 (v12), pc/h	3452	Ramp Junction Speed (S), mi/h	64.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	33.3
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	21.9

# HCS7 Freeway Merge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040NP
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 EB On-Ramp @ 2nd St	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA),ft	2300	1500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	8895	937
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	9866	1039
Capacity (c), pc/h	14400	2000
Volume-to-Capacity Ratio (v/c)	0.76	0.52

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.429
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	2220
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	61.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.088	Outer Lanes Freeway Speed (SO), mi/h	69.2
Flow in Lanes 1 and 2 (v12), pc/h	2960	Ramp Junction Speed (S), mi/h	65.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	3999	Average Density (D), pc/mi/ln	27.9
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	26.9

**APPENDIX R**

**2040 WITHOUT PROJECT CONDITIONS  
FREEWAY SEGMENT ANALYSIS WORKSHEETS**

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# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040NP
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 WB, east of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8979	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1660
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.69
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	67.6
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	24.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040NP
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 WB, between ramps	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	7522	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1669
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	67.5
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	24.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFSadj), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040NP
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 WB, west of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8404	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1864
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.78
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	64.9
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	28.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFSadj), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040NP
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 EB, west of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	9170	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	2034
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.85
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	61.9
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	32.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040NP
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 EB, between ramps	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8570	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1901
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.79
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	64.3
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	29.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040NP
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 EB, East of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	9483	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1753
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.73
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	66.5
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	26.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFSadj), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040NP
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 WB, east of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	9110	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1684
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	67.3
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	25.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040NP
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 WB, between ramps	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	7896	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (V <sub>p</sub> ), pc/h/ln	1752
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.73
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	66.5
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	26.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040NP
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 WB, west of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8622	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (V <sub>p</sub> ), pc/h/ln	1913
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.80
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	64.1
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	29.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040NP
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 EB, west of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	9726	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.95	Flow Rate (Vp), pc/h/ln	2089
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.87
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	60.9
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	34.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040NP
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 EB, between ramps	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8895	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1973
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.82
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	63.1
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	31.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040NP
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 EB, East of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	9832	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1818
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.76
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	65.6
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	27.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

**APPENDIX S**

**2040 WITH PROJECT CONDITIONS  
INTERSECTION ANALYSIS CALCULATION WORKSHEETS**

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Lanes, Volumes, Timings  
1: Lincoln Ave. & Pomona Rd.

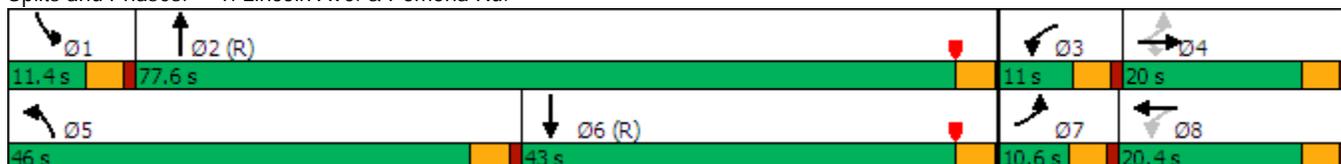
2040WP AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	10	49	96	26	22	457	902	70	37	856	51
Future Volume (vph)	24	10	49	96	26	22	457	902	70	37	856	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		160	75		150	300		150	90		150
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	30			90			60			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		328			795			507			349	
Travel Time (s)		7.5			18.1			9.9			6.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8								
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	4.0	4.0	5.0	4.0		5.0	4.0		5.0	4.0	
Minimum Split (s)	9.5	20.0	20.0	9.5	20.0		9.5	20.0		9.5	20.0	
Total Split (s)	10.6	20.0	20.0	11.0	20.4		46.0	77.6		11.4	43.0	
Total Split (%)	8.8%	16.7%	16.7%	9.2%	17.0%		38.3%	64.7%		9.5%	35.8%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	0.5	0.5	1.0	0.5		1.0	0.5		1.0	0.5	
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)	4.5	4.0	4.0	4.5	4.0		4.5	4.0		4.5	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Lincoln Ave. & Pomona Rd.



HCM 6th Signalized Intersection Summary  
1: Lincoln Ave. & Pomona Rd.

2040WP AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	10	49	96	26	22	457	902	70	37	856	51
Future Volume (veh/h)	24	10	49	96	26	22	457	902	70	37	856	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	25	11	52	101	27	23	481	949	74	39	901	54
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	185	117	97	232	86	73	502	2375	185	54	1565	94
Arrive On Green	0.02	0.06	0.06	0.05	0.09	0.09	0.56	1.00	1.00	0.03	0.46	0.46
Sat Flow, veh/h	1781	1870	1547	1781	925	788	1781	3339	260	1781	3405	204
Grp Volume(v), veh/h	25	11	52	101	0	50	481	505	518	39	470	485
Grp Sat Flow(s),veh/h/ln	1781	1870	1547	1781	0	1713	1781	1777	1822	1781	1777	1832
Q Serve(g_s), s	1.6	0.7	3.9	6.3	0.0	3.3	30.7	0.0	0.0	2.6	23.3	23.3
Cycle Q Clear(g_c), s	1.6	0.7	3.9	6.3	0.0	3.3	30.7	0.0	0.0	2.6	23.3	23.3
Prop In Lane	1.00		1.00	1.00		0.46	1.00		0.14	1.00		0.11
Lane Grp Cap(c), veh/h	185	117	97	232	0	160	502	1264	1296	54	817	842
V/C Ratio(X)	0.14	0.09	0.54	0.44	0.00	0.31	0.96	0.40	0.40	0.72	0.58	0.58
Avail Cap(c_a), veh/h	234	249	206	232	0	234	616	1264	1296	102	817	842
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.63	0.63	0.63	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.8	53.0	54.6	48.5	0.0	50.8	25.5	0.0	0.0	57.7	23.8	23.8
Incr Delay (d2), s/veh	0.3	0.3	4.5	1.3	0.0	1.1	17.5	0.6	0.6	16.5	2.9	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.3	1.6	2.9	0.0	1.5	11.1	0.2	0.2	1.4	10.2	10.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.1	53.4	59.1	49.8	0.0	51.9	43.0	0.6	0.6	74.2	26.8	26.7
LnGrp LOS	D	D	E	D	A	D	D	A	A	E	C	C
Approach Vol, veh/h		88			151			1504			994	
Approach Delay, s/veh		56.1			50.5			14.2			28.6	
Approach LOS		E			D			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.1	89.3	11.0	11.5	38.3	59.2	7.3	15.2				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	6.9	73.6	6.5	16.0	41.5	39.0	6.1	16.4				
Max Q Clear Time (g_c+I1), s	4.6	2.0	8.3	5.9	32.7	25.3	3.6	5.3				
Green Ext Time (p_c), s	0.0	8.2	0.0	0.1	1.1	5.1	0.0	0.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				22.8								
HCM 6th LOS				C								

Lanes, Volumes, Timings  
2: Lincoln Ave. & SR-91 WB Ramps

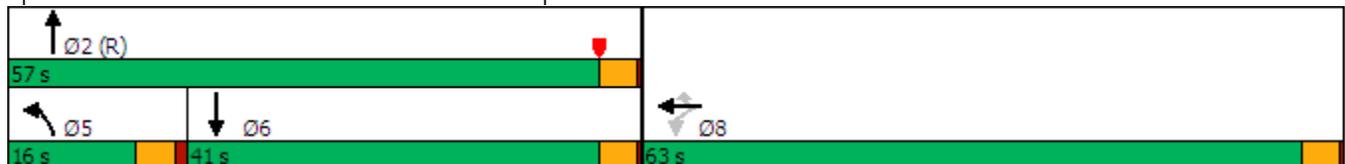
2040WP AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	590	142	735	244	694	0	0	470	505
Future Volume (vph)	0	0	0	590	142	735	244	694	0	0	470	505
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	0		320	420		150	150		150
Storage Lanes	0		0	1		2	2		0	0		0
Taper Length (ft)	90			120			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			35				35
Link Distance (ft)		1035			1181			839				507
Travel Time (s)		23.5			26.8			16.3				9.9
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)				39%								
Turn Type				Perm	NA	Perm	Prot	NA				NA
Protected Phases					8		5	2				6
Permitted Phases				8		8						
Detector Phase				8	8	8	5	2				6
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0	5.0	4.0				4.0
Minimum Split (s)				20.0	20.0	20.0	9.5	20.0				20.0
Total Split (s)				63.0	63.0	63.0	16.0	57.0				41.0
Total Split (%)				52.5%	52.5%	52.5%	13.3%	47.5%				34.2%
Yellow Time (s)				3.5	3.5	3.5	3.5	3.5				3.5
All-Red Time (s)				0.5	0.5	0.5	1.0	0.5				0.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0				0.0
Total Lost Time (s)				4.0	4.0	4.0	4.5	4.0				4.0
Lead/Lag							Lead					Lag
Lead-Lag Optimize?							Yes					Yes
Recall Mode				None	None	None	None	C-Max				None

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:NBT, Start of Yellow  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated

Splits and Phases: 2: Lincoln Ave. & SR-91 WB Ramps



HCM 6th Signalized Intersection Summary  
2: Lincoln Ave. & SR-91 WB Ramps

2040WP AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	590	142	735	244	694	0	0	470	505
Future Volume (veh/h)	0	0	0	590	142	735	244	694	0	0	470	505
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				385	479	774	257	731	0	0	495	532
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				876	920	777	308	1570	0	0	560	497
Arrive On Green				0.49	0.49	0.49	0.18	0.88	0.00	0.00	0.10	0.10
Sat Flow, veh/h				1781	1870	1580	3456	3647	0	0	1870	1578
Grp Volume(v), veh/h				385	479	774	257	731	0	0	495	532
Grp Sat Flow(s),veh/h/ln				1781	1870	1580	1728	1777	0	0	1777	1578
Q Serve(g_s), s				16.8	21.0	58.6	8.6	4.9	0.0	0.0	33.0	37.8
Cycle Q Clear(g_c), s				16.8	21.0	58.6	8.6	4.9	0.0	0.0	33.0	37.8
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				876	920	777	308	1570	0	0	560	497
V/C Ratio(X)				0.44	0.52	1.00	0.83	0.47	0.00	0.00	0.88	1.07
Avail Cap(c_a), veh/h				876	920	777	331	1570	0	0	560	497
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	0.33	0.33
Upstream Filter(I)				1.00	1.00	1.00	0.85	0.85	0.00	0.00	0.77	0.77
Uniform Delay (d), s/veh				19.8	20.8	30.4	48.4	4.2	0.0	0.0	51.6	53.8
Incr Delay (d2), s/veh				0.3	0.5	31.3	13.7	0.8	0.0	0.0	12.5	55.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				7.0	9.2	28.1	4.0	1.4	0.0	0.0	17.7	23.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				20.1	21.4	61.7	62.2	5.0	0.0	0.0	64.1	109.6
LnGrp LOS				C	C	E	E	A	A	A	E	F
Approach Vol, veh/h				1638			988			1027		
Approach Delay, s/veh				40.1			19.9			87.6		
Approach LOS				D			B			F		
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		57.0			15.2	41.8		63.0				
Change Period (Y+Rc), s		4.0			4.5	4.0		4.0				
Max Green Setting (Gmax), s		53.0			11.5	37.0		59.0				
Max Q Clear Time (g_c+I1), s		6.9			10.6	39.8		60.6				
Green Ext Time (p_c), s		5.8			0.1	0.0		0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				48.0								
HCM 6th LOS				D								
<b>Notes</b>												
User approved volume balancing among the lanes for turning movement.												

Lanes, Volumes, Timings  
3: Lincoln Ave. & D St./2nd St.

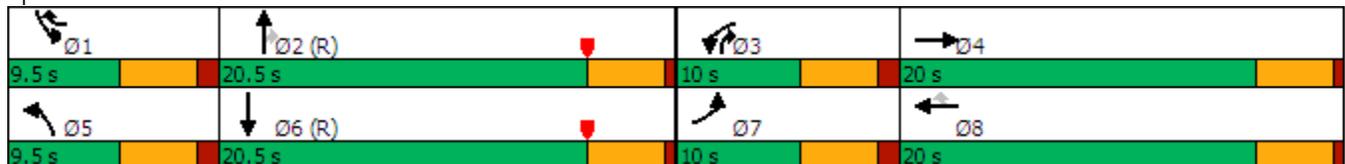
2040WP AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	158	68	131	73	316	86	576	495	217	690	117
Future Volume (vph)	46	158	68	131	73	316	86	576	495	217	690	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		65	155		155	165		310	220		150
Storage Lanes	1		1	2		0	1		1	2		0
Taper Length (ft)	30			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		358			549			551			839	
Travel Time (s)		7.0			10.7			10.7			16.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases						8			2			
Detector Phase	7	4		3	8	1	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	
Minimum Split (s)	9.5	20.0		9.5	20.0	9.5	9.5	20.0	9.5	9.5	20.0	
Total Split (s)	10.0	20.0		10.0	20.0	9.5	9.5	20.5	10.0	9.5	20.5	
Total Split (%)	16.7%	33.3%		16.7%	33.3%	15.8%	15.8%	34.2%	16.7%	15.8%	34.2%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	0.5		1.0	0.5	1.0	1.0	0.5	1.0	1.0	0.5	
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)	4.5	4.0		4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow, Master Intersection  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated

Splits and Phases: 3: Lincoln Ave. & D St./2nd St.



HCM 6th Signalized Intersection Summary  
3: Lincoln Ave. & D St./2nd St.

2040WP AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	158	68	131	73	316	86	576	495	217	690	117
Future Volume (veh/h)	46	158	68	131	73	316	86	576	495	217	690	117
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	48	165	71	136	76	329	90	600	516	226	719	122
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	82	248	107	258	429	494	115	1272	683	288	1143	194
Arrive On Green	0.05	0.20	0.20	0.02	0.08	0.08	0.06	0.36	0.36	0.08	0.38	0.38
Sat Flow, veh/h	1781	1237	532	3456	1870	1575	1781	3554	1578	3456	3036	515
Grp Volume(v), veh/h	48	0	236	136	76	329	90	600	516	226	421	420
Grp Sat Flow(s),veh/h/ln	1781	0	1770	1728	1870	1575	1781	1777	1578	1728	1777	1774
Q Serve(g_s), s	1.6	0.0	7.4	2.3	2.3	11.1	3.0	7.8	16.5	3.8	11.6	11.6
Cycle Q Clear(g_c), s	1.6	0.0	7.4	2.3	2.3	11.1	3.0	7.8	16.5	3.8	11.6	11.6
Prop In Lane	1.00		0.30	1.00		1.00	1.00		1.00	1.00		0.29
Lane Grp Cap(c), veh/h	82	0	355	258	429	494	115	1272	683	288	669	668
V/C Ratio(X)	0.59	0.00	0.66	0.53	0.18	0.67	0.78	0.47	0.76	0.78	0.63	0.63
Avail Cap(c_a), veh/h	163	0	472	317	499	552	148	1272	683	288	669	668
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00	0.57	0.57	0.57
Uniform Delay (d), s/veh	28.1	0.0	22.1	28.2	22.4	21.6	27.6	14.9	14.3	27.0	15.3	15.3
Incr Delay (d2), s/veh	6.5	0.0	2.1	1.6	0.2	2.5	18.0	1.3	7.6	8.0	2.6	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	3.0	1.0	1.0	4.7	1.8	3.0	6.3	1.8	4.5	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.6	0.0	24.2	29.8	22.6	24.1	45.6	16.1	22.0	34.9	17.8	17.9
LnGrp LOS	C	A	C	C	C	C	D	B	C	C	B	B
Approach Vol, veh/h		284			541			1206			1067	
Approach Delay, s/veh		26.0			25.3			20.8			21.5	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	25.5	9.0	16.0	8.4	26.6	7.3	17.8				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	5.0	16.5	5.5	16.0	5.0	16.5	5.5	16.0				
Max Q Clear Time (g_c+I1), s	5.8	18.5	4.3	9.4	5.0	13.6	3.6	13.1				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.7	0.0	1.4	0.0	0.5				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				22.3								
HCM 6th LOS				C								
<b>Notes</b>												
User approved pedestrian interval to be less than phase max green.												

Lanes, Volumes, Timings  
4: Lincoln Ave. & 6th St.

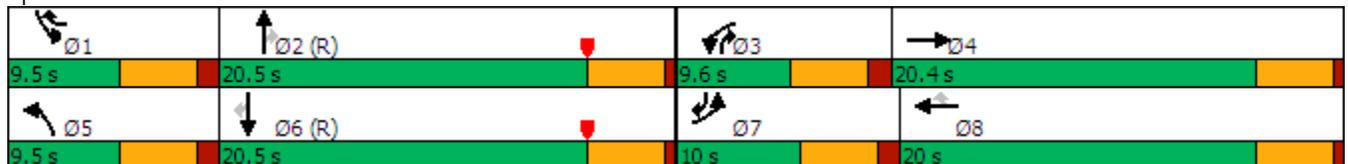
2040WP AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	198	410	21	96	884	98	89	864	107	70	378	437
Future Volume (vph)	198	410	21	96	884	98	89	864	107	70	378	437
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	205		150	175		90	150		95	110		150
Storage Lanes	2		0	2		1	1		1	1		1
Taper Length (ft)	90			120			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		413			447			466			504	
Travel Time (s)		8.0			8.7			9.1			9.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0
Minimum Split (s)	9.5	20.0		9.5	20.0	9.5	9.5	20.0	9.5	9.5	20.0	9.5
Total Split (s)	10.0	20.4		9.6	20.0	9.5	9.5	20.5	9.6	9.5	20.5	10.0
Total Split (%)	16.7%	34.0%		16.0%	33.3%	15.8%	15.8%	34.2%	16.0%	15.8%	34.2%	16.7%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	0.5		1.0	0.5	1.0	1.0	0.5	1.0	1.0	0.5	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)	4.5	4.0		4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated

Splits and Phases: 4: Lincoln Ave. & 6th St.



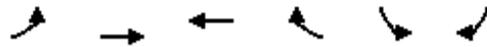
HCM 6th Signalized Intersection Summary  
4: Lincoln Ave. & 6th St.

2040WP AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	198	410	21	96	884	98	89	864	107	70	378	437
Future Volume (veh/h)	198	410	21	96	884	98	89	864	107	70	378	437
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	208	432	22	101	931	103	94	909	113	74	398	460
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	307	989	50	234	948	514	120	1074	584	105	1044	604
Arrive On Green	0.09	0.29	0.29	0.07	0.27	0.27	0.07	0.30	0.30	0.06	0.29	0.29
Sat Flow, veh/h	3456	3440	175	3456	3554	1576	1781	3554	1577	1781	3554	1577
Grp Volume(v), veh/h	208	223	231	101	931	103	94	909	113	74	398	460
Grp Sat Flow(s),veh/h/ln	1728	1777	1838	1728	1777	1576	1781	1777	1577	1781	1777	1577
Q Serve(g_s), s	3.5	6.1	6.2	1.7	15.6	2.8	3.1	14.4	2.9	2.4	5.3	15.3
Cycle Q Clear(g_c), s	3.5	6.1	6.2	1.7	15.6	2.8	3.1	14.4	2.9	2.4	5.3	15.3
Prop In Lane	1.00		0.10	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	307	511	529	234	948	514	120	1074	584	105	1044	604
V/C Ratio(X)	0.68	0.44	0.44	0.43	0.98	0.20	0.78	0.85	0.19	0.70	0.38	0.76
Avail Cap(c_a), veh/h	317	511	529	294	948	514	148	1074	584	148	1044	604
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.5	17.4	17.4	26.9	21.9	14.6	27.5	19.6	12.8	27.7	16.9	16.1
Incr Delay (d2), s/veh	5.5	0.6	0.6	1.2	24.9	0.2	19.1	8.3	0.7	8.3	1.1	8.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	2.3	2.4	0.7	9.0	0.9	1.9	6.4	1.0	1.2	2.1	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.0	18.0	18.0	28.1	46.8	14.8	46.6	27.9	13.6	36.0	17.9	25.0
LnGrp LOS	C	B	B	C	D	B	D	C	B	D	B	C
Approach Vol, veh/h		662			1135			1116			932	
Approach Delay, s/veh		22.4			42.2			28.0			22.8	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.0	22.1	8.6	21.3	8.5	21.6	9.8	20.0				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	5.0	16.5	5.1	16.4	5.0	16.5	5.5	16.0				
Max Q Clear Time (g_c+I1), s	4.4	16.4	3.7	8.2	5.1	17.3	5.5	17.6				
Green Ext Time (p_c), s	0.0	0.1	0.0	1.6	0.0	0.0	0.0	0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			30.0									
HCM 6th LOS			C									

Lanes, Volumes, Timings  
5: 2nd St. & SR-91 EB Ramps

2040WP AM Peak Hour

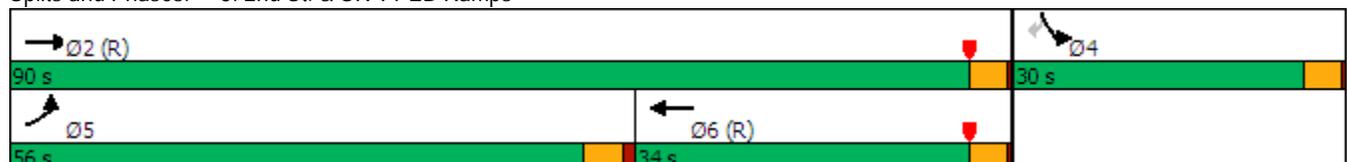


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↑	↕↔		↔↔	↔
Traffic Volume (vph)	737	214	185	185	275	335
Future Volume (vph)	737	214	185	185	275	335
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190			150	450	150
Storage Lanes	0			0	0	0
Taper Length (ft)	60				90	
Right Turn on Red				Yes		Yes
Link Speed (mph)		35	35		30	
Link Distance (ft)		549	319		407	
Travel Time (s)		10.7	6.2		9.3	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						42%
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	5.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.5	20.0	20.0		20.0	20.0
Total Split (s)	56.0	90.0	34.0		30.0	30.0
Total Split (%)	46.7%	75.0%	28.3%		25.0%	25.0%
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	0.5	0.5		0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.0	4.0		4.0	4.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Recall Mode	None	C-Max	C-Max		Max	Max

Intersection Summary

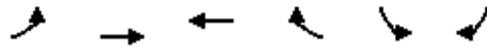
Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 5: 2nd St. & SR-91 EB Ramps



HCM 6th Signalized Intersection Summary  
 5: 2nd St. & SR-91 EB Ramps

2040WP AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖↗	↑	↗↖		↘↙	↘
Traffic Volume (veh/h)	737	214	185	185	275	335
Future Volume (veh/h)	737	214	185	185	275	335
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	776	225	195	195	214	433
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	888	1340	750	665	386	687
Arrive On Green	0.26	0.72	0.42	0.42	0.22	0.22
Sat Flow, veh/h	3456	1870	1870	1576	1781	3170
Grp Volume(v), veh/h	776	225	195	195	214	433
Grp Sat Flow(s),veh/h/ln	1728	1870	1777	1576	1781	1585
Q Serve(g_s), s	25.8	4.6	8.5	9.8	12.8	14.9
Cycle Q Clear(g_c), s	25.8	4.6	8.5	9.8	12.8	14.9
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	888	1340	750	665	386	687
V/C Ratio(X)	0.87	0.17	0.26	0.29	0.55	0.63
Avail Cap(c_a), veh/h	1483	1340	750	665	386	687
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.76	0.76	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.7	5.5	22.5	22.9	41.8	42.6
Incr Delay (d2), s/veh	2.6	0.2	0.8	1.1	5.6	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.2	1.7	3.7	3.8	6.3	13.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.3	5.7	23.3	24.0	47.5	47.0
LnGrp LOS	D	A	C	C	D	D
Approach Vol, veh/h		1001	390		647	
Approach Delay, s/veh		36.4	23.6		47.2	
Approach LOS		D	C		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		90.0		30.0	35.3	54.7
Change Period (Y+Rc), s		4.0		4.0	4.5	4.0
Max Green Setting (Gmax), s		86.0		26.0	51.5	30.0
Max Q Clear Time (g_c+I1), s		6.6		16.9	27.8	11.8
Green Ext Time (p_c), s		1.4		1.8	3.0	2.1

Intersection Summary

HCM 6th Ctrl Delay	37.4
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings  
6: Buena Vista Ave. & 2nd St.

2040WP AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	110	115	75	125	31	115	194	20	38	172	54
Future Volume (vph)	111	110	115	75	125	31	115	194	20	38	172	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		50	150		150	95		150	95		150
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	90			90			60			60		
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		528			733			392			629	
Travel Time (s)		10.3			14.3			8.9			14.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		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
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	16.3
Intersection LOS	C

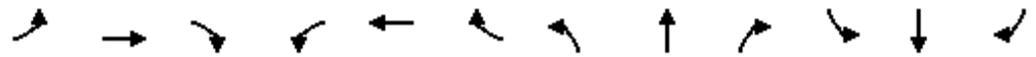
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕		↕	↕		↕	↕	
Traffic Vol, veh/h	111	110	115	75	125	31	115	194	20	38	172	54
Future Vol, veh/h	111	110	115	75	125	31	115	194	20	38	172	54
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	121	120	125	82	136	34	125	211	22	41	187	59
Number of Lanes	0	1	1	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	15.6	18.6	15.4	16.3
HCM LOS	C	C	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	50%	0%	32%	100%	0%
Vol Thru, %	0%	91%	50%	0%	54%	0%	76%
Vol Right, %	0%	9%	0%	100%	13%	0%	24%
Sign Control	Stop						
Traffic Vol by Lane	115	214	221	115	231	38	226
LT Vol	115	0	111	0	75	38	0
Through Vol	0	194	110	0	125	0	172
RT Vol	0	20	0	115	31	0	54
Lane Flow Rate	125	233	240	125	251	41	246
Geometry Grp	7	7	7	7	6	7	7
Degree of Util (X)	0.273	0.47	0.505	0.229	0.524	0.092	0.498
Departure Headway (Hd)	7.851	7.269	7.573	6.599	7.519	7.981	7.294
Convergence, Y/N	Yes						
Cap	458	495	476	543	480	448	494
Service Time	5.611	5.029	5.335	4.36	5.585	5.743	5.056
HCM Lane V/C Ratio	0.273	0.471	0.504	0.23	0.523	0.092	0.498
HCM Control Delay	13.6	16.4	17.9	11.3	18.6	11.6	17.1
HCM Lane LOS	B	C	C	B	C	B	C
HCM 95th-tile Q	1.1	2.5	2.8	0.9	3	0.3	2.7

Lanes, Volumes, Timings  
 7: Cardenas Dwy./Project Dwy. 1 & 2nd St.

2040WP AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↓			↑↓				↑			↑
Traffic Volume (vph)	0	466	23	0	331	39	0	0	24	0	0	39
Future Volume (vph)	0	466	23	0	331	39	0	0	24	0	0	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		35			35			30				30
Link Distance (ft)		319			197			217				156
Travel Time (s)		6.2			3.8			4.9				3.5
Confl. Peds. (#/hr)			5	5			5		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
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑				↑			↑
Traffic Vol, veh/h	0	466	23	0	331	39	0	0	24	0	0	39
Future Vol, veh/h	0	466	23	0	331	39	0	0	24	0	0	39
Conflicting Peds, #/hr	0	0	5	5	0	0	5	0	5	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	507	25	0	360	42	0	0	26	0	0	42

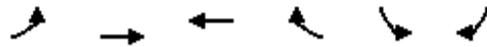
Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	-	0	0	-	-	0	-	-	276	-	-	201
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	721	0	0	806
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	714	-	-	806
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	10.2	9.7
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	714	-	-	-	-	806
HCM Lane V/C Ratio	0.037	-	-	-	-	0.053
HCM Control Delay (s)	10.2	-	-	-	-	9.7
HCM Lane LOS	B	-	-	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	-	0.2

Lanes, Volumes, Timings  
8: 2nd St. & Project Dwy. 2

2040WP AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	91	399	320	25	65	50
Future Volume (vph)	91	399	320	25	65	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	245			50	0	0
Storage Lanes	0			1	1	0
Taper Length (ft)	90				90	
Link Speed (mph)		35	35		30	
Link Distance (ft)		197	196		131	
Travel Time (s)		3.8	3.8		3.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection						
Int Delay, s/veh	3.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	91	399	320	25	65	50
Future Vol, veh/h	91	399	320	25	65	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	50	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	99	434	348	27	71	54

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	375	0	-	0	994 188
Stage 1	-	-	-	-	362 -
Stage 2	-	-	-	-	632 -
Critical Hdwy	4.13	-	-	-	6.63 6.93
Critical Hdwy Stg 1	-	-	-	-	5.83 -
Critical Hdwy Stg 2	-	-	-	-	5.43 -
Follow-up Hdwy	2.219	-	-	-	3.519 3.319
Pot Cap-1 Maneuver	1182	-	-	-	256 823
Stage 1	-	-	-	-	676 -
Stage 2	-	-	-	-	529 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1182	-	-	-	234 823
Mov Cap-2 Maneuver	-	-	-	-	234 -
Stage 1	-	-	-	-	619 -
Stage 2	-	-	-	-	529 -

Approach	EB	WB	SB
HCM Control Delay, s	1.5	0	21.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1182	-	-	-	340
HCM Lane V/C Ratio	0.084	-	-	-	0.368
HCM Control Delay (s)	8.3	-	-	-	21.6
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	1.6

Lanes, Volumes, Timings  
1: Lincoln Ave. & Pomona Rd.

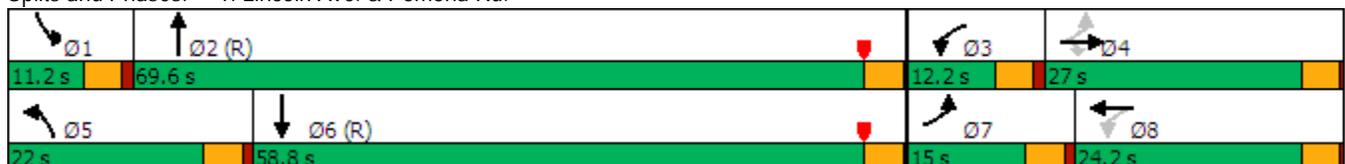
2040WP PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	34	243	104	20	19	113	733	113	30	1023	50
Future Volume (vph)	127	34	243	104	20	19	113	733	113	30	1023	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		160	75		150	300		150	90		150
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	30			90			60			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		328			795			507			349	
Travel Time (s)		7.5			18.1			9.9			6.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8								
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	4.0	4.0	5.0	4.0		5.0	4.0		5.0	4.0	
Minimum Split (s)	9.5	20.0	20.0	9.5	20.0		9.5	20.0		9.5	20.0	
Total Split (s)	15.0	27.0	27.0	12.2	24.2		22.0	69.6		11.2	58.8	
Total Split (%)	12.5%	22.5%	22.5%	10.2%	20.2%		18.3%	58.0%		9.3%	49.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	0.5	0.5	1.0	0.5		1.0	0.5		1.0	0.5	
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)	4.5	4.0	4.0	4.5	4.0		4.5	4.0		4.5	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Lincoln Ave. & Pomona Rd.



HCM 6th Signalized Intersection Summary  
1: Lincoln Ave. & Pomona Rd.

2040WP PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	127	34	243	104	20	19	113	733	113	30	1023	50
Future Volume (veh/h)	127	34	243	104	20	19	113	733	113	30	1023	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	134	36	256	109	21	20	119	772	119	32	1077	53
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	394	333	280	350	144	138	144	1815	280	49	1843	91
Arrive On Green	0.08	0.18	0.18	0.06	0.16	0.16	0.16	1.00	1.00	0.03	0.53	0.53
Sat Flow, veh/h	1781	1870	1572	1781	876	835	1781	3084	475	1781	3446	170
Grp Volume(v), veh/h	134	36	256	109	0	41	119	445	446	32	555	575
Grp Sat Flow(s),veh/h/ln	1781	1870	1572	1781	0	1711	1781	1777	1782	1781	1777	1839
Q Serve(g_s), s	7.4	1.9	19.2	6.0	0.0	2.5	7.8	0.0	0.0	2.1	25.4	25.4
Cycle Q Clear(g_c), s	7.4	1.9	19.2	6.0	0.0	2.5	7.8	0.0	0.0	2.1	25.4	25.4
Prop In Lane	1.00		1.00	1.00		0.49	1.00		0.27	1.00		0.09
Lane Grp Cap(c), veh/h	394	333	280	350	0	282	144	1046	1049	49	950	984
V/C Ratio(X)	0.34	0.11	0.91	0.31	0.00	0.15	0.82	0.43	0.43	0.66	0.58	0.58
Avail Cap(c_a), veh/h	411	358	301	350	0	288	260	1046	1049	99	950	984
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.92	0.92	0.92	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.3	41.3	48.4	38.0	0.0	42.9	49.5	0.0	0.0	57.8	18.9	18.9
Incr Delay (d2), s/veh	0.5	0.1	29.5	0.5	0.0	0.2	10.3	1.2	1.2	14.0	2.6	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	0.9	9.8	2.7	0.0	1.1	3.6	0.3	0.3	1.1	10.7	11.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.8	41.5	77.9	38.5	0.0	43.1	59.8	1.2	1.2	71.9	21.5	21.4
LnGrp LOS	D	D	E	D	A	D	E	A	A	E	C	C
Approach Vol, veh/h		426			150			1010			1162	
Approach Delay, s/veh		62.2			39.8			8.1			22.8	
Approach LOS		E			D			A			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.8	74.6	12.2	25.4	14.2	68.2	13.8	23.8				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	6.7	65.6	7.7	23.0	17.5	54.8	10.5	20.2				
Max Q Clear Time (g_c+I1), s	4.1	2.0	8.0	21.2	9.8	27.4	9.4	4.5				
Green Ext Time (p_c), s	0.0	6.8	0.0	0.2	0.2	8.4	0.0	0.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			24.4									
HCM 6th LOS			C									

Lanes, Volumes, Timings  
2: Lincoln Ave. & SR-91 WB Ramps

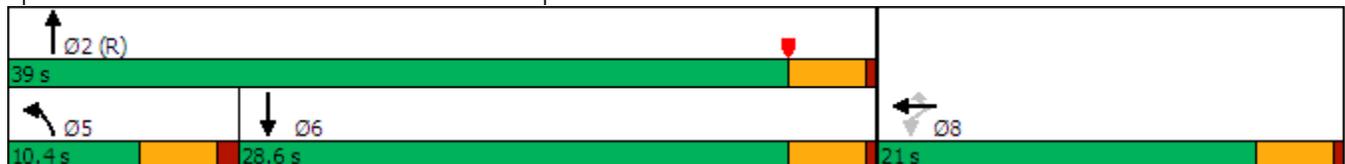
2040WP PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	863	25	337	261	622	0	0	885	450
Future Volume (vph)	0	0	0	863	25	337	261	622	0	0	885	450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	0		320	420		150	150		150
Storage Lanes	0		0	1		2	2		0	0		0
Taper Length (ft)	90			120			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			35				35
Link Distance (ft)		1035			1181			839				507
Travel Time (s)		23.5			26.8			16.3				9.9
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)				49%								
Turn Type				Perm	NA	Perm	Prot	NA				NA
Protected Phases					8		5	2				6
Permitted Phases				8		8						
Detector Phase				8	8	8	5	2				6
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0	5.0	4.0				4.0
Minimum Split (s)				20.0	20.0	20.0	9.5	20.0				20.0
Total Split (s)				21.0	21.0	21.0	10.4	39.0				28.6
Total Split (%)				35.0%	35.0%	35.0%	17.3%	65.0%				47.7%
Yellow Time (s)				3.5	3.5	3.5	3.5	3.5				3.5
All-Red Time (s)				0.5	0.5	0.5	1.0	0.5				0.5
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0				0.0
Total Lost Time (s)				4.0	4.0	4.0	4.5	4.0				4.0
Lead/Lag							Lead					Lag
Lead-Lag Optimize?							Yes					Yes
Recall Mode				None	None	None	None	C-Max				None

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT, Start of Yellow  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated

Splits and Phases: 2: Lincoln Ave. & SR-91 WB Ramps



HCM 6th Signalized Intersection Summary  
2: Lincoln Ave. & SR-91 WB Ramps

2040WP PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	863	25	337	261	622	0	0	885	450
Future Volume (veh/h)	0	0	0	863	25	337	261	622	0	0	885	450
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				927	0	355	275	655	0	0	932	474
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				1009	0	447	340	2073	0	0	939	469
Arrive On Green				0.28	0.00	0.28	0.13	0.78	0.00	0.00	0.27	0.27
Sat Flow, veh/h				3563	0	1577	3456	3647	0	0	2385	1145
Grp Volume(v), veh/h				927	0	355	275	655	0	0	719	687
Grp Sat Flow(s),veh/h/ln				1781	0	1577	1728	1777	0	0	1777	1659
Q Serve(g_s), s				15.1	0.0	12.5	4.6	3.3	0.0	0.0	24.2	24.6
Cycle Q Clear(g_c), s				15.1	0.0	12.5	4.6	3.3	0.0	0.0	24.2	24.6
Prop In Lane				1.00		1.00	1.00		0.00	0.00		0.69
Lane Grp Cap(c), veh/h				1009	0	447	340	2073	0	0	729	680
V/C Ratio(X)				0.92	0.00	0.79	0.81	0.32	0.00	0.00	0.99	1.01
Avail Cap(c_a), veh/h				1009	0	447	340	2073	0	0	729	680
HCM Platoon Ratio				1.00	1.00	1.00	1.33	1.33	1.00	1.00	0.67	0.67
Upstream Filter(I)				1.00	0.00	1.00	0.82	0.82	0.00	0.00	0.80	0.80
Uniform Delay (d), s/veh				20.8	0.0	19.9	25.5	3.2	0.0	0.0	21.6	21.8
Incr Delay (d2), s/veh				12.9	0.0	9.6	11.4	0.3	0.0	0.0	26.6	33.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				7.5	0.0	5.3	2.2	0.8	0.0	0.0	15.2	15.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				33.8	0.0	29.5	36.9	3.5	0.0	0.0	48.2	55.0
LnGrp LOS				C	A	C	D	A	A	A	D	F
Approach Vol, veh/h					1282			930			1406	
Approach Delay, s/veh					32.6			13.4			51.5	
Approach LOS					C			B			D	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		39.0			10.4	28.6		21.0				
Change Period (Y+Rc), s		4.0			4.5	4.0		4.0				
Max Green Setting (Gmax), s		35.0			5.9	24.6		17.0				
Max Q Clear Time (g_c+I1), s		5.3			6.6	26.6		17.1				
Green Ext Time (p_c), s		4.7			0.0	0.0		0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				35.0								
HCM 6th LOS				D								
<b>Notes</b>												
User approved volume balancing among the lanes for turning movement.												

Lanes, Volumes, Timings  
3: Lincoln Ave. & D St./2nd St.

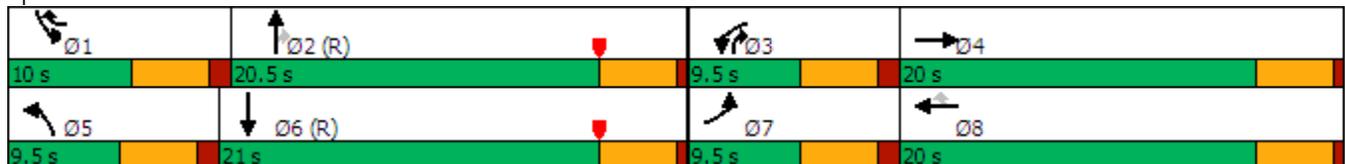
2040WP PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	194	27	195	97	233	67	581	368	395	1092	141
Future Volume (vph)	69	194	27	195	97	233	67	581	368	395	1092	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		65	155		155	165		310	220		150
Storage Lanes	1		1	2		0	1		1	2		0
Taper Length (ft)	30			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		358			549			551			839	
Travel Time (s)		7.0			10.7			10.7			16.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases						8			2			
Detector Phase	7	4		3	8	1	5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	
Minimum Split (s)	9.5	20.0		9.5	20.0	9.5	9.5	20.0	9.5	9.5	20.0	
Total Split (s)	9.5	20.0		9.5	20.0	10.0	9.5	20.5	9.5	10.0	21.0	
Total Split (%)	15.8%	33.3%		15.8%	33.3%	16.7%	15.8%	34.2%	15.8%	16.7%	35.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	0.5		1.0	0.5	1.0	1.0	0.5	1.0	1.0	0.5	
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)	4.5	4.0		4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow, Master Intersection  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated

Splits and Phases: 3: Lincoln Ave. & D St./2nd St.



HCM 6th Signalized Intersection Summary  
3: Lincoln Ave. & D St./2nd St.

2040WP PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				 				 		 	 	
Traffic Volume (veh/h)	69	194	27	195	97	233	67	581	368	395	1092	141
Future Volume (veh/h)	69	194	27	195	97	233	67	581	368	395	1092	141
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	73	204	28	205	102	245	71	612	387	416	1149	148
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	104	278	38	288	369	456	103	1312	715	317	1275	164
Arrive On Green	0.06	0.17	0.17	0.03	0.07	0.07	0.06	0.37	0.37	0.09	0.40	0.40
Sat Flow, veh/h	1781	1608	221	3456	1870	1573	1781	3554	1579	3456	3164	407
Grp Volume(v), veh/h	73	0	232	205	102	245	71	612	387	416	644	653
Grp Sat Flow(s),veh/h/ln	1781	0	1828	1728	1870	1573	1781	1777	1579	1728	1777	1794
Q Serve(g_s), s	2.4	0.0	7.2	3.5	3.1	8.2	2.3	7.9	10.7	5.5	20.4	20.5
Cycle Q Clear(g_c), s	2.4	0.0	7.2	3.5	3.1	8.2	2.3	7.9	10.7	5.5	20.4	20.5
Prop In Lane	1.00		0.12	1.00		1.00	1.00		1.00	1.00		0.23
Lane Grp Cap(c), veh/h	104	0	316	288	369	456	103	1312	715	317	716	723
V/C Ratio(X)	0.70	0.00	0.74	0.71	0.28	0.54	0.69	0.47	0.54	1.31	0.90	0.90
Avail Cap(c_a), veh/h	148	0	488	288	499	565	148	1312	715	317	716	723
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.93	0.93	0.93	1.00	1.00	1.00	0.19	0.19	0.19
Uniform Delay (d), s/veh	27.7	0.0	23.5	28.5	24.0	21.0	27.7	14.4	11.9	27.2	16.8	16.8
Incr Delay (d2), s/veh	8.1	0.0	3.3	7.4	0.4	0.9	7.9	1.2	2.9	145.3	3.9	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	3.1	1.7	1.3	3.2	1.2	3.0	3.7	8.5	7.7	7.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.9	0.0	26.8	35.9	24.3	22.0	35.7	15.6	14.9	172.6	20.7	20.9
LnGrp LOS	D	A	C	D	C	C	D	B	B	F	C	C
Approach Vol, veh/h		305			552			1070			1713	
Approach Delay, s/veh		29.0			27.6			16.7			57.7	
Approach LOS		C			C			B			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.0	26.1	9.5	14.4	8.0	28.2	8.0	15.8				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	5.5	16.5	5.0	16.0	5.0	17.0	5.0	16.0				
Max Q Clear Time (g_c+I1), s	7.5	12.7	5.5	9.2	4.3	22.5	4.4	10.2				
Green Ext Time (p_c), s	0.0	1.9	0.0	0.6	0.0	0.0	0.0	0.7				

Intersection Summary

HCM 6th Ctrl Delay	38.6
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings  
4: Lincoln Ave. & 6th St.

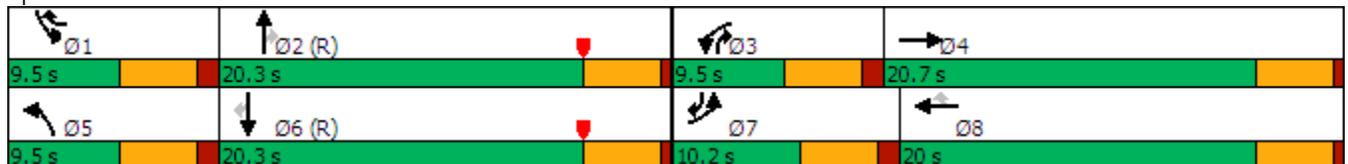
2040WP PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	285	883	85	209	583	174	53	522	160	120	862	297
Future Volume (vph)	285	883	85	209	583	174	53	522	160	120	862	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	205		150	175		90	150		95	110		150
Storage Lanes	2		0	2		1	1		1	1		1
Taper Length (ft)	90			120			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		413			447			466			504	
Travel Time (s)		8.0			8.7			9.1			9.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0
Minimum Split (s)	9.5	20.0		9.5	20.0	9.5	9.5	20.0	9.5	9.5	20.0	9.5
Total Split (s)	10.2	20.7		9.5	20.0	9.5	9.5	20.3	9.5	9.5	20.3	10.2
Total Split (%)	17.0%	34.5%		15.8%	33.3%	15.8%	15.8%	33.8%	15.8%	15.8%	33.8%	17.0%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	0.5		1.0	0.5	1.0	1.0	0.5	1.0	1.0	0.5	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)	4.5	4.0		4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None

Intersection Summary

Area Type: Other  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated

Splits and Phases: 4: Lincoln Ave. & 6th St.



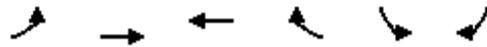
HCM 6th Signalized Intersection Summary  
4: Lincoln Ave. & 6th St.

2040WP PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 			 			 	
Traffic Volume (veh/h)	285	883	85	209	583	174	53	522	160	120	862	297
Future Volume (veh/h)	285	883	85	209	583	174	53	522	160	120	862	297
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	291	901	87	213	595	178	54	533	163	122	880	303
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	328	911	88	288	948	552	88	965	560	148	1086	633
Arrive On Green	0.09	0.28	0.28	0.08	0.27	0.27	0.05	0.27	0.27	0.08	0.31	0.31
Sat Flow, veh/h	3456	3272	316	3456	3554	1576	1781	3554	1576	1781	3554	1577
Grp Volume(v), veh/h	291	489	499	213	595	178	54	533	163	122	880	303
Grp Sat Flow(s),veh/h/ln	1728	1777	1811	1728	1777	1576	1781	1777	1576	1781	1777	1577
Q Serve(g_s), s	5.0	16.5	16.5	3.6	8.8	5.0	1.8	7.7	4.5	4.0	13.7	8.6
Cycle Q Clear(g_c), s	5.0	16.5	16.5	3.6	8.8	5.0	1.8	7.7	4.5	4.0	13.7	8.6
Prop In Lane	1.00		0.17	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	328	495	504	288	948	552	88	965	560	148	1086	633
V/C Ratio(X)	0.89	0.99	0.99	0.74	0.63	0.32	0.61	0.55	0.29	0.82	0.81	0.48
Avail Cap(c_a), veh/h	328	495	504	288	948	552	148	965	560	148	1086	633
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.8	21.6	21.6	26.9	19.4	14.3	28.0	18.7	13.9	27.1	19.2	13.3
Incr Delay (d2), s/veh	23.9	37.6	37.2	9.7	1.3	0.3	6.7	2.3	1.3	29.5	6.6	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	11.2	11.3	1.8	3.4	1.6	0.9	3.1	1.6	2.8	5.9	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.8	59.1	58.7	36.6	20.7	14.6	34.7	21.0	15.2	56.5	25.8	15.9
LnGrp LOS	D	E	E	D	C	B	C	C	B	E	C	B
Approach Vol, veh/h		1279			986			750			1305	
Approach Delay, s/veh		57.1			23.0			20.7			26.4	
Approach LOS		E			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	20.3	9.5	20.7	7.5	22.3	10.2	20.0				
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0	4.5	4.0	4.5	4.0				
Max Green Setting (Gmax), s	5.0	16.3	5.0	16.7	5.0	16.3	5.7	16.0				
Max Q Clear Time (g_c+I1), s	6.0	9.7	5.6	18.5	3.8	15.7	7.0	10.8				
Green Ext Time (p_c), s	0.0	2.2	0.0	0.0	0.0	0.4	0.0	2.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				33.7								
HCM 6th LOS				C								

Lanes, Volumes, Timings  
5: 2nd St. & SR-91 EB Ramps

2040WP PM Peak Hour

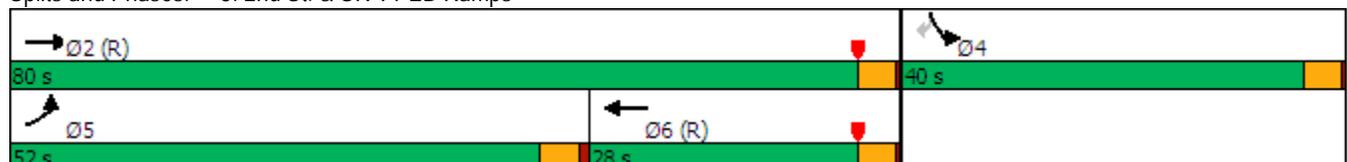


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖↗	↑	↕↔		↖↗	↗
Traffic Volume (vph)	769	219	184	179	501	341
Future Volume (vph)	769	219	184	179	501	341
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	190			150	450	150
Storage Lanes	0			0	0	0
Taper Length (ft)	60				90	
Right Turn on Red				Yes		Yes
Link Speed (mph)		35	35		30	
Link Distance (ft)		549	319		407	
Travel Time (s)		10.7	6.2		9.3	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						23%
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	5.0	4.0	4.0		4.0	4.0
Minimum Split (s)	9.5	20.0	20.0		20.0	20.0
Total Split (s)	52.0	80.0	28.0		40.0	40.0
Total Split (%)	43.3%	66.7%	23.3%		33.3%	33.3%
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	0.5	0.5		0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.0	4.0		4.0	4.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Recall Mode	None	C-Max	C-Max		Max	Max

Intersection Summary

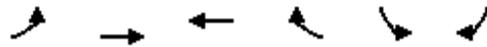
Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 5: 2nd St. & SR-91 EB Ramps



HCM 6th Signalized Intersection Summary  
 5: 2nd St. & SR-91 EB Ramps

2040WP PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖↗	↑	↗↖		↘↙	↘
Traffic Volume (veh/h)	769	219	184	179	501	341
Future Volume (veh/h)	769	219	184	179	501	341
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	809	231	194	188	586	295
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	919	1185	586	519	1069	476
Arrive On Green	0.27	0.63	0.33	0.33	0.30	0.30
Sat Flow, veh/h	3456	1870	1870	1573	3563	1585
Grp Volume(v), veh/h	809	231	194	188	586	295
Grp Sat Flow(s),veh/h/ln	1728	1870	1777	1573	1781	1585
Q Serve(g_s), s	26.9	6.2	9.9	10.9	16.5	19.2
Cycle Q Clear(g_c), s	26.9	6.2	9.9	10.9	16.5	19.2
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	919	1185	586	519	1069	476
V/C Ratio(X)	0.88	0.20	0.33	0.36	0.55	0.62
Avail Cap(c_a), veh/h	1368	1185	586	519	1069	476
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.72	0.72	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.2	9.2	30.3	30.6	35.2	36.1
Incr Delay (d2), s/veh	3.5	0.3	1.5	2.0	2.0	6.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.7	2.5	4.4	4.4	7.5	17.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.7	9.5	31.8	32.6	37.2	42.1
LnGrp LOS	D	A	C	C	D	D
Approach Vol, veh/h		1040	382		881	
Approach Delay, s/veh		37.6	32.2		38.8	
Approach LOS		D	C		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		80.0		40.0	36.4	43.6
Change Period (Y+Rc), s		4.0		4.0	4.5	4.0
Max Green Setting (Gmax), s		76.0		36.0	47.5	24.0
Max Q Clear Time (g_c+I1), s		8.2		21.2	28.9	12.9
Green Ext Time (p_c), s		1.4		3.0	3.0	1.7

Intersection Summary

HCM 6th Ctrl Delay	37.2
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Lanes, Volumes, Timings  
6: Buena Vista Ave. & 2nd St.

2040WP PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	361	148	25	91	24	80	155	34	61	177	59
Future Volume (vph)	98	361	148	25	91	24	80	155	34	61	177	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		50	150		150	95		150	95		150
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	90			90			60			60		
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		528			733			392			629	
Travel Time (s)		10.3			14.3			8.9			14.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		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
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	33.7
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕		↕	↕		↕	↕	
Traffic Vol, veh/h	98	361	148	25	91	24	80	155	34	61	177	59
Future Vol, veh/h	98	361	148	25	91	24	80	155	34	61	177	59
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	107	392	161	27	99	26	87	168	37	66	192	64
Number of Lanes	0	1	1	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	53.7	15.3	15.6	17.9
HCM LOS	F	C	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	21%	0%	18%	100%	0%
Vol Thru, %	0%	82%	79%	0%	65%	0%	75%
Vol Right, %	0%	18%	0%	100%	17%	0%	25%
Sign Control	Stop						
Traffic Vol by Lane	80	189	459	148	140	61	236
LT Vol	80	0	98	0	25	61	0
Through Vol	0	155	361	0	91	0	177
RT Vol	0	34	0	148	24	0	59
Lane Flow Rate	87	205	499	161	152	66	257
Geometry Grp	7	7	7	7	6	7	7
Degree of Util (X)	0.203	0.448	1	0.286	0.344	0.153	0.55
Departure Headway (Hd)	8.385	7.851	7.215	6.391	8.147	8.305	7.719
Convergence, Y/N	Yes						
Cap	430	466	504	561	447	434	475
Service Time	6.083	5.458	4.969	4.145	6.076	6.003	5.329
HCM Lane V/C Ratio	0.202	0.44	0.99	0.287	0.34	0.152	0.541
HCM Control Delay	13.2	16.6	67.2	11.7	15.3	12.5	19.3
HCM Lane LOS	B	C	F	B	C	B	C
HCM 95th-tile Q	0.8	2.3	13.6	1.2	1.5	0.5	3.3

Lanes, Volumes, Timings  
 7: Cardenas Dwy./Project Dwy. 1 & 2nd St.

2040WP PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	675	45	0	322	41	0	0	85	0	0	41
Future Volume (vph)	0	675	45	0	322	41	0	0	85	0	0	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		319			197			217			156	
Travel Time (s)		6.2			3.8			4.9			3.5	
Confl. Peds. (#/hr)			5	5			5		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
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑				↑			↑
Traffic Vol, veh/h	0	675	45	0	322	41	0	0	85	0	0	41
Future Vol, veh/h	0	675	45	0	322	41	0	0	85	0	0	41
Conflicting Peds, #/hr	0	0	5	5	0	0	5	0	5	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	734	49	0	350	45	0	0	92	0	0	45

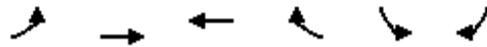
Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	-	0	0	-	-	0	-	-	402	-	-	198
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	598	0	0	810
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	592	-	-	810
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	12.2	9.7
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	592	-	-	-	-	810
HCM Lane V/C Ratio	0.156	-	-	-	-	0.055
HCM Control Delay (s)	12.2	-	-	-	-	9.7
HCM Lane LOS	B	-	-	-	-	A
HCM 95th %tile Q(veh)	0.6	-	-	-	-	0.2

Lanes, Volumes, Timings  
8: 2nd St. & Project Dwy. 2

2040WP PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	96	664	310	25	65	53
Future Volume (vph)	96	664	310	25	65	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	245			50	0	0
Storage Lanes	0			1	1	0
Taper Length (ft)	90				90	
Link Speed (mph)		35	35		30	
Link Distance (ft)		197	196		131	
Travel Time (s)		3.8	3.8		3.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection						
Int Delay, s/veh	3.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	96	664	310	25	65	53
Future Vol, veh/h	96	664	310	25	65	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	50	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	104	722	337	27	71	58

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	364	0	-	0	1281 182
Stage 1	-	-	-	-	351 -
Stage 2	-	-	-	-	930 -
Critical Hdwy	4.13	-	-	-	6.2 6.93
Critical Hdwy Stg 1	-	-	-	-	5.83 -
Critical Hdwy Stg 2	-	-	-	-	5.43 -
Follow-up Hdwy	2.219	-	-	-	3.519 3.319
Pot Cap-1 Maneuver	1193	-	-	-	198 830
Stage 1	-	-	-	-	685 -
Stage 2	-	-	-	-	383 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1193	-	-	-	181 830
Mov Cap-2 Maneuver	-	-	-	-	181 -
Stage 1	-	-	-	-	625 -
Stage 2	-	-	-	-	383 -

Approach	EB	WB	SB
HCM Control Delay, s	1	0	28.4
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1193	-	-	-	279
HCM Lane V/C Ratio	0.087	-	-	-	0.46
HCM Control Delay (s)	8.3	-	-	-	28.4
HCM Lane LOS	A	-	-	-	D
HCM 95th %tile Q(veh)	0.3	-	-	-	2.3

**PROJECT ACCESS QUEUEING ANALYSIS SUMMARY FOR  
2040 WITH PROJECT CONDITIONS**

ID	Intersection	Turning Movement Lane	Proposed Storage Length Provided <sup>2</sup> (feet)	95th Percentile Queue Length Per Lane (feet) <sup>1</sup>	
				AM	PM
7	Cardenas Dwy. - Project Dwy. 1 / 2nd St.	SBR	>50	50	54
8	Project Dwy. 2 / 2nd St.	EBL	245	53	49
		SBL/R	>50	83	69

<sup>1</sup> Queue length calculated using Synchro 10 with SimTraffic.

Intersection: 7: Cardenas Dwy./Project Dwy. 1 & 2nd St.

Movement	EB	EB	WB	NB	SB
Directions Served	T	TR	TR	R	R
Maximum Queue (ft)	3	4	8	20	44
Average Queue (ft)	1	1	2	12	20
95th Queue (ft)	6	9	17	27	50
Link Distance (ft)	220	220	147	160	110
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 8: 2nd St. & Project Dwy. 2

Movement	EB	WB	SB
Directions Served	L	TR	LR
Maximum Queue (ft)	45	7	74
Average Queue (ft)	21	1	49
95th Queue (ft)	53	14	83
Link Distance (ft)	147		84
Upstream Blk Time (%)			2
Queuing Penalty (veh)			0
Storage Bay Dist (ft)		50	
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Zone Summary

Zone wide Queuing Penalty: 0
------------------------------

Intersection: 7: Cardenas Dwy./Project Dwy. 1 & 2nd St.

Movement	EB	WB	NB	SB
Directions Served	TR	T	R	R
Maximum Queue (ft)	26	5	46	42
Average Queue (ft)	5	1	24	24
95th Queue (ft)	33	9	51	54
Link Distance (ft)	220	147	160	110
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: 2nd St. & Project Dwy. 2

Movement	EB	WB	WB	SB
Directions Served	L	T	TR	LR
Maximum Queue (ft)	41	9	18	66
Average Queue (ft)	17	3	6	40
95th Queue (ft)	49	20	32	69
Link Distance (ft)	147	136		84
Upstream Blk Time (%)				1
Queuing Penalty (veh)				0
Storage Bay Dist (ft)			50	
Storage Blk Time (%)			0	
Queuing Penalty (veh)			0	

Zone Summary

Zone wide Queuing Penalty: 0
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**APPENDIX I**

**2040 WITH PROJECT CONDITIONS  
FREEWAY RAMP ANALYSIS WORKSHEETS**

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# HCS7 Freeway Diverge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040WP
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 WB Off-Ramp @ Lincoln	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	70.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	2900	1000
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	8989	1467
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	9970	1627
Capacity (c), pc/h	14400	2000
Volume-to-Capacity Ratio (v/c)	0.69	0.81

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (Ds)	0.509
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1650
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	55.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	74.3
Flow in Lanes 1 and 2 (v12), pc/h	4178	Ramp Junction Speed (S), mi/h	62.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	26.5
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	31.2

# HCS7 Freeway Merge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040WP
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 WB On-Ramp @ Lincoln	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA),ft	2500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	7522	891
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	8343	988
Capacity (c), pc/h	12000	2000
Volume-to-Capacity Ratio (v/c)	0.78	0.49

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.414
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1790
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	61.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.094	Outer Lanes Freeway Speed (SO), mi/h	70.8
Flow in Lanes 1 and 2 (v12), pc/h	2386	Ramp Junction Speed (S), mi/h	66.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	3374	Average Density (D), pc/mi/ln	28.3
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	29.5

# HCS7 Freeway Diverge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040WP
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 EB Off-Ramp @ 2nd St	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	70.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	4900	1340
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided Two-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	9180	610
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	10182	677
Capacity (c), pc/h	11000	4000
Volume-to-Capacity Ratio (v/c)	0.93	0.17

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (Ds)	0.424
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2444
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	58.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	71.2
Flow in Lanes 1 and 2 (v12), pc/h	3258	Ramp Junction Speed (S), mi/h	65.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	31.2
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	20.2

# HCS7 Freeway Merge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040WP
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 EB On-Ramp @ 2nd St	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA),ft	2300	1500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	8570	922
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	9505	1023
Capacity (c), pc/h	14400	2000
Volume-to-Capacity Ratio (v/c)	0.73	0.51

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.404
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	2138
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	61.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.090	Outer Lanes Freeway Speed (SO), mi/h	69.5
Flow in Lanes 1 and 2 (v12), pc/h	2852	Ramp Junction Speed (S), mi/h	65.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	3875	Average Density (D), pc/mi/ln	26.7
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	25.9

# HCS7 Freeway Diverge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040WP
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 WB Off-Ramp @ Lincoln	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	2900	1000
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	9121	1225
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	10116	1359
Capacity (c), pc/h	14100	2000
Volume-to-Capacity Ratio (v/c)	0.72	0.68

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (Ds)	0.485
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1757
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	53.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.436	Outer Lanes Freeway Speed (SO), mi/h	68.4
Flow in Lanes 1 and 2 (v12), pc/h	4074	Ramp Junction Speed (S), mi/h	59.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	28.2
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	30.3

# HCS7 Freeway Merge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040WP
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 WB On-Ramp @ Lincoln	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	7	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA),ft	2500	300
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	7896	736
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	8758	816
Capacity (c), pc/h	16800	2000
Volume-to-Capacity Ratio (v/c)	0.57	0.41

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.422
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	1971
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	61.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.116	Outer Lanes Freeway Speed (SO), mi/h	70.1
Flow in Lanes 1 and 2 (v12), pc/h	2627	Ramp Junction Speed (S), mi/h	65.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	3443	Average Density (D), pc/mi/ln	20.8
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	30.1

# HCS7 Freeway Diverge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040WP
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 EB Off-Ramp @ 2nd St	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	5	2
Free-Flow Speed (FFS), mi/h	70.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	4900	1340
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Highway/CD Roadway	Right-Sided Two-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	9737	842
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	10800	934
Capacity (c), pc/h	11000	4000
Volume-to-Capacity Ratio (v/c)	0.98	0.23

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (Ds)	0.447
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	2592
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	57.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.260	Outer Lanes Freeway Speed (SO), mi/h	70.6
Flow in Lanes 1 and 2 (v12), pc/h	3456	Ramp Junction Speed (S), mi/h	64.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	33.4
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	21.9

# HCS7 Freeway Merge Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040WP
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 EB On-Ramp @ 2nd St	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	6	1
Free-Flow Speed (FFS), mi/h	75.4	35.0
Segment Length (L) / Acceleration Length (LA),ft	2300	1500
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	8895	948
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	9866	1051
Capacity (c), pc/h	14400	2000
Volume-to-Capacity Ratio (v/c)	0.76	0.53

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.431
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	2220
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	61.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.086	Outer Lanes Freeway Speed (SO), mi/h	69.2
Flow in Lanes 1 and 2 (v12), pc/h	2960	Ramp Junction Speed (S), mi/h	65.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	4011	Average Density (D), pc/mi/ln	28.0
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	26.9

**APPENDIX U**

**2040 WITH PROJECT CONDITIONS  
FREEWAY SEGMENT ANALYSIS WORKSHEETS**

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# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040WP
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 WB, east of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8989	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1662
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.69
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	67.5
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	24.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040WP
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 WB, between ramps	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	7522	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1669
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	67.5
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	24.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFSadj), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040WP
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 WB, west of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8413	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (V <sub>p</sub> ), pc/h/ln	1866
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.78
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	64.9
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	28.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040WP
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 EB, west of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	9180	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (V <sub>p</sub> ), pc/h/ln	2036
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.85
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	61.9
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	32.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040WP
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 EB, between ramps	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8570	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1901
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.79
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	64.3
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	29.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFSadj), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040WP
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	SR-91 EB, East of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	9492	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1755
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (cadj), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.73
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	66.4
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	26.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFSadj), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040WP
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 WB, east of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	9121	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (V <sub>p</sub> ), pc/h/ln	1686
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	67.3
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	25.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040WP
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 WB, between ramps	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	7896	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1752
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.73
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	66.5
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	26.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040WP
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 WB, west of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8632	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1915
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.80
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	64.1
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	29.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040WP
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 EB, west of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	9737	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.95	Flow Rate (V <sub>p</sub> ), pc/h/ln	2092
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.87
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	60.8
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	34.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040WP
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 EB, between ramps	Unit	United States Customary

## Geometric Data

Number of Lanes, In	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	8895	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (Vp), pc/h/ln	1973
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.82
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	63.1
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	31.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		

# HCS7 Basic Freeway Report

## Project Information

Analyst		Date	07/21/23
Agency	Trames Solutions, Inc.	Analysis Year	2040WP
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	SR-91 EB, East of Lincoln	Unit	United States Customary

## Geometric Data

Number of Lanes, In	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	-
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

Demand Volume veh/h	9843	Heavy Vehicle Adjustment Factor (fHV)	0.980
Peak Hour Factor	0.92	Flow Rate (V <sub>p</sub> ), pc/h/ln	1820
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c <sub>adj</sub> ), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.76
Passenger Car Equivalent (ET)	2.000		

## Speed and Density

Lane Width Adjustment (fLW)	-	Average Speed (S), mi/h	65.6
Right-Side Lateral Clearance Adj. (fRLC)	-	Density (D), pc/mi/ln	27.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS <sub>adj</sub> ), mi/h	70.0		