

Yorba Linda Widening

Traffic Impact Study

DRAFT

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I. INTRODUCTION

This traffic impact study evaluates the traffic impacts associated with the proposed street widening on Yorba Linda Boulevard. This study presents the scope, methodology, inputs, assumptions, and results of the traffic analysis. The project developer, BKF Engineers, has contracted with W.G. Zimmerman Engineering, Inc. (WGZE) to develop and complete the traffic analysis for the Yorba Linda Boulevard Street Widening Project (hereinafter referred to as “Project”). The Project is located at Yorba Linda Boulevard and Imperial Highway in the City of Yorba Linda. Although this is a technical traffic analysis, every effort has been made to write the report clearly and concisely.

II. PROJECT DESCRIPTION

The Project is an approximately 1400-foot-long stretch of Yorba Linda Boulevard as shown in **Figure 1**. This stretch is intersected by Imperial Highway and Lakeview Avenue. Yorba Linda Boulevard is a six-lane street (three lanes in each direction) oriented in the east-west direction which is partially divided by a concrete median. Yorba Linda Boulevard is classified as a Modified Major 6 Lane Arterial Street per the City of Yorba Linda General Plan Circulation Element. The posted speed limit on Yorba Linda Boulevard is 40 mph. On-street parking is not permitted and there are no bicycle lanes.

The aim of the Project is to improve traffic conditions along this stretch of Yorba Linda Boulevard by adjusting the width of the raised concrete median and improving intersections operations along the corridor. Currently, Yorba Linda Boulevard is approximately 84 feet wide curb-to-curb. Adjusting the median width and widening the curb-to-curb width of the street will allow additional left turn lanes in the eastbound and westbound directions and also an additional right turn lane in the eastbound direction at Yorba Linda Boulevard and Imperial Highway. Figures 2 and 3 show a concept of the additional lanes.



Figure 1: Project Location Map

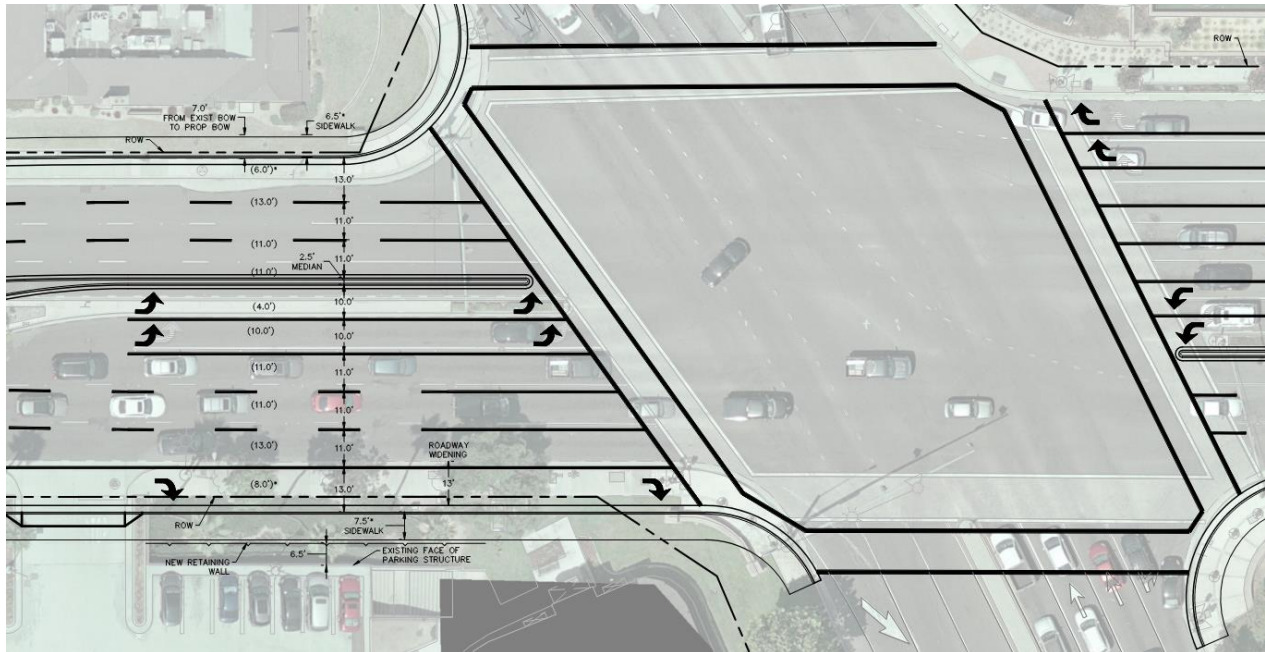


Figure 2: Project Location Map

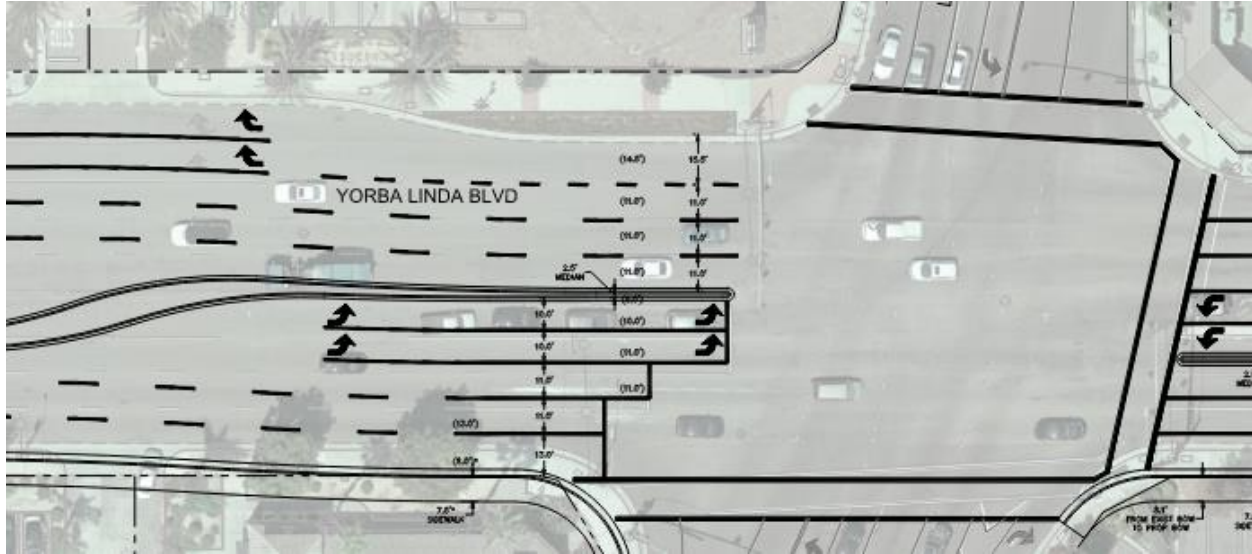


Figure 3: Project Location Map

III. EXISTING ROADWAY SYSTEM

Yorba Linda Boulevard is a six-lane street (three lanes in each direction) oriented in the east-west direction which is partially divided by a concrete median. Yorba Linda Boulevard is classified as a Modified Major 6 Lane Arterial Street per the City of Yorba Linda General Plan Circulation Element. The posted speed limit on Yorba Linda Boulevard is 40 mph. On-street parking is not permitted and there are no bicycle lanes.

Lakeview Avenue is a four-lane street oriented in the north-south direction. Lakeview Avenue is classified as a Secondary 4 Lane street per the City of Yorba Linda's General Plan-Circulation Element. The posted speed limit on Lakeview Avenue is 35 mph. On-street parking is permitted on Lakeview Avenue north of Lemon Drive. There are Class II bike lanes starting south of Lemon Drive.

Imperial Highway is a six-lane street in the north-south direction which is divided by a concrete median. Imperial Highway is classified as a Smart 6 Lane street per the City of Yorba Linda's General Plan. The posted speed limit on Imperial Highway is 45 mph. On-street parking is not permitted on Imperial Highway.

i. Study Area

The study area will incorporate three corridors and two intersections along Yorba Linda Boulevard affected by the Project.

Table 1: Study Areas

No.	Intersections	Intersection Type
1	Yorba Linda Boulevard and Imperial Highway	Signalized
2	Yorba Linda Boulevard and Lakeview Avenue	Signalized
Corridors		
3	300' Corridor West of Imperial Highway	
4	Imperial Highway to Lakeview Avenue	
5	350' Corridor East of Lakeview Avenue	



Figure 4: Study Area Location Map

IV. EXISTING TRAFFIC CONDITIONS

Existing peak hour traffic volumes are based upon morning and evening peak period intersection turning movement counts obtained from Counts Unlimited on November 30, 2022, during typical weekday conditions. The morning peak period was collected between 7:00 AM and 9:00 AM and the evening peak period was collected between 4:00 PM and 6:00 PM. The resulting AM and PM peak hour traffic flows were developed into passenger car unit's (pcu's) for the surrounding road network. The actual peak hour within the peak period is the four consecutive 15-minute periods with the highest total volume when all movements are added together. Thus, for example, the weekday evening peak hour at one intersection may be 4:45 PM to 5:45 PM if those four consecutive 15-minute periods have the highest combined volume. Intersection turning movement count worksheets are provided in **Appendix A**.

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

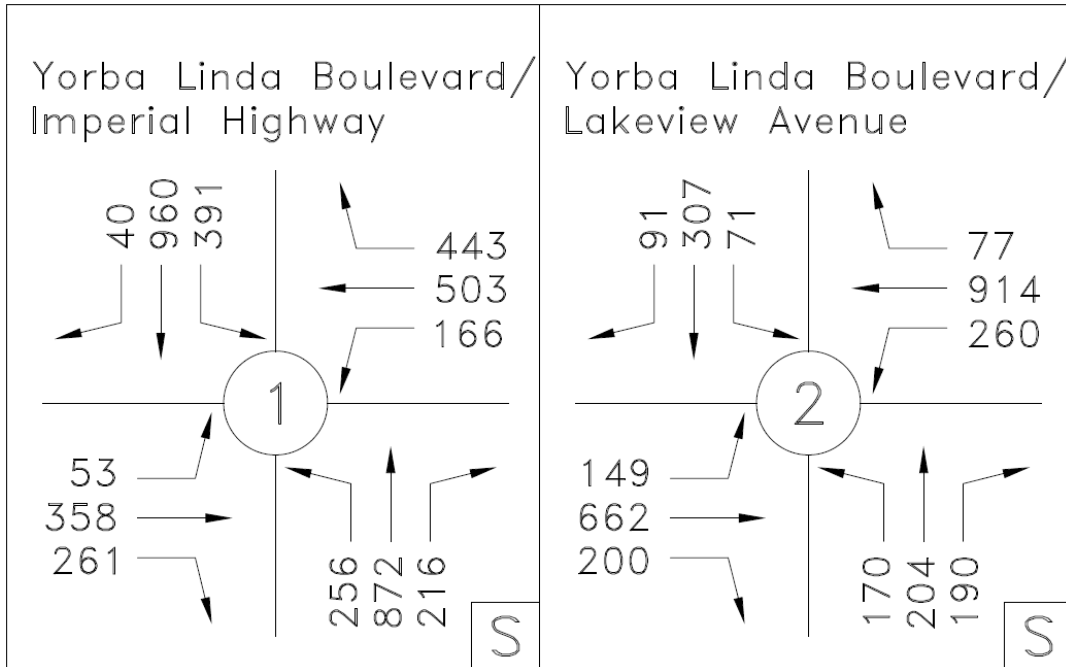


Figure 5: Existing AM Peak Hour Intersection Turning Movement Volumes

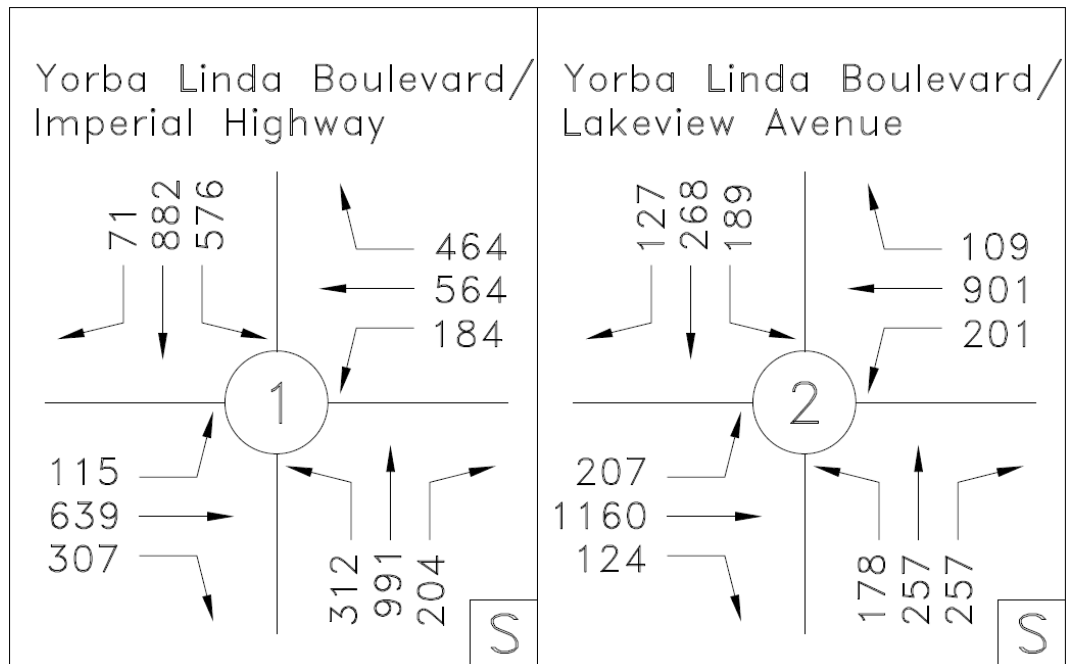


Figure 6: Existing PM Peak Hour Intersection Turning Movement Volumes

V. TRAFFIC FORECAST

To assess Cumulative (2025) plus project traffic conditions, a 1% growth factor per year was added to existing traffic volumes. New peak hour traffic volumes using the growth factor are provided in **Figure 5** and **Figure 6**.

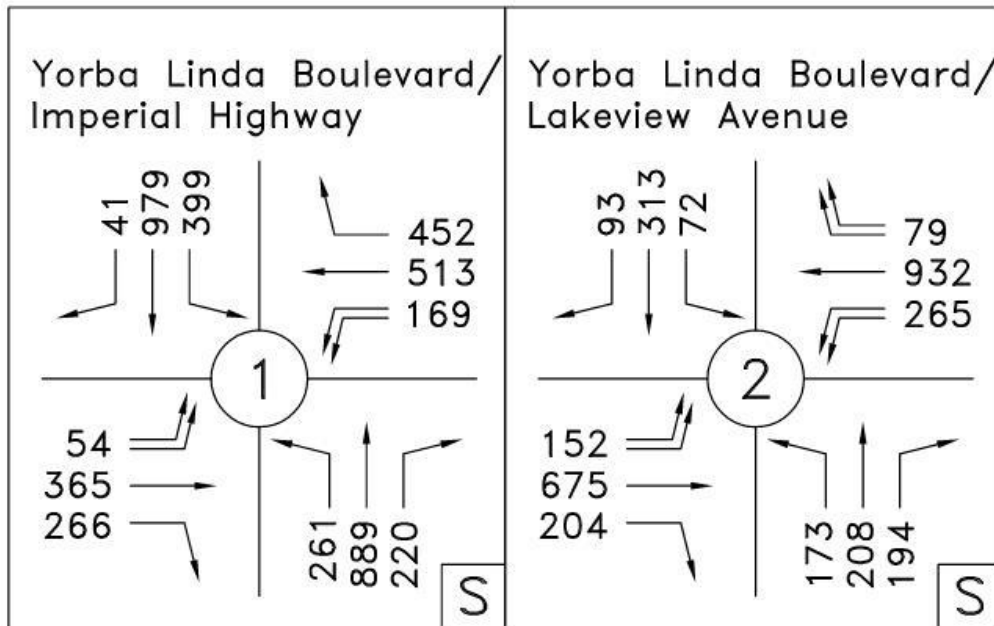


Figure 7: Future plus Project AM Peak Hour Intersection Turning Movement Volumes

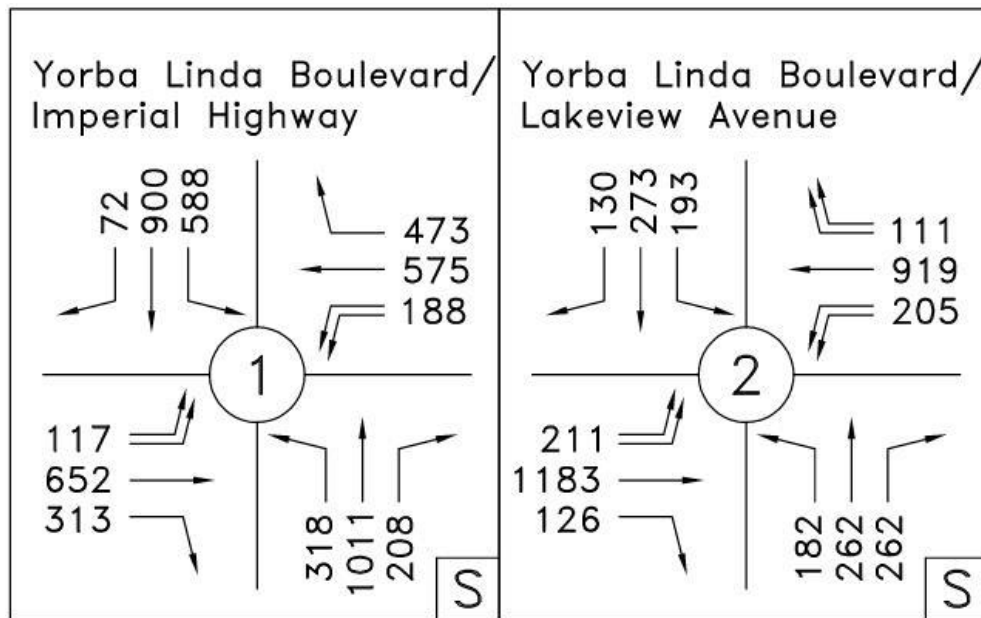


Figure 8: Future plus Project PM Peak Hour Intersection Turning Movement Volumes

VI. TRAFFIC ASSESSMENT

i. Project Methodology

The traffic assessment for the Project will be analyzed in the context of the City of Yorba Linda and CA MUTCD policies and guidelines. Field counts for turning movements at each intersection within the study area were collected and used for the existing network conditions.

The reference material used to evaluate the study area intersections includes the following:

- California Manual on Uniform Traffic Control Devices (CA-MUTCD), 2014 Edition, Rev 7
- The Highway Capacity Manual, 7th Edition (HCM), 2022
- City of Yorba Linda General Plan, Circulation Element

For this study, Level of Service (LOS) will be used to determine the operating conditions of each signalized intersection during the weekday AM and PM peak hours. The criteria for LOS in this study are based on the ICU (intersection capacity utilization) methodology for signalized intersections which categorizes Level of Service by the V/C ratio (volume to capacity) of the intersection.

LOS is a qualitative measure of the effect of traffic flow factors, such as speed, travel time, interruptions, freedom to maneuver, driver comfort, and convenience. The City of Yorba Linda's General Plan, Circulation Element provides a breakdown for each LOS, including a description of traffic conditions accompanied by the respective V/C ratio. **Table 2** summarizes the relationship between V/C ratio and LOS.

- Level A – V/C ratio of 0.00-0.60. Primarily free-flow conditions at average travel speeds. Vehicles are seldom impeded in their ability to maneuver in the traffic stream. Delays at intersections are minimal.
- Level B – V/C ratio of 0.61-0.70. The control delay ranges from 10 to 15 sec/veh. Unimpeded operations at average travel speeds. The ability to maneuver in the traffic stream is slightly restricted; delays are not bothersome.
- Level C – V/C ratio of 0.71-0.80. The control delay ranges from 15 to 25 sec/veh. Stable operations; however, ability to change lanes and maneuver may be more restricted than LOS B and longer queues are experienced at intersections.
- Level D – V/C ratio of 0.81-0.90. The control delay ranges from 25 to 35 sec/veh. Congestion occurs and a small change in volumes increases delays substantially.

- Level E – V/C ratio of 0.91-1.00. Severe congestion occurs with extensive delays accompanied by low travel speeds.
- Level F – V/C ratio greater than 1.00. Extremely low speeds and intersection congestion occurs with high delays and extensive queuing.

Table 2: Signalized Intersection LOS Criteria

Level of Service (LOS)	Intersection Capacity Utilization (ICU)
A	0.00 - 0.60
B	0.61 - 0.70
C	0.71 - 0.80
D	0.81 - 0.90
E	0.91 - 1.00
F	> 1.00
Source: City of Yorba Linda General Plan, Circulation Element	

ii. Level of Service

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

- Existing conditions (2023)
- Existing conditions (2023) plus project
- Future conditions (2025)
- Future conditions (2025) plus project

Table 3 summarizes the results of the existing weekday morning and evening peak hour V/C ratio and corresponding LOS at each intersection. As shown in **Table 3**, the proposed project is forecasted to result in no significant traffic impact at the study intersections, as both intersections experience no change in LOS in all scenarios.

Table 3: Existing Conditions Intersection Level of Service

ID	Intersection	Peak Hour	Existing		Existing + Project		Change in Delay	Significant Impact?
			Delay	LOS	Delay	LOS		
1	Yorba Linda and Imperial Highway	AM	42.9	D	37.3	D	-5.60	NO
		PM	51.9	D	42.0	D	-9.90	NO
2	Yorba Linda and Lakeview Avenue	AM	44.4	D	41.2	D	-3.20	NO
		PM	44.5	D	40.9	D	-3.60	NO

Table 4 summarizes the results of the Future Plus Project (Year 2025) weekday morning and evening peak hour control delay and corresponding LOS at each intersection. As shown in **Table 4**, the proposed project is forecast to result in no significant traffic impact at the study intersections for Future plus Project traffic conditions as no intersection changes to a LOS of F. The detailed Synchro reports for existing and future conditions are attached as **Appendix B**.

Table 4: Future Conditions (Year 2025) Intersection Level of Service

ID	Intersection	Peak Hour	Future		Future + Project		Change in Delay	Significant Impact?
			Delay	LOS	Delay	LOS		
1	Yorba Linda and Imperial Highway	AM	43.1	D	37.5	D	-5.60	NO
		PM	53.2	D	42.2	D	-11.00	NO
2	Yorba Linda and Lakeview Avenue	AM	44.1	D	41.2	D	-2.90	NO
		PM	44.8	D	41.2	D	-1.60	NO

iii. Project Queuing Analysis

A queueing analysis was conducted to analyze the queue length of turning movements regarding the two study intersections of Yorba Linda and Imperial Highway as well as Yorba Linda and Lakeview Avenue. Syncho and SimTraffic were used to model the two intersections with vehicles counts provided by Counts Unlimited. **Table 5** summarizes queue lengths of the study intersections in every turning movement before and after the proposed project is complete. With additional turning lanes, current and future traffic volumes will no longer exceed storage capacities of the turn pockets in all but one of the turning movements. The eastbound left turn at Yorba Linda Boulevard and Lakeview Avenue would still exceed its storage capabilities.

Table 5: Study Intersection Queue Lengths

Intersection	Direction	Storage	Existing		Existing + Project		Future		Future + Project	
			AM Queue	PM Queue	AM Queue	PM Queue	AM Queue	PM Queue	AM Queue	PM Queue
Yorba Linda Boulevard and Imperial Highway	Eastbound Left turn	113' 120'	95'	167'^*	48'	87'	96'	170'^*	48'	88'
	Eastbound Right turn	- 250'	-	-	173'	218'	-	-	176'	228'
	Westbound Left Turn	155' 160'	241'^*	310'^*	124'	135'	245'^*	316'^*	126'	136'
Yorba Linda Boulevard and Lakeview Avenue	Eastbound Left Turn	125' 125'	205'^*	220'^*	111'	136'^*	206'^*	219'^*	112'	134'^*
	Westbound Left Turn	190' 190'	303'^*	255'^*	156'	128'	309'^*	260'^*	159'	129'
* Exceeds Storage ^ Significant Impact										

VII. CONCLUSION AND RECOMMENDATION

The City of Yorba Linda General Plan, Circulation Element was used to determine criteria for LOS through the ICU methodology. Peak hour delay analysis of both study intersections was carried out using SYNCHRO along with vehicle volumes from Counts Unlimited. As shown in Table 5, additional turning lanes will ease queue lengths and prevent queues from exceeding their respective pockets in both AM and PM project scenarios.

APPENDIX

Appendix A: Traffic Counts Data

City of Yorba Linda
 N/S: Imperial Highway
 E/W: Yorba Linda Boulevard
 Weather: Clear

File Name : 01_YLA_Imperial_Yorba Linda_AM
 Site Code : 221061
 Start Date : 11/30/2022
 Page No : 1

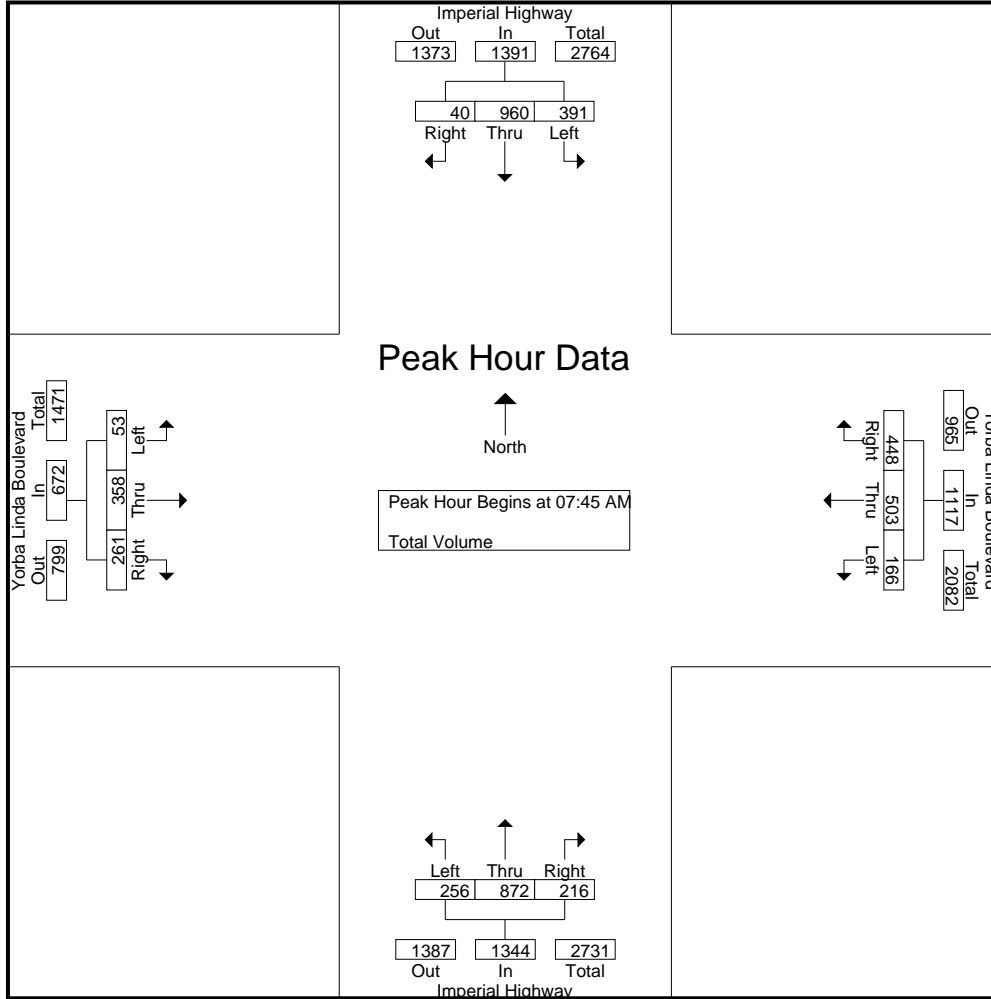
Groups Printed- Total Volume

Start Time	Imperial Highway Southbound				Yorba Linda Boulevard Westbound				Imperial Highway Northbound				Yorba Linda Boulevard 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	52	183	1	236	25	52	61	138	33	135	16	184	5	45	42	92	650
07:15 AM	77	209	1	287	22	99	70	191	62	173	34	269	2	52	43	97	844
07:30 AM	77	249	6	332	38	99	91	228	77	220	33	330	11	72	69	152	1042
07:45 AM	87	351	13	451	53	116	96	265	66	219	50	335	10	74	77	161	1212
Total	293	992	21	1306	138	366	318	822	238	747	133	1118	28	243	231	502	3748
08:00 AM	86	199	12	297	47	100	112	259	62	205	45	312	16	67	63	146	1014
08:15 AM	115	225	7	347	27	109	106	242	49	240	50	339	9	94	57	160	1088
08:30 AM	103	185	8	296	39	178	134	351	79	208	71	358	18	123	64	205	1210
08:45 AM	83	183	12	278	44	167	108	319	74	211	64	349	13	122	64	199	1145
Total	387	792	39	1218	157	554	460	1171	264	864	230	1358	56	406	248	710	4457
Grand Total	680	1784	60	2524	295	920	778	1993	502	1611	363	2476	84	649	479	1212	8205
Apprch %	26.9	70.7	2.4		14.8	46.2	39		20.3	65.1	14.7		6.9	53.5	39.5		
Total %	8.3	21.7	0.7	30.8	3.6	11.2	9.5	24.3	6.1	19.6	4.4	30.2	1	7.9	5.8	14.8	

Start Time	Imperial Highway Southbound				Yorba Linda Boulevard Westbound				Imperial Highway Northbound				Yorba Linda Boulevard 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 07:45 AM																	
07:45 AM	87	351	13	451	53	116	96	265	66	219	50	335	10	74	77	161	1212
08:00 AM	86	199	12	297	47	100	112	259	62	205	45	312	16	67	63	146	1014
08:15 AM	115	225	7	347	27	109	106	242	49	240	50	339	9	94	57	160	1088
08:30 AM	103	185	8	296	39	178	134	351	79	208	71	358	18	123	64	205	1210
Total Volume	391	960	40	1391	166	503	448	1117	256	872	216	1344	53	358	261	672	4524
% App. Total	28.1	69	2.9		14.9	45	40.1		19	64.9	16.1		7.9	53.3	38.8		
PHF	.850	.684	.769	.771	.783	.706	.836	.796	.810	.908	.761	.939	.736	.728	.847	.820	.933

City of Yorba Linda
 N/S: Imperial Highway
 E/W: Yorba Linda Boulevard
 Weather: Clear

File Name : 01_YLA_Imperial_Yorba Linda_AM
 Site Code : 221061
 Start Date : 11/30/2022
 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				08:00 AM				08:00 AM				08:00 AM			
+0 mins.	77	249	6	332	47	100	112	259	62	205	45	312	16	67	63	146
+15 mins.	87	351	13	451	27	109	106	242	49	240	50	339	9	94	57	160
+30 mins.	86	199	12	297	39	178	134	351	79	208	71	358	18	123	64	205
+45 mins.	115	225	7	347	44	167	108	319	74	211	64	349	13	122	64	199
Total Volume	365	1024	38	1427	157	554	460	1171	264	864	230	1358	56	406	248	710
% App. Total	25.6	71.8	2.7		13.4	47.3	39.3		19.4	63.6	16.9		7.9	57.2	34.9	
PHF	.793	.729	.731	.791	.835	.778	.858	.834	.835	.900	.810	.948	.778	.825	.969	.866

City of Yorba Linda
 N/S: Imperial Highway
 E/W: Yorba Linda Boulevard
 Weather: Clear

File Name : 01_YLA_Imperial_Yorba Linda_PM
 Site Code : 221061
 Start Date : 11/30/2022
 Page No : 1

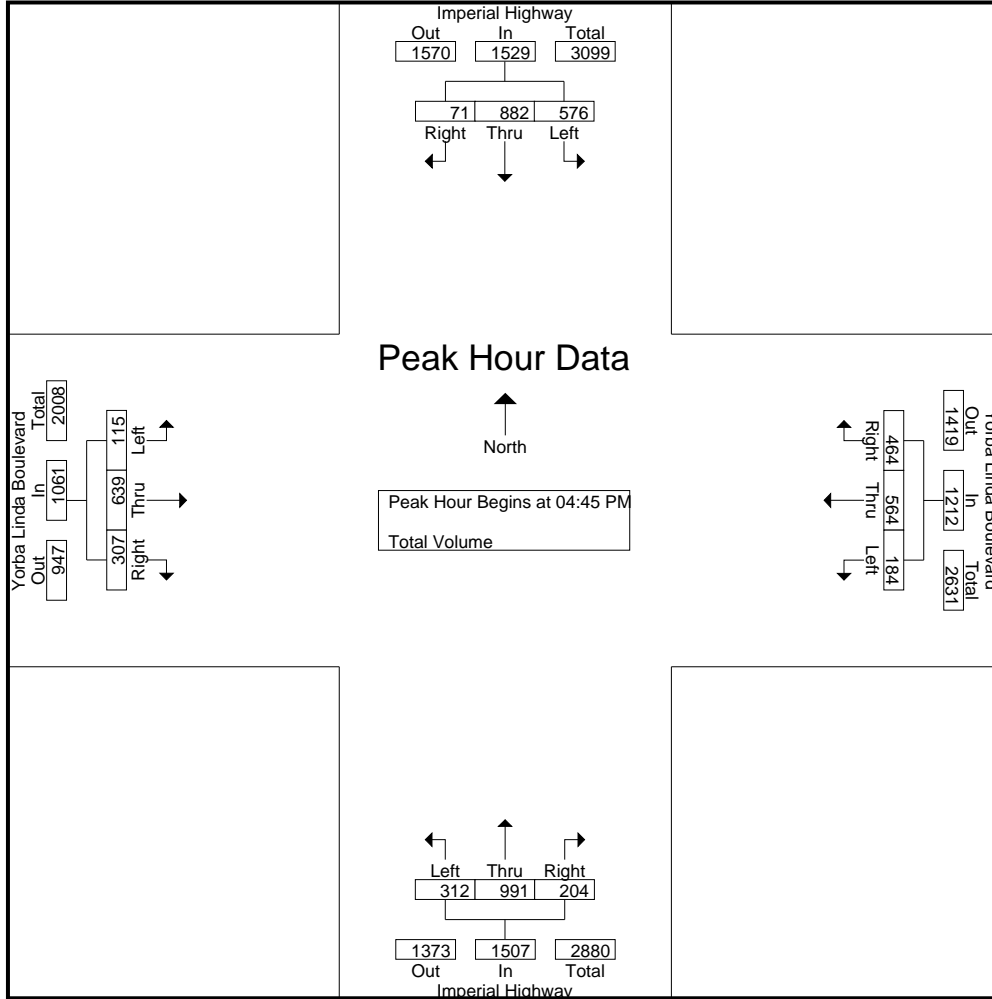
Groups Printed- Total Volume

Start Time	Imperial Highway Southbound				Yorba Linda Boulevard Westbound				Imperial Highway Northbound				Yorba Linda Boulevard 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	115	201	17	333	43	110	103	256	69	186	54	309	25	146	82	253	1151
04:15 PM	151	216	16	383	50	148	111	309	63	207	53	323	22	159	53	234	1249
04:30 PM	151	208	17	376	45	129	100	274	74	235	55	364	15	129	55	199	1213
04:45 PM	161	208	12	381	43	146	131	320	85	250	49	384	21	173	63	257	1342
Total	578	833	62	1473	181	533	445	1159	291	878	211	1380	83	607	253	943	4955
05:00 PM	143	222	22	387	45	142	106	293	68	253	47	368	34	174	77	285	1333
05:15 PM	143	220	20	383	49	146	125	320	71	253	62	386	30	141	75	246	1335
05:30 PM	129	232	17	378	47	130	102	279	88	235	46	369	30	151	92	273	1299
05:45 PM	122	224	13	359	35	118	92	245	71	216	57	344	28	152	75	255	1203
Total	537	898	72	1507	176	536	425	1137	298	957	212	1467	122	618	319	1059	5170
Grand Total	1115	1731	134	2980	357	1069	870	2296	589	1835	423	2847	205	1225	572	2002	10125
Apprch %	37.4	58.1	4.5		15.5	46.6	37.9		20.7	64.5	14.9		10.2	61.2	28.6		
Total %	11	17.1	1.3	29.4	3.5	10.6	8.6	22.7	5.8	18.1	4.2	28.1	2	12.1	5.6	19.8	

Start Time	Imperial Highway Southbound				Yorba Linda Boulevard Westbound				Imperial Highway Northbound				Yorba Linda Boulevard 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	161	208	12	381	43	146	131	320	85	250	49	384	21	173	63	257	1342
05:00 PM	143	222	22	387	45	142	106	293	68	253	47	368	34	174	77	285	1333
05:15 PM	143	220	20	383	49	146	125	320	71	253	62	386	30	141	75	246	1335
05:30 PM	129	232	17	378	47	130	102	279	88	235	46	369	30	151	92	273	1299
Total Volume	576	882	71	1529	184	564	464	1212	312	991	204	1507	115	639	307	1061	5309
% App. Total	37.7	57.7	4.6		15.2	46.5	38.3		20.7	65.8	13.5		10.8	60.2	28.9		
PHF	.894	.950	.807	.988	.939	.966	.885	.947	.886	.979	.823	.976	.846	.918	.834	.931	.989

City of Yorba Linda
 N/S: Imperial Highway
 E/W: Yorba Linda Boulevard
 Weather: Clear

File Name : 01_YLA_Imperial_Yorba Linda_PM
 Site Code : 221061
 Start Date : 11/30/2022
 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				04:45 PM				04:45 PM							
+0 mins.	161	208	12	381	43	146	131	320	85	250	49	384	21	173	63	257
+15 mins.	143	222	22	387	45	142	106	293	68	253	47	368	34	174	77	285
+30 mins.	143	220	20	383	49	146	125	320	71	253	62	386	30	141	75	246
+45 mins.	129	232	17	378	47	130	102	279	88	235	46	369	30	151	92	273
Total Volume	576	882	71	1529	184	564	464	1212	312	991	204	1507	115	639	307	1061
% App. Total	37.7	57.7	4.6		15.2	46.5	38.3		20.7	65.8	13.5		10.8	60.2	28.9	
PHF	.894	.950	.807	.988	.939	.966	.885	.947	.886	.979	.823	.976	.846	.918	.834	.931

City of Yorba Linda
 N/S: Lakeview Avenue
 E/W: Yorba Linda Boulevard
 Weather: Clear

File Name : 02_YLA_Lakeview_Yorba Linda_AM
 Site Code : 221061
 Start Date : 11/30/2022
 Page No : 1

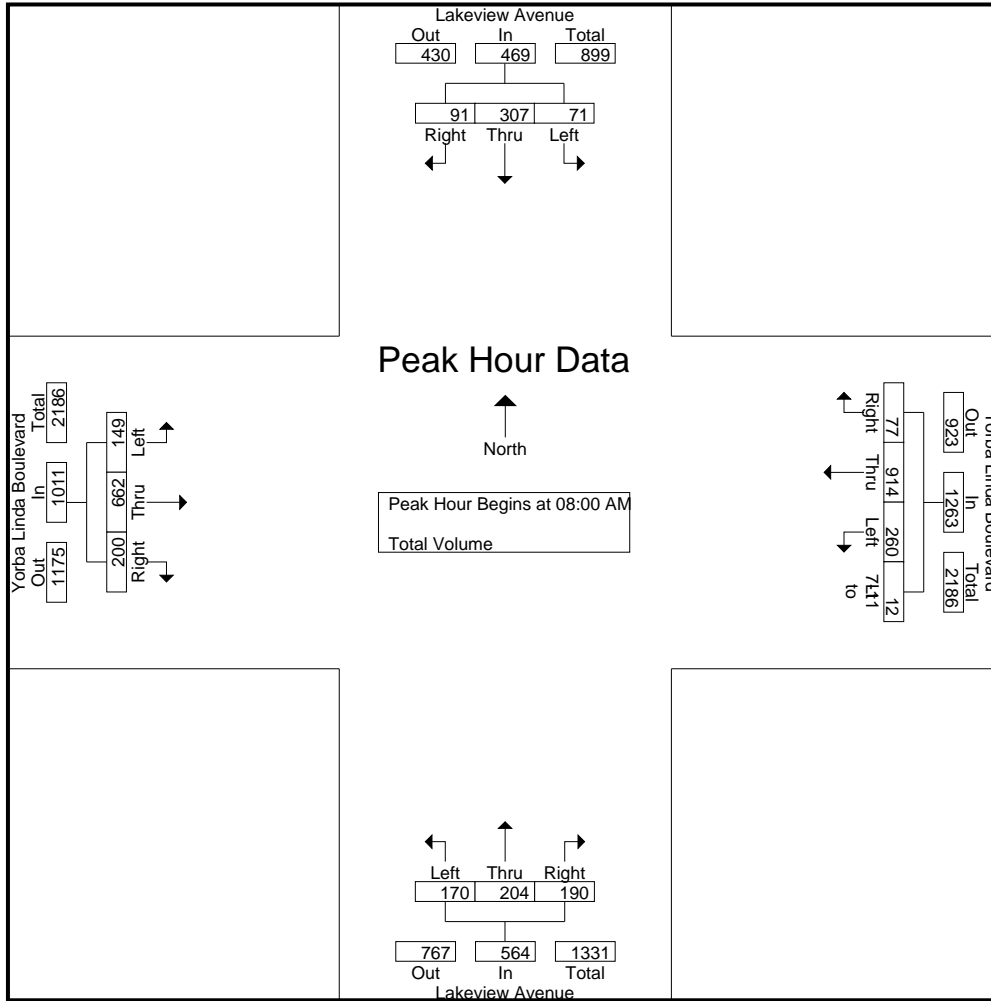
Groups Printed- Total Volume

Start Time	Lakeview Avenue Southbound				Yorba Linda Boulevard Westbound					Lakeview Avenue Northbound				Yorba Linda Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	Lt to 7-11	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	8	57	13	78	70	110	5	2	187	10	37	27	74	11	72	25	108	447
07:15 AM	10	59	8	77	69	170	14	6	259	15	22	21	58	22	126	20	168	562
07:30 AM	15	86	21	122	80	181	8	3	272	20	37	42	99	22	125	36	183	676
07:45 AM	26	97	44	167	60	190	23	3	276	30	49	56	135	38	142	33	213	791
Total	59	299	86	444	279	651	50	14	994	75	145	146	366	93	465	114	672	2476
08:00 AM	13	69	27	109	67	210	19	4	300	25	42	50	117	22	140	34	196	722
08:15 AM	15	89	19	123	67	184	12	2	265	42	59	36	137	40	152	59	251	776
08:30 AM	21	68	24	113	60	273	19	2	354	72	43	50	165	41	183	74	298	930
08:45 AM	22	81	21	124	66	247	27	4	344	31	60	54	145	46	187	33	266	879
Total	71	307	91	469	260	914	77	12	1263	170	204	190	564	149	662	200	1011	3307
Grand Total	130	606	177	913	539	1565	127	26	2257	245	349	336	930	242	1127	314	1683	5783
Apprch %	14.2	66.4	19.4		23.9	69.3	5.6	1.2		26.3	37.5	36.1		14.4	67	18.7		
Total %	2.2	10.5	3.1	15.8	9.3	27.1	2.2	0.4	39	4.2	6	5.8	16.1	4.2	19.5	5.4	29.1	

Start Time	Lakeview Avenue Southbound				Yorba Linda Boulevard Westbound					Lakeview Avenue Northbound				Yorba Linda Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	Lt to 7-11	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 08:00 AM																		
08:00 AM	13	69	27	109	67	210	19	4	300	25	42	50	117	22	140	34	196	722
08:15 AM	15	89	19	123	67	184	12	2	265	42	59	36	137	40	152	59	251	776
08:30 AM	21	68	24	113	60	273	19	2	354	72	43	50	165	41	183	74	298	930
08:45 AM	22	81	21	124	66	247	27	4	344	31	60	54	145	46	187	33	266	879
Total Volume	71	307	91	469	260	914	77	12	1263	170	204	190	564	149	662	200	1011	3307
% App. Total	15.1	65.5	19.4		20.6	72.4	6.1	1		30.1	36.2	33.7		14.7	65.5	19.8		
PHF	.807	.862	.843	.946	.970	.837	.713	.750	.892	.590	.850	.880	.855	.810	.885	.676	.848	.889

City of Yorba Linda
 N/S: Lakeview Avenue
 E/W: Yorba Linda Boulevard
 Weather: Clear

File Name : 02_YLA_Lakeview_Yorba Linda_AM
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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				08:00 AM				08:00 AM				08:00 AM				
+0 mins.	15	86	21	122	67	210	19	4	300	25	42	50	117	22	140	34	196
+15 mins.	26	97	44	167	67	184	12	2	265	42	59	36	137	40	152	59	251
+30 mins.	13	69	27	109	60	273	19	2	354	72	43	50	165	41	183	74	298
+45 mins.	15	89	19	123	66	247	27	4	344	31	60	54	145	46	187	33	266
Total Volume	69	341	111	521	260	914	77	12	1263	170	204	190	564	149	662	200	1011
% App. Total	13.2	65.5	21.3		20.6	72.4	6.1	1		30.1	36.2	33.7		14.7	65.5	19.8	
PHF	.663	.879	.631	.780	.970	.837	.713	.750	.892	.590	.850	.880	.855	.810	.885	.676	.848

City of Yorba Linda
 N/S: Lakeview Avenue
 E/W: Yorba Linda Boulevard
 Weather: Clear

File Name : 02_YLA_Lakeview_Yorba Linda_PM
 Site Code : 221061
 Start Date : 11/30/2022
 Page No : 1

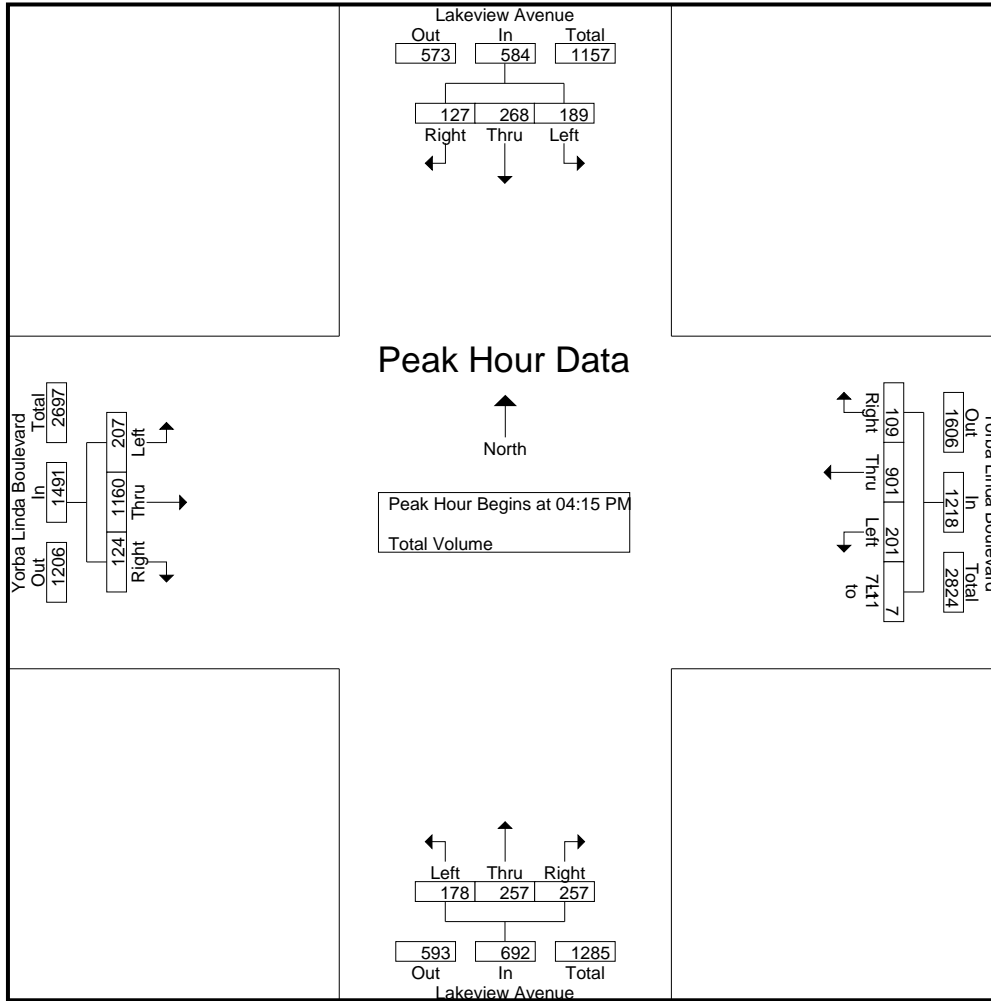
Groups Printed- Total Volume

Start Time	Lakeview Avenue Southbound				Yorba Linda Boulevard Westbound					Lakeview Avenue Northbound				Yorba Linda Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	Lt to 7-11	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	48	62	33	143	53	192	24	4	273	47	60	53	160	55	247	26	328	904
04:15 PM	47	67	34	148	49	230	17	0	296	40	55	65	160	52	272	34	358	962
04:30 PM	51	66	25	142	53	196	24	1	274	43	73	61	177	45	270	32	347	940
04:45 PM	39	61	33	133	56	228	37	2	323	47	65	63	175	54	293	33	380	1011
Total	185	256	125	566	211	846	102	7	1166	177	253	242	672	206	1082	125	1413	3817
05:00 PM	52	74	35	161	43	247	31	4	325	48	64	68	180	56	325	25	406	1072
05:15 PM	58	58	37	153	51	220	26	3	300	45	67	55	167	56	237	23	316	936
05:30 PM	60	61	26	147	45	180	33	7	265	55	61	67	183	43	257	22	322	917
05:45 PM	54	41	33	128	45	183	26	5	259	41	78	64	183	56	259	23	338	908
Total	224	234	131	589	184	830	116	19	1149	189	270	254	713	211	1078	93	1382	3833
Grand Total	409	490	256	1155	395	1676	218	26	2315	366	523	496	1385	417	2160	218	2795	7650
Apprch %	35.4	42.4	22.2		17.1	72.4	9.4	1.1		26.4	37.8	35.8		14.9	77.3	7.8		
Total %	5.3	6.4	3.3	15.1	5.2	21.9	2.8	0.3	30.3	4.8	6.8	6.5	18.1	5.5	28.2	2.8	36.5	

Start Time	Lakeview Avenue Southbound				Yorba Linda Boulevard Westbound					Lakeview Avenue Northbound				Yorba Linda Boulevard Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	Lt to 7-11	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	47	67	34	148	49	230	17	0	296	40	55	65	160	52	272	34	358	962
04:30 PM	51	66	25	142	53	196	24	1	274	43	73	61	177	45	270	32	347	940
04:45 PM	39	61	33	133	56	228	37	2	323	47	65	63	175	54	293	33	380	1011
05:00 PM	52	74	35	161	43	247	31	4	325	48	64	68	180	56	325	25	406	1072
Total Volume	189	268	127	584	201	901	109	7	1218	178	257	257	692	207	1160	124	1491	3985
% App. Total	32.4	45.9	21.7		16.5	74	8.9	0.6		25.7	37.1	37.1		13.9	77.8	8.3		
PHF	.909	.905	.907	.907	.897	.912	.736	.438	.937	.927	.880	.945	.961	.924	.892	.912	.918	.929

City of Yorba Linda
 N/S: Lakeview Avenue
 E/W: Yorba Linda Boulevard
 Weather: Clear

File Name : 02_YLA_Lakeview_Yorba Linda_PM
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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				04:30 PM				05:00 PM				04:15 PM				
+0 mins.	39	61	33	133	53	196	24	1	274	48	64	68	180	52	272	34	358
+15 mins.	52	74	35	161	56	228	37	2	323	45	67	55	167	45	270	32	347
+30 mins.	58	58	37	153	43	247	31	4	325	55	61	67	183	54	293	33	380
+45 mins.	60	61	26	147	51	220	26	3	300	41	78	64	183	56	325	25	406
Total Volume	209	254	131	594	203	891	118	10	1222	189	270	254	713	207	1160	124	1491
% App. Total	35.2	42.8	22.1		16.6	72.9	9.7	0.8		26.5	37.9	35.6		13.9	77.8	8.3	
PHF	.871	.858	.885	.922	.906	.902	.797	.625	.940	.859	.865	.934	.974	.924	.892	.912	.918

Appendix B: Synchro Report (LOS)

Existing Condition

Lanes, Volumes, Timings
3: Imperial Hwy & Yorba Linda Blvd

01/24/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑		↘	↑↑↑	↗	↘	↑↑↑		↘	↑↑↑	
Traffic Volume (vph)	53	358	261	166	503	448	256	872	216	391	960	40
Future Volume (vph)	53	358	261	166	503	448	256	872	216	391	960	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	135		250	100		300	275		0	165		0
Storage Lanes	1		0	1		1	1		0	2		0
Taper Length (ft)	120			120			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.88	1.00	0.91	0.91	0.97	0.91	0.91
Frt		0.937				0.850		0.970			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4765	0	1770	5085	2787	1770	4933	0	3433	5055	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	4765	0	1770	5085	2787	1770	4933	0	3433	5055	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		122				487		50			5	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1096			592			1068			797	
Travel Time (s)		24.9			13.5			24.3			18.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	58	389	284	180	547	487	278	948	235	425	1043	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	58	673	0	180	547	487	278	1183	0	425	1086	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Minimum Split (s)	9.5	22.5		9.5	22.5	22.5	9.5	22.5		9.5	22.5	
Total Split (s)	14.4	26.0		26.0	37.6	37.6	35.0	49.6		28.4	43.0	
Total Split (%)	11.1%	20.0%		20.0%	28.9%	28.9%	26.9%	38.2%		21.8%	33.1%	
Maximum Green (s)	9.9	21.5		21.5	33.1	33.1	30.5	45.1		23.9	38.5	
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	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	
Flash Dont Walk (s)		11.0			11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	9.9	21.5		21.5	33.1	33.1	30.5	45.1		23.9	38.5	
Actuated g/C Ratio	0.08	0.17		0.17	0.25	0.25	0.23	0.35		0.18	0.30	
v/c Ratio	0.43	0.76		0.62	0.42	0.45	0.67	0.68		0.67	0.72	

Lanes, Volumes, Timings
 3: Imperial Hwy & Yorba Linda Blvd

01/24/2024

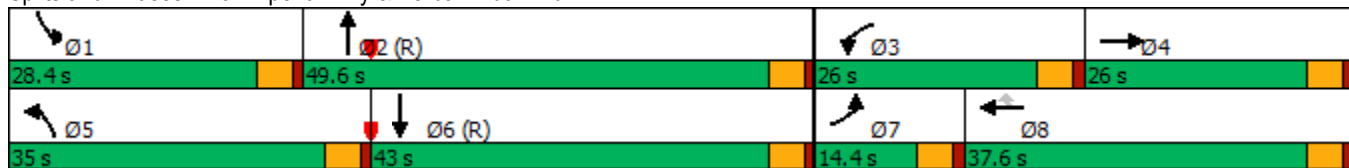


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	67.9	48.3		87.0	42.9	10.0	54.2	37.0		55.5	44.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	67.9	48.3		87.0	42.9	10.0	54.2	37.0		55.5	44.1	
LOS	E	D		F	D	B	D	D		E	D	
Approach Delay		49.9			36.3			40.3				47.3
Approach LOS		D			D			D				D
Stops (vph)	50	481		166	280	131	230	872		358	870	
Fuel Used(gal)	1	14		5	8	4	6	22		9	20	
CO Emissions (g/hr)	102	981		323	578	259	435	1543		617	1397	
NOx Emissions (g/hr)	20	191		63	112	50	85	300		120	272	
VOC Emissions (g/hr)	24	227		75	134	60	101	358		143	324	
Dilemma Vehicles (#)	0	0		0	0	0	0	0		0	0	
Queue Length 50th (ft)	48	165		163	100	6	214	298		173	299	
Queue Length 95th (ft)	95	213		241	139	84	314	352		231	353	
Internal Link Dist (ft)		1016			512			988			717	
Turn Bay Length (ft)	135			100		300	275			165		
Base Capacity (vph)	134	889		292	1294	1072	415	1744		631	1500	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.43	0.76		0.62	0.42	0.45	0.67	0.68		0.67	0.72	

Intersection Summary

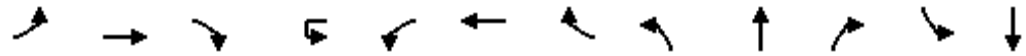
Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 80
 Control Type: Pretimed
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay: 42.9
 Intersection LOS: D
 Intersection Capacity Utilization 70.6%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 3: Imperial Hwy & Yorba Linda Blvd



Lanes, Volumes, Timings
7: Lakeview Ave & Yorba Linda Blvd

01/24/2024



Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	149	662	200	12	260	914	77	170	204	190	71	307
Future Volume (vph)	149	662	200	12	260	914	77	170	204	190	71	307
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0		190		0	70		85	100	
Storage Lanes	1		0		2		0	2		1	2	
Taper Length (ft)	120				150			25			25	
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	0.91	0.91	0.97	0.95	1.00	0.97	0.95
Frt		0.965				0.988				0.850		0.966
Flt Protected	0.950			0.950	0.950			0.950			0.950	
Satd. Flow (prot)	1770	4907	0	1770	1770	5024	0	3433	3539	1583	3433	3419
Flt Permitted	0.950			0.113	0.950			0.950			0.950	
Satd. Flow (perm)	1770	4907	0	210	1770	5024	0	3433	3539	1583	3433	3419
Right Turn on Red			Yes				Yes			No		
Satd. Flow (RTOR)		56				12						27
Link Speed (mph)		30				30			30			30
Link Distance (ft)		592				736			1154			941
Travel Time (s)		13.5				16.7			26.2			21.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	162	720	217	13	283	993	84	185	222	207	77	334
Shared Lane Traffic (%)												
Lane Group Flow (vph)	162	937	0	13	283	1077	0	185	222	207	77	433
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)		24				24			24			24
Link Offset(ft)		0				0			0			0
Crosswalk Width(ft)		16				16			16			16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	9	15		9	15		9	15	
Turn Type	Prot	NA		custom	Prot	NA		Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4			3	8		5	2	3!	1	6
Permitted Phases				3!						2		
Minimum Split (s)	9.5	22.5		9.5	9.5	22.5		9.5	22.5	9.5	9.5	22.5
Total Split (s)	27.0	38.0		40.0	40.0	51.0		18.0	40.0	40.0	12.0	34.0
Total Split (%)	20.8%	29.2%		30.8%	30.8%	39.2%		13.8%	30.8%	30.8%	9.2%	26.2%
Maximum Green (s)	22.5	33.5		35.5	35.5	46.5		13.5	35.5	35.5	7.5	29.5
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	1.0		1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag		Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Walk Time (s)		7.0				7.0			7.0			7.0
Flash Dont Walk (s)		11.0				11.0			11.0			11.0
Pedestrian Calls (#/hr)		0				0			0			0
Act Effct Green (s)	22.5	33.5		35.5	35.5	46.5		13.5	35.5	75.5	7.5	29.5
Actuated g/C Ratio	0.17	0.26		0.27	0.27	0.36		0.10	0.27	0.58	0.06	0.23
v/c Ratio	0.53	0.72		0.23	0.59	0.60		0.52	0.23	0.23	0.39	0.54

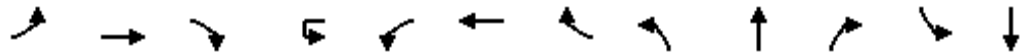
Lanes, Volumes, Timings
 7: Lakeview Ave & Yorba Linda Blvd

01/24/2024

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	91
Future Volume (vph)	91
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	
Lane Util. Factor	0.95
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.92
Adj. Flow (vph)	99
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Turn Type	
Protected Phases	
Permitted Phases	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	

Lanes, Volumes, Timings
7: Lakeview Ave & Yorba Linda Blvd

01/24/2024

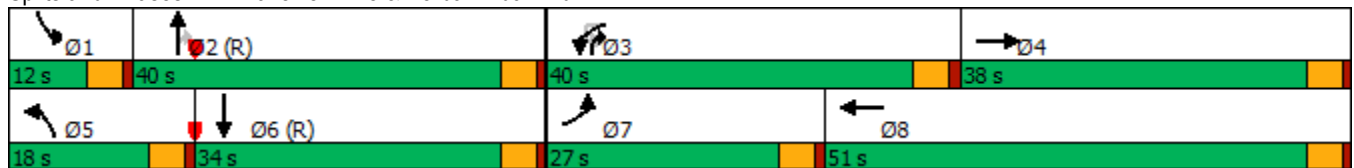


Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Control Delay	58.1	55.0		48.7	46.7	35.4		60.9	37.4	13.9	65.1	44.4
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	58.1	55.0		48.7	46.7	35.4		60.9	37.4	13.9	65.1	44.4
LOS	E	E		D	D	D		E	D	B	E	D
Approach Delay		55.5				37.8			36.6			47.5
Approach LOS		E				D			D			D
Stops (vph)	144	712		11	222	779		159	154	88	66	324
Fuel Used(gal)	3	18		0	5	17		5	4	3	2	8
CO Emissions (g/hr)	227	1228		17	363	1197		316	296	191	128	581
NOx Emissions (g/hr)	44	239		3	71	233		61	58	37	25	113
VOC Emissions (g/hr)	53	285		4	84	277		73	69	44	30	135
Dilemma Vehicles (#)	0	0		0	0	0		0	0	0	0	0
Queue Length 50th (ft)	141	217		9	207	267		77	76	80	32	160
Queue Length 95th (ft)	m205	268		30	303	316		117	112	124	59	215
Internal Link Dist (ft)		512				656			1074			861
Turn Bay Length (ft)	100			190	190			70		85	100	
Base Capacity (vph)	306	1306		57	483	1804		356	966	919	198	796
Starvation Cap Reductn	0	0		0	0	0		0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	0
Reduced v/c Ratio	0.53	0.72		0.23	0.59	0.60		0.52	0.23	0.23	0.39	0.54

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 75
 Control Type: Pretimed
 Maximum v/c Ratio: 0.72
 Intersection Signal Delay: 44.4 Intersection LOS: D
 Intersection Capacity Utilization 62.9% ICU Level of Service B
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.
 ! Phase conflict between lane groups.

Splits and Phases: 7: Lakeview Ave & Yorba Linda Blvd





Lane Group	SBR
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings
 3: Imperial Hwy & Yorba Linda Blvd

01/24/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑		↘	↑↑↑	↗	↘	↑↑↑		↘	↑↑↑	
Traffic Volume (vph)	115	639	307	184	564	464	312	991	204	576	882	71
Future Volume (vph)	115	639	307	184	564	464	312	991	204	576	882	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	135		250	100		300	275		0	165		0
Storage Lanes	1		0	1		1	1		0	2		0
Taper Length (ft)	120			120			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.88	1.00	0.91	0.91	0.97	0.91	0.91
Frt		0.951				0.850		0.974			0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4836	0	1770	5085	2787	1770	4953	0	3433	5029	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	4836	0	1770	5085	2787	1770	4953	0	3433	5029	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		84				196		35			10	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1096			592			1068			797	
Travel Time (s)		24.9			13.5			24.3			18.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	125	695	334	200	613	504	339	1077	222	626	959	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	125	1029	0	200	613	504	339	1299	0	626	1036	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases						8						
Minimum Split (s)	9.5	22.5		9.5	22.5	9.5	9.5	22.5		9.5	22.5	
Total Split (s)	21.9	32.0		22.0	32.1	31.0	35.4	45.0		31.0	40.6	
Total Split (%)	16.8%	24.6%		16.9%	24.7%	23.8%	27.2%	34.6%		23.8%	31.2%	
Maximum Green (s)	17.4	27.5		17.5	27.6	26.5	30.9	40.5		26.5	36.1	
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	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	17.4	27.5		17.5	27.6	58.6	30.9	40.5		26.5	36.1	
Actuated g/C Ratio	0.13	0.21		0.13	0.21	0.45	0.24	0.31		0.20	0.28	
v/c Ratio	0.53	0.94		0.84	0.57	0.37	0.81	0.83		0.90	0.74	

Lanes, Volumes, Timings
 3: Imperial Hwy & Yorba Linda Blvd

01/24/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	61.4	63.3		97.0	53.6	7.5	62.6	45.9		67.0	46.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	61.4	63.3		97.0	53.6	7.5	62.6	45.9		67.0	46.0	
LOS	E	E		F	D	A	E	D		E	D	
Approach Delay		63.1			42.6			49.3			53.9	
Approach LOS		E			D			D			D	
Stops (vph)	107	811		176	359	109	283	1059		532	839	
Fuel Used(gal)	3	25		5	11	3	8	27		14	19	
CO Emissions (g/hr)	211	1731		381	751	241	569	1885		1005	1362	
NOx Emissions (g/hr)	41	337		74	146	47	111	367		195	265	
VOC Emissions (g/hr)	49	401		88	174	56	132	437		233	316	
Dilemma Vehicles (#)	0	0		0	0	0	0	0		0	0	
Queue Length 50th (ft)	100	293		180	128	27	271	363		267	289	
Queue Length 95th (ft)	167	#383		#310	171	44	#416	424		#369	343	
Internal Link Dist (ft)		1016			512			988			717	
Turn Bay Length (ft)	135			100		300	275			165		
Base Capacity (vph)	236	1089		238	1079	1363	420	1567		699	1403	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.53	0.94		0.84	0.57	0.37	0.81	0.83		0.90	0.74	

Intersection Summary

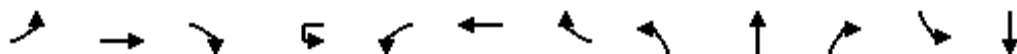
Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 90
 Control Type: Pretimed
 Maximum v/c Ratio: 0.94
 Intersection Signal Delay: 51.9
 Intersection LOS: D
 Intersection Capacity Utilization 84.5%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Imperial Hwy & Yorba Linda Blvd



Lanes, Volumes, Timings
7: Lakeview Ave & Yorba Linda Blvd

01/24/2024



Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	207	1160	124	7	201	901	109	178	257	257	189	268
Future Volume (vph)	207	1160	124	7	201	901	109	178	257	257	189	268
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0		190		0	70		85	100	
Storage Lanes	1		0		2		0	2		1	2	
Taper Length (ft)	120				150			25			25	
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	0.91	0.91	0.97	0.95	1.00	0.97	0.95
Frt		0.985				0.984				0.850		0.952
Flt Protected	0.950			0.950	0.950			0.950			0.950	
Satd. Flow (prot)	1770	5009	0	1770	1770	5004	0	3433	3539	1583	3433	3369
Flt Permitted	0.950			0.149	0.950			0.950			0.950	
Satd. Flow (perm)	1770	5009	0	278	1770	5004	0	3433	3539	1583	3433	3369
Right Turn on Red			Yes				Yes			No		
Satd. Flow (RTOR)		15				18						55
Link Speed (mph)		30				30			30			30
Link Distance (ft)		592				736			1154			941
Travel Time (s)		13.5				16.7			26.2			21.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	225	1261	135	8	218	979	118	193	279	279	205	291
Shared Lane Traffic (%)												
Lane Group Flow (vph)	225	1396	0	8	218	1097	0	193	279	279	205	429
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)		24				24			24			24
Link Offset(ft)		0				0			0			0
Crosswalk Width(ft)		16				16			16			16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	9	15		9	15		9	15	
Turn Type	Prot	NA		custom	Prot	NA		Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4			3	8		5	2	3!	1	6
Permitted Phases				3!						2		
Minimum Split (s)	9.5	22.5		9.5	9.5	22.5		9.5	22.5	9.5	9.5	22.5
Total Split (s)	32.0	50.0		31.3	31.3	49.3		17.6	30.7	31.3	18.0	31.1
Total Split (%)	24.6%	38.5%		24.1%	24.1%	37.9%		13.5%	23.6%	24.1%	13.8%	23.9%
Maximum Green (s)	27.5	45.5		26.8	26.8	44.8		13.1	26.2	26.8	13.5	26.6
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	1.0		1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag		Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Walk Time (s)		7.0				7.0			7.0			7.0
Flash Dont Walk (s)		11.0				11.0			11.0			11.0
Pedestrian Calls (#/hr)		0				0			0			0
Act Effct Green (s)	27.5	45.5		26.8	26.8	44.8		13.1	26.2	57.5	13.5	26.6
Actuated g/C Ratio	0.21	0.35		0.21	0.21	0.34		0.10	0.20	0.44	0.10	0.20
v/c Ratio	0.60	0.79		0.14	0.60	0.63		0.56	0.39	0.40	0.58	0.59

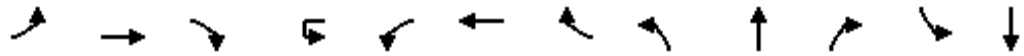
Lanes, Volumes, Timings
 7: Lakeview Ave & Yorba Linda Blvd

01/24/2024

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	127
Future Volume (vph)	127
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	
Lane Util. Factor	0.95
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.92
Adj. Flow (vph)	138
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Turn Type	
Protected Phases	
Permitted Phases	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	

Lanes, Volumes, Timings
7: Lakeview Ave & Yorba Linda Blvd

01/24/2024

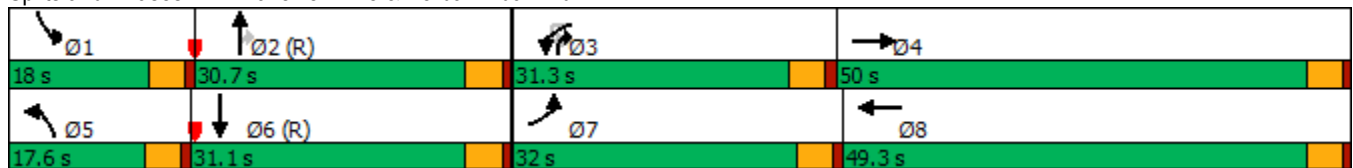


Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Control Delay	60.3	43.8		49.3	54.5	37.0		62.5	46.9	26.7	62.5	44.2
Queue Delay	0.0	0.4		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	60.3	44.3		49.3	54.5	37.0		62.5	46.9	26.7	62.5	44.2
LOS	E	D		D	D	D		E	D	C	E	D
Approach Delay		46.5				40.0			43.4			50.1
Approach LOS		D				D			D			D
Stops (vph)	204	978		8	180	810		166	218	170	176	308
Fuel Used(gal)	5	23		0	4	18		5	6	5	5	8
CO Emissions (g/hr)	323	1593		11	306	1250		334	417	325	333	570
NOx Emissions (g/hr)	63	310		2	60	243		65	81	63	65	111
VOC Emissions (g/hr)	75	369		3	71	290		77	97	75	77	132
Dilemma Vehicles (#)	0	0		0	0	0		0	0	0	0	0
Queue Length 50th (ft)	199	282		6	168	278		81	108	156	86	151
Queue Length 95th (ft)	m220	m340		22	255	328		122	153	233	127	207
Internal Link Dist (ft)		512				656			1074			861
Turn Bay Length (ft)	100			190	190			70		85	100	
Base Capacity (vph)	374	1762		57	364	1736		345	713	700	356	733
Starvation Cap Reductn	0	90		0	0	0		0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0		0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0		0	0	0	0	0
Reduced v/c Ratio	0.60	0.83		0.14	0.60	0.63		0.56	0.39	0.40	0.58	0.59

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 80
 Control Type: Pretimed
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 44.5 Intersection LOS: D
 Intersection Capacity Utilization 67.9% ICU Level of Service C
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.
 ! Phase conflict between lane groups.

Splits and Phases: 7: Lakeview Ave & Yorba Linda Blvd





Lane Group	SBR
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Existing Conditions + Project

Lanes, Volumes, Timings
3: Imperial Hwy & Yorba Linda Blvd

01/24/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↗	↔↔	↑↑↑	↗↗	↗	↑↑↑		↔↔	↑↑↑	
Traffic Volume (vph)	53	358	261	166	503	448	256	872	216	391	960	40
Future Volume (vph)	53	358	261	166	503	448	256	872	216	391	960	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		250	160		300	275		0	165		0
Storage Lanes	2		1	2		1	1		0	2		0
Taper Length (ft)	120			120			25			25		
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	0.88	1.00	0.91	0.91	0.97	0.91	0.91
Frt			0.850			0.850		0.970			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	5085	1583	3433	5085	2787	1770	4933	0	3433	5055	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	5085	1583	3433	5085	2787	1770	4933	0	3433	5055	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			88			122		55			5	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1096			592			1068			797	
Travel Time (s)		24.9			13.5			24.3			18.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	58	389	284	180	547	487	278	948	235	425	1043	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	58	389	284	180	547	487	278	1183	0	425	1086	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	7	4	5	3	8	1	5	2		1	6	
Permitted Phases			4			8						
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5		9.5	22.5	
Total Split (s)	11.0	24.0	40.0	18.0	31.0	31.0	40.0	57.0		31.0	48.0	
Total Split (%)	8.5%	18.5%	30.8%	13.8%	23.8%	23.8%	30.8%	43.8%		23.8%	36.9%	
Maximum Green (s)	6.5	19.5	35.5	13.5	26.5	26.5	35.5	52.5		26.5	43.5	
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	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	6.5	19.5	59.5	13.5	26.5	57.5	35.5	52.5		26.5	43.5	
Actuated g/C Ratio	0.05	0.15	0.46	0.10	0.20	0.44	0.27	0.40		0.20	0.33	
v/c Ratio	0.34	0.51	0.37	0.51	0.53	0.37	0.58	0.58		0.61	0.64	

Lanes, Volumes, Timings
 3: Imperial Hwy & Yorba Linda Blvd

01/24/2024

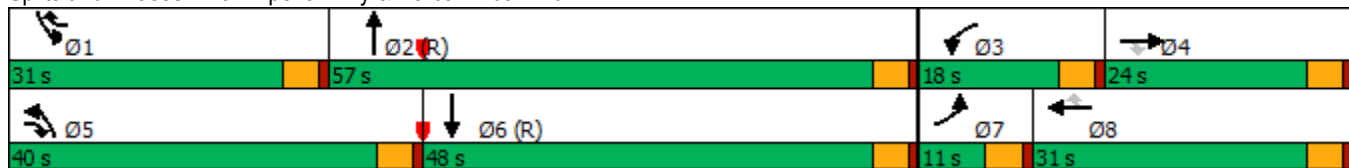


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	65.3	53.5	16.9	91.2	39.3	8.5	46.3	30.1		51.3	38.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	65.3	53.5	16.9	91.2	39.3	8.5	46.3	30.1		51.3	38.6	
LOS	E	D	B	F	D	A	D	C		D	D	
Approach Delay		40.2			34.6			33.2			42.1	
Approach LOS		D			C			C			D	
Stops (vph)	50	322	115	166	247	104	217	788		349	820	
Fuel Used(gal)	1	9	4	5	8	3	6	20		8	19	
CO Emissions (g/hr)	100	611	263	333	539	239	402	1404		590	1299	
NOx Emissions (g/hr)	20	119	51	65	105	47	78	273		115	253	
VOC Emissions (g/hr)	23	142	61	77	125	55	93	325		137	301	
Dilemma Vehicles (#)	0	0	0	0	0	0	0	0		0	0	
Queue Length 50th (ft)	24	112	103	84	84	26	203	268		169	282	
Queue Length 95th (ft)	48	148	173	124	124	42	298	317		225	332	
Internal Link Dist (ft)		1016			512			988			717	
Turn Bay Length (ft)	120		250	160		300	275			165		
Base Capacity (vph)	171	762	772	356	1036	1300	483	2024		699	1694	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.34	0.51	0.37	0.51	0.53	0.37	0.58	0.58		0.61	0.64	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 75
 Control Type: Pretimed
 Maximum v/c Ratio: 0.64
 Intersection Signal Delay: 37.3
 Intersection LOS: D
 Intersection Capacity Utilization 62.5%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 3: Imperial Hwy & Yorba Linda Blvd



Lanes, Volumes, Timings
7: Lakeview Ave & Yorba Linda Blvd

01/24/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	149	662	200	260	914	77	170	204	190	71	307	91
Future Volume (vph)	149	662	200	260	914	77	170	204	190	71	307	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		0	190		0	70		85	100		0
Storage Lanes	2		0	2		0	2		1	2		0
Taper Length (ft)	120			150			25			25		
Lane Util. Factor	0.97	0.91	0.91	0.97	0.91	0.91	0.97	0.95	1.00	0.97	0.95	0.95
Frt		0.965			0.988				0.850		0.966	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	4907	0	3433	5024	0	3433	3539	1583	3433	3419	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	4907	0	3433	5024	0	3433	3539	1583	3433	3419	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		62			12							27
Link Speed (mph)		30			30			30				30
Link Distance (ft)		592			736			1154				941
Travel Time (s)		13.5			16.7			26.2				21.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	162	720	217	283	993	84	185	222	207	77	334	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	162	937	0	283	1077	0	185	222	207	77	433	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases									2			
Minimum Split (s)	9.5	22.5		9.5	22.5		9.5	22.5	9.5	9.5	22.5	
Total Split (s)	20.0	47.0		28.0	55.0		22.0	33.0	28.0	22.0	33.0	
Total Split (%)	15.4%	36.2%		21.5%	42.3%		16.9%	25.4%	21.5%	16.9%	25.4%	
Maximum Green (s)	15.5	42.5		23.5	50.5		17.5	28.5	23.5	17.5	28.5	
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	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Walk Time (s)		7.0			7.0			7.0				7.0
Flash Dont Walk (s)		11.0			11.0			11.0				11.0
Pedestrian Calls (#/hr)		0			0			0				0
Act Effct Green (s)	15.5	42.5		23.5	50.5		17.5	28.5	56.5	17.5	28.5	
Actuated g/C Ratio	0.12	0.33		0.18	0.39		0.13	0.22	0.43	0.13	0.22	
v/c Ratio	0.40	0.57		0.46	0.55		0.40	0.29	0.30	0.17	0.56	

Lanes, Volumes, Timings
7: Lakeview Ave & Yorba Linda Blvd

01/24/2024

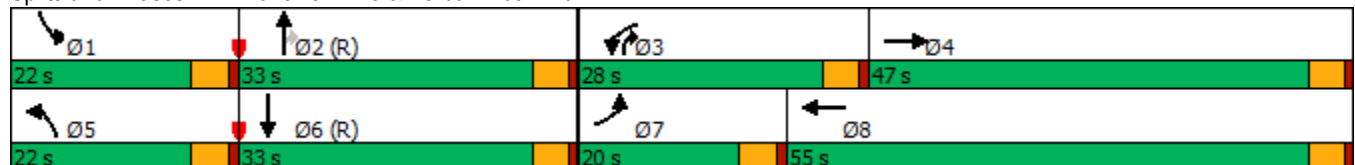


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	59.8	43.7		50.3	31.8		54.4	43.5	25.4	50.9	45.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	59.8	43.7		50.3	31.8		54.4	43.5	25.4	50.9	45.5	
LOS	E	D		D	C		D	D	C	D	D	
Approach Delay		46.0			35.7			40.7				46.3
Approach LOS		D			D			D				D
Stops (vph)	147	774		227	740		153	166	121	62		325
Fuel Used(gal)	3	16		5	16		4	5	3	2		8
CO Emissions (g/hr)	232	1113		378	1132		298	319	235	112		587
NOx Emissions (g/hr)	45	216		74	220		58	62	46	22		114
VOC Emissions (g/hr)	54	258		88	262		69	74	54	26		136
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0		0
Queue Length 50th (ft)	73	182		110	253		74	82	112	29		161
Queue Length 95th (ft)	111	212		156	299		112	121	173	54		217
Internal Link Dist (ft)		512			656			1074				861
Turn Bay Length (ft)	125			190			70		85	100		
Base Capacity (vph)	409	1645		620	1958		462	775	687	462		770
Starvation Cap Reductn	0	0		0	0		0	0	0	0		0
Spillback Cap Reductn	0	0		0	0		0	0	0	0		0
Storage Cap Reductn	0	0		0	0		0	0	0	0		0
Reduced v/c Ratio	0.40	0.57		0.46	0.55		0.40	0.29	0.30	0.17		0.56

Intersection Summary

























Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 65
 Control Type: Pretimed
 Maximum v/c Ratio: 0.57
 Intersection Signal Delay: 41.2
 Intersection LOS: D
 Intersection Capacity Utilization 55.9%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 7: Lakeview Ave & Yorba Linda Blvd



Lanes, Volumes, Timings
3: Imperial Hwy & Yorba Linda Blvd

01/24/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	639	307	184	564	464	312	991	204	576	882	71
Future Volume (vph)	115	639	307	184	564	464	312	991	204	576	882	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		250	160		300	275		0	165		0
Storage Lanes	2		1	2		1	1		0	2		0
Taper Length (ft)	120			120			25			25		
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	0.88	1.00	0.91	0.91	0.97	0.91	0.91
Frt			0.850			0.850		0.974			0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	5085	1583	3433	5085	2787	1770	4953	0	3433	5029	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	5085	1583	3433	5085	2787	1770	4953	0	3433	5029	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			50			88		36		10		
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1096			592			1068			797	
Travel Time (s)		24.9			13.5			24.3			18.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	125	695	334	200	613	504	339	1077	222	626	959	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	125	695	334	200	613	504	339	1299	0	626	1036	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	7	4	5	3	8	1	5	2		1	6	
Permitted Phases			4			8						
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5		9.5	22.5	
Total Split (s)	14.0	28.0	42.2	17.0	31.0	37.0	42.2	48.0		37.0	42.8	
Total Split (%)	10.8%	21.5%	32.5%	13.1%	23.8%	28.5%	32.5%	36.9%		28.5%	32.9%	
Maximum Green (s)	9.5	23.5	37.7	12.5	26.5	32.5	37.7	43.5		32.5	38.3	
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	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	9.5	23.5	65.7	12.5	26.5	63.5	37.7	43.5		32.5	38.3	
Actuated g/C Ratio	0.07	0.18	0.51	0.10	0.20	0.49	0.29	0.33		0.25	0.29	
v/c Ratio	0.50	0.76	0.41	0.61	0.59	0.36	0.66	0.77		0.73	0.70	

Lanes, Volumes, Timings
 3: Imperial Hwy & Yorba Linda Blvd

01/24/2024

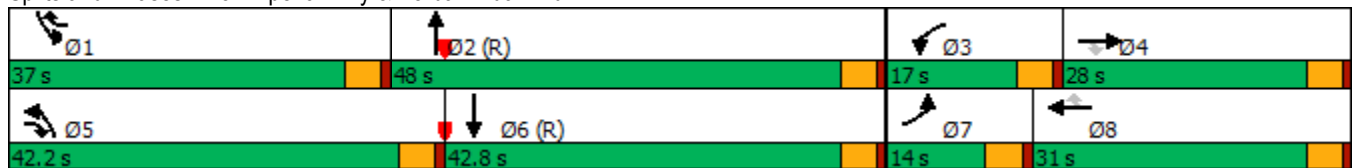


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	65.3	56.6	18.5	94.5	34.9	4.2	47.8	41.4		50.5	43.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	65.3	56.6	18.5	94.5	34.9	4.2	47.8	41.4		50.5	43.2	
LOS	E	E	B	F	C	A	D	D		D	D	
Approach Delay		46.5			32.2			42.8				46.0
Approach LOS		D			C			D				D
Stops (vph)	108	594	159	184	290	41	272	1021		518	818	
Fuel Used(gal)	3	16	5	5	8	3	7	26		12	19	
CO Emissions (g/hr)	217	1126	326	378	574	194	499	1795		864	1316	
NOx Emissions (g/hr)	42	219	63	74	112	38	97	349		168	256	
VOC Emissions (g/hr)	50	261	75	88	133	45	116	416		200	305	
Dilemma Vehicles (#)	0	0	0	0	0	0	0	0		0	0	
Queue Length 50th (ft)	53	205	143	92	82	9	251	349		251	281	
Queue Length 95th (ft)	87	253	218	135	122	28	359	408		319	334	
Internal Link Dist (ft)		1016			512			988				717
Turn Bay Length (ft)	120		250	160		300	275			165		
Base Capacity (vph)	250	919	824	330	1036	1406	513	1681		858	1488	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.50	0.76	0.41	0.61	0.59	0.36	0.66	0.77		0.73	0.70	

Intersection Summary


































Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 80
 Control Type: Pretimed
 Maximum v/c Ratio: 0.77
 Intersection Signal Delay: 42.0
 Intersection LOS: D
 Intersection Capacity Utilization 72.7%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 3: Imperial Hwy & Yorba Linda Blvd



Lanes, Volumes, Timings
7: Lakeview Ave & Yorba Linda Blvd

01/24/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	 		 	 	 
Traffic Volume (vph)	207	1160	124	201	901	109	178	257	257	189	268	127
Future Volume (vph)	207	1160	124	201	901	109	178	257	257	189	268	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		0	190		0	70		85	100		0
Storage Lanes	2		0	2		0	2		1	2		0
Taper Length (ft)	120			150			25			25		
Lane Util. Factor	0.97	0.91	0.91	0.97	0.91	0.91	0.97	0.95	1.00	0.97	0.95	0.95
Frt		0.985			0.984				0.850		0.952	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	5009	0	3433	5004	0	3433	3539	1583	3433	3369	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	5009	0	3433	5004	0	3433	3539	1583	3433	3369	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		15			19							59
Link Speed (mph)		30			30			30				30
Link Distance (ft)		592			736			1154				941
Travel Time (s)		13.5			16.7			26.2				21.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	225	1261	135	218	979	118	193	279	279	205	291	138
Shared Lane Traffic (%)												
Lane Group Flow (vph)	225	1396	0	218	1097	0	193	279	279	205	429	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases									2			
Minimum Split (s)	9.5	22.5		9.5	22.5		9.5	22.5	9.5	9.5	22.5	
Total Split (s)	19.0	50.0		23.2	54.2		18.0	26.8	23.2	30.0	38.8	
Total Split (%)	14.6%	38.5%		17.8%	41.7%		13.8%	20.6%	17.8%	23.1%	29.8%	
Maximum Green (s)	14.5	45.5		18.7	49.7		13.5	22.3	18.7	25.5	34.3	
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	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Walk Time (s)		7.0			7.0			7.0				7.0
Flash Dont Walk (s)		11.0			11.0			11.0				11.0
Pedestrian Calls (#/hr)		0			0			0				0
Act Effct Green (s)	14.5	45.5		18.7	49.7		13.5	22.3	45.5	25.5	34.3	
Actuated g/C Ratio	0.11	0.35		0.14	0.38		0.10	0.17	0.35	0.20	0.26	
v/c Ratio	0.59	0.79		0.44	0.57		0.54	0.46	0.50	0.30	0.46	

Lanes, Volumes, Timings
7: Lakeview Ave & Yorba Linda Blvd

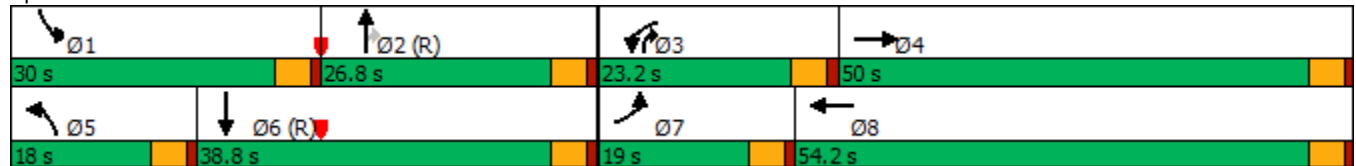
01/24/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	62.1	38.6		54.1	32.5		61.5	51.3	37.2	46.1	36.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	62.1	38.6		54.1	32.5		61.5	51.3	37.2	46.1	36.1	
LOS	E	D		D	C		E	D	D	D	D	
Approach Delay		41.9			36.1			48.7				39.4
Approach LOS		D			D			D				D
Stops (vph)	202	720		180	761		166	227	198	158	280	
Fuel Used(gal)	5	20		4	17		5	6	5	4	7	
CO Emissions (g/hr)	328	1397		305	1166		332	437	374	282	514	
NOx Emissions (g/hr)	64	272		59	227		65	85	73	55	100	
VOC Emissions (g/hr)	76	324		71	270		77	101	87	65	119	
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	
Queue Length 50th (ft)	100	256		87	260		80	112	185	76	137	
Queue Length 95th (ft)	m136	285		128	308		121	159	274	114	189	
Internal Link Dist (ft)		512			656			1074			861	
Turn Bay Length (ft)	125			190			70		85	100		
Base Capacity (vph)	382	1762		493	1924		356	607	554	673	932	
Starvation Cap Reductn	0	12		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.59	0.80		0.44	0.57		0.54	0.46	0.50	0.30	0.46	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 70
 Control Type: Pretimed
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 40.9
 Intersection LOS: D
 Intersection Capacity Utilization 62.5%
 ICU Level of Service B
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Lakeview Ave & Yorba Linda Blvd



Future Conditions

Lanes, Volumes, Timings
3: Imperial Hwy & Yorba Linda Blvd

01/24/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑		↘	↑↑↑	↗	↘	↑↑↑		↘	↑↑↑	↘
Traffic Volume (vph)	54	365	266	169	513	452	261	889	220	399	979	41
Future Volume (vph)	54	365	266	169	513	452	261	889	220	399	979	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	135		250	100		300	275		0	165		0
Storage Lanes	1		0	1		1	1		0	2		0
Taper Length (ft)	120			120			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.88	1.00	0.91	0.91	0.97	0.91	0.91
Frt		0.937				0.850		0.970			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4765	0	1770	5085	2787	1770	4933	0	3433	5055	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	4765	0	1770	5085	2787	1770	4933	0	3433	5055	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		121				491		50			5	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1096			592			1068			797	
Travel Time (s)		24.9			13.5			24.3			18.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	59	397	289	184	558	491	284	966	239	434	1064	45
Shared Lane Traffic (%)												
Lane Group Flow (vph)	59	686	0	184	558	491	284	1205	0	434	1109	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Minimum Split (s)	9.5	22.5		9.5	22.5	22.5	9.5	22.5		9.5	22.5	
Total Split (s)	14.5	26.0		26.0	37.5	37.5	35.0	49.1		28.9	43.0	
Total Split (%)	11.2%	20.0%		20.0%	28.8%	28.8%	26.9%	37.8%		22.2%	33.1%	
Maximum Green (s)	10.0	21.5		21.5	33.0	33.0	30.5	44.6		24.4	38.5	
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	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	
Flash Dont Walk (s)		11.0			11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	10.0	21.5		21.5	33.0	33.0	30.5	44.6		24.4	38.5	
Actuated g/C Ratio	0.08	0.17		0.17	0.25	0.25	0.23	0.34		0.19	0.30	
v/c Ratio	0.43	0.77		0.63	0.43	0.46	0.68	0.70		0.67	0.74	

Lanes, Volumes, Timings
 3: Imperial Hwy & Yorba Linda Blvd

01/24/2024

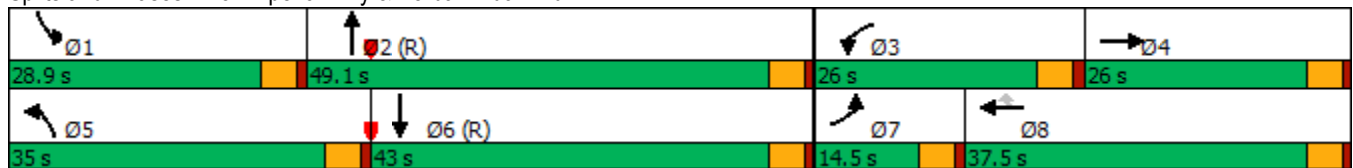


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	67.8	49.2		88.1	41.2	9.0	55.0	37.9		55.0	44.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	67.8	49.2		88.1	41.2	9.0	55.0	37.9		55.0	44.6	
LOS	E	D		F	D	A	D	D		E	D	
Approach Delay		50.7			35.4			41.1				47.5
Approach LOS		D			D			D				D
Stops (vph)	50	496		169	276	117	235	899		365	894	
Fuel Used(gal)	1	14		5	8	4	6	23		9	21	
CO Emissions (g/hr)	104	1010		332	573	249	447	1590		627	1436	
NOx Emissions (g/hr)	20	197		65	111	48	87	309		122	279	
VOC Emissions (g/hr)	24	234		77	133	58	104	369		145	333	
Dilemma Vehicles (#)	0	0		0	0	0	0	0		0	0	
Queue Length 50th (ft)	48	169		166	98	6	220	307		176	307	
Queue Length 95th (ft)	96	218		245	138	80	322	362		235	362	
Internal Link Dist (ft)		1016			512			988				717
Turn Bay Length (ft)	135			100		300	275			165		
Base Capacity (vph)	136	889		292	1290	1073	415	1725		644	1500	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.43	0.77		0.63	0.43	0.46	0.68	0.70		0.67	0.74	

Intersection Summary























Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 90
 Control Type: Pretimed
 Maximum v/c Ratio: 0.77
 Intersection Signal Delay: 43.1
 Intersection LOS: D
 Intersection Capacity Utilization 71.7%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 3: Imperial Hwy & Yorba Linda Blvd



Lanes, Volumes, Timings
7: Lakeview Ave & Yorba Linda Blvd

01/24/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	152	675	204	265	932	79	173	208	194	72	313	93
Future Volume (vph)	152	675	204	265	932	79	173	208	194	72	313	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	190		0	70		85	100		0
Storage Lanes	1		0	1		0	2		1	2		0
Taper Length (ft)	120			150			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	0.97	0.95	1.00	0.97	0.95	0.95
Frt		0.965			0.988				0.850		0.966	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4907	0	1770	5024	0	3433	3539	1583	3433	3419	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	4907	0	1770	5024	0	3433	3539	1583	3433	3419	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		57			12							27
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		592			736			1154			941	
Travel Time (s)		13.5			16.7			26.2			21.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	165	734	222	288	1013	86	188	226	211	78	340	101
Shared Lane Traffic (%)												
Lane Group Flow (vph)	165	956	0	288	1099	0	188	226	211	78	441	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases									2			
Minimum Split (s)	9.5	22.5		9.5	22.5		9.5	22.5	9.5	9.5	22.5	
Total Split (s)	27.0	39.0		40.0	52.0		18.0	39.0	40.0	12.0	33.0	
Total Split (%)	20.8%	30.0%		30.8%	40.0%		13.8%	30.0%	30.8%	9.2%	25.4%	
Maximum Green (s)	22.5	34.5		35.5	47.5		13.5	34.5	35.5	7.5	28.5	
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	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	22.5	34.5		35.5	47.5		13.5	34.5	74.5	7.5	28.5	
Actuated g/C Ratio	0.17	0.27		0.27	0.37		0.10	0.27	0.57	0.06	0.22	
v/c Ratio	0.54	0.71		0.60	0.60		0.53	0.24	0.23	0.39	0.57	

Lanes, Volumes, Timings
7: Lakeview Ave & Yorba Linda Blvd

01/24/2024

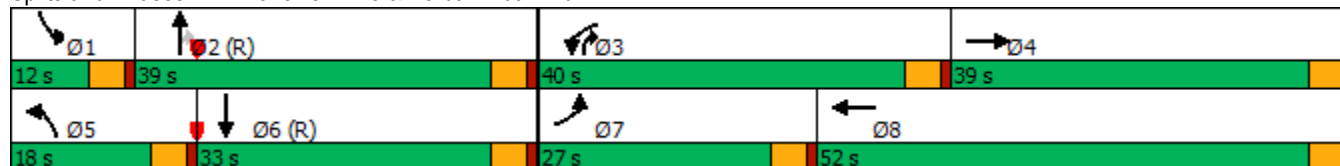


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	57.1	53.9		47.0	34.7		61.1	38.3	14.5	65.2	45.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	57.1	53.9		47.0	34.7		61.1	38.3	14.5	65.2	45.8	
LOS	E	D		D	C		E	D	B	E	D	
Approach Delay		54.4			37.3			37.1				48.7
Approach LOS		D			D			D				D
Stops (vph)	148	702		226	789		160	158	93	67		334
Fuel Used(gal)	3	18		5	17		5	4	3	2		9
CO Emissions (g/hr)	230	1230		371	1210		321	305	198	130		602
NOx Emissions (g/hr)	45	239		72	235		62	59	39	25		117
VOC Emissions (g/hr)	53	285		86	280		74	71	46	30		139
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0		0
Queue Length 50th (ft)	143	212		211	270		78	78	84	33		165
Queue Length 95th (ft)	m206	265		309	319		118	115	129	60		222
Internal Link Dist (ft)		512			656			1074				861
Turn Bay Length (ft)	100			190			70		85	100		
Base Capacity (vph)	306	1344		483	1843		356	939	907	198		770
Starvation Cap Reductn	0	0		0	0		0	0	0	0		0
Spillback Cap Reductn	0	0		0	0		0	0	0	0		0
Storage Cap Reductn	0	0		0	0		0	0	0	0		0
Reduced v/c Ratio	0.54	0.71		0.60	0.60		0.53	0.24	0.23	0.39		0.57

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 75
 Control Type: Pretimed
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay: 44.1
 Intersection LOS: D
 Intersection Capacity Utilization 63.8%
 ICU Level of Service B
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Lakeview Ave & Yorba Linda Blvd



Lanes, Volumes, Timings
3: Imperial Hwy & Yorba Linda Blvd

01/24/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑		↘	↑↑↑	↗	↘	↑↑↑		↘	↑↑↑	
Traffic Volume (vph)	117	652	313	188	575	473	318	1011	208	588	900	72
Future Volume (vph)	117	652	313	188	575	473	318	1011	208	588	900	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	135		250	100		300	275		0	165		0
Storage Lanes	1		0	1		1	1		0	2		0
Taper Length (ft)	120			120			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.88	1.00	0.91	0.91	0.97	0.91	0.91
Frt		0.951				0.850		0.974			0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4836	0	1770	5085	2787	1770	4953	0	3433	5029	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	4836	0	1770	5085	2787	1770	4953	0	3433	5029	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		85				195		35			10	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1096			592			1068			797	
Travel Time (s)		24.9			13.5			24.3			18.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	127	709	340	204	625	514	346	1099	226	639	978	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	127	1049	0	204	625	514	346	1325	0	639	1056	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases						8						
Minimum Split (s)	9.5	22.5		9.5	22.5	9.5	9.5	22.5		9.5	22.5	
Total Split (s)	22.0	32.0		22.0	32.0	31.0	35.8	45.0		31.0	40.2	
Total Split (%)	16.9%	24.6%		16.9%	24.6%	23.8%	27.5%	34.6%		23.8%	30.9%	
Maximum Green (s)	17.5	27.5		17.5	27.5	26.5	31.3	40.5		26.5	35.7	
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	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	17.5	27.5		17.5	27.5	58.5	31.3	40.5		26.5	35.7	
Actuated g/C Ratio	0.13	0.21		0.13	0.21	0.45	0.24	0.31		0.20	0.27	
v/c Ratio	0.53	0.96		0.86	0.58	0.38	0.81	0.85		0.91	0.76	

Lanes, Volumes, Timings
 3: Imperial Hwy & Yorba Linda Blvd

01/24/2024

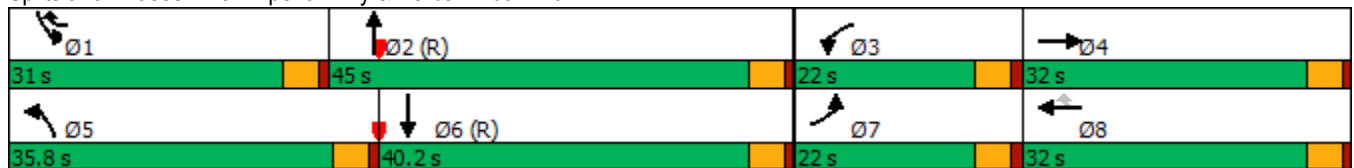


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	61.5	66.2		98.6	54.1	7.7	62.7	46.8		69.3	47.0	
Queue Delay	0.0	0.2		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	61.5	66.4		98.6	54.1	7.7	62.7	46.8		69.3	47.0	
LOS	E	E		F	D	A	E	D		E	D	
Approach Delay		65.9			43.1			50.1			55.4	
Approach LOS		E			D			D			E	
Stops (vph)	108	823		179	367	115	287	1088		540	862	
Fuel Used(gal)	3	26		6	11	4	8	28		15	20	
CO Emissions (g/hr)	214	1803		394	770	249	580	1941		1044	1406	
NOx Emissions (g/hr)	42	351		77	150	48	113	378		203	274	
VOC Emissions (g/hr)	50	418		91	178	58	134	450		242	326	
Dilemma Vehicles (#)	0	0		0	0	0	0	0		0	0	
Queue Length 50th (ft)	101	300		184	131	29	277	373		273	297	
Queue Length 95th (ft)	170	#396		#316	174	46	#425	435		#380	352	
Internal Link Dist (ft)		1016			512			988			717	
Turn Bay Length (ft)	135			100		300	275			165		
Base Capacity (vph)	238	1090		238	1075	1361	426	1567		699	1388	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	2		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.53	0.96		0.86	0.58	0.38	0.81	0.85		0.91	0.76	

Intersection Summary























Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 90
 Control Type: Pretimed
 Maximum v/c Ratio: 0.96
 Intersection Signal Delay: 53.2
 Intersection LOS: D
 Intersection Capacity Utilization 86.0%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Imperial Hwy & Yorba Linda Blvd



Lanes, Volumes, Timings
7: Lakeview Ave & Yorba Linda Blvd

01/24/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	211	1183	126	205	919	111	182	262	262	193	273	130
Future Volume (vph)	211	1183	126	205	919	111	182	262	262	193	273	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	190		0	70		85	100		0
Storage Lanes	1		0	1		0	2		1	2		0
Taper Length (ft)	120			150			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	0.97	0.95	1.00	0.97	0.95	0.95
Frt		0.986			0.984				0.850		0.952	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5014	0	1770	5004	0	3433	3539	1583	3433	3369	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	5014	0	1770	5004	0	3433	3539	1583	3433	3369	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		15			18							54
Link Speed (mph)		30			30			30				30
Link Distance (ft)		592			736			1154				941
Travel Time (s)		13.5			16.7			26.2				21.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	229	1286	137	223	999	121	198	285	285	210	297	141
Shared Lane Traffic (%)												
Lane Group Flow (vph)	229	1423	0	223	1120	0	198	285	285	210	438	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases									2			
Minimum Split (s)	9.5	22.5		9.5	22.5		9.5	22.5	9.5	9.5	22.5	
Total Split (s)	32.2	50.0		31.5	49.3		17.7	29.9	31.5	18.6	30.8	
Total Split (%)	24.8%	38.5%		24.2%	37.9%		13.6%	23.0%	24.2%	14.3%	23.7%	
Maximum Green (s)	27.7	45.5		27.0	44.8		13.2	25.4	27.0	14.1	26.3	
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	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Walk Time (s)		7.0			7.0			7.0				7.0
Flash Dont Walk (s)		11.0			11.0			11.0				11.0
Pedestrian Calls (#/hr)		0			0			0				0
Act Effct Green (s)	27.7	45.5		27.0	44.8		13.2	25.4	56.9	14.1	26.3	
Actuated g/C Ratio	0.21	0.35		0.21	0.34		0.10	0.20	0.44	0.11	0.20	
v/c Ratio	0.61	0.81		0.61	0.65		0.57	0.41	0.41	0.56	0.60	

Lanes, Volumes, Timings
7: Lakeview Ave & Yorba Linda Blvd

01/24/2024

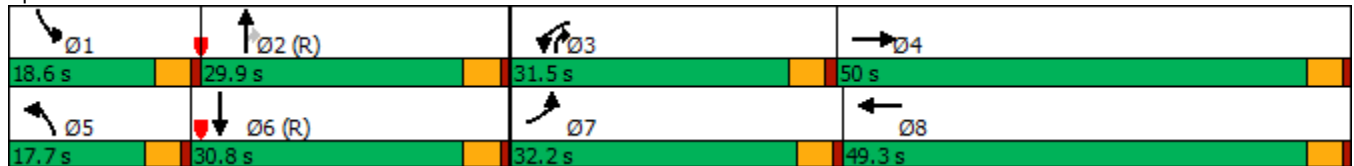


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	59.7	43.9		54.7	37.4		62.6	47.9	27.4	61.5	45.1	
Queue Delay	0.0	0.5		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	59.7	44.4		54.7	37.4		62.6	47.9	27.4	61.5	45.1	
LOS	E	D		D	D		E	D	C	E	D	
Approach Delay		46.5			40.2			44.1				50.4
Approach LOS		D			D			D				D
Stops (vph)	209	1005		184	833		171	223	177	180	317	
Fuel Used(gal)	5	23		4	18		5	6	5	5	8	
CO Emissions (g/hr)	328	1628		313	1283		343	429	335	337	588	
NOx Emissions (g/hr)	64	317		61	250		67	84	65	66	114	
VOC Emissions (g/hr)	76	377		73	297		79	100	78	78	136	
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	
Queue Length 50th (ft)	203	291		172	285		83	111	162	88	156	
Queue Length 95th (ft)	m219	m342		260	337		124	156	240	130	213	
Internal Link Dist (ft)		512			656			1074			861	
Turn Bay Length (ft)	100			190			70		85	100		
Base Capacity (vph)	377	1764		367	1736		348	691	692	372	724	
Starvation Cap Reductn	0	90		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.61	0.85		0.61	0.65		0.57	0.41	0.41	0.56	0.60	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 80
 Control Type: Pretimed
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 44.8
 Intersection LOS: D
 Intersection Capacity Utilization 68.9%
 ICU Level of Service C
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.




































Splits and Phases: 7: Lakeview Ave & Yorba Linda Blvd



Future Conditions + Project

Lanes, Volumes, Timings
3: Imperial Hwy & Yorba Linda Blvd

01/24/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		  	  	 		  		 	  	
Traffic Volume (vph)	54	365	266	169	513	452	261	889	220	399	979	41
Future Volume (vph)	54	365	266	169	513	452	261	889	220	399	979	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		250	160		300	275		0	165		0
Storage Lanes	2		1	2		1	1		0	2		0
Taper Length (ft)	120			120			25			25		
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	0.88	1.00	0.91	0.91	0.97	0.91	0.91
Frt			0.850			0.850		0.970			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	5085	1583	3433	5085	2787	1770	4933	0	3433	5055	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	5085	1583	3433	5085	2787	1770	4933	0	3433	5055	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			88			117		55			5	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1096			592			1068			797	
Travel Time (s)		24.9			13.5			24.3			18.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	59	397	289	184	558	491	284	966	239	434	1064	45
Shared Lane Traffic (%)												
Lane Group Flow (vph)	59	397	289	184	558	491	284	1205	0	434	1109	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	7	4	5	3	8	1	5	2		1	6	
Permitted Phases			4			8						
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5		9.5	22.5	
Total Split (s)	11.0	24.0	40.0	18.0	31.0	31.0	40.0	57.0		31.0	48.0	
Total Split (%)	8.5%	18.5%	30.8%	13.8%	23.8%	23.8%	30.8%	43.8%		23.8%	36.9%	
Maximum Green (s)	6.5	19.5	35.5	13.5	26.5	26.5	35.5	52.5		26.5	43.5	
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	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	6.5	19.5	59.5	13.5	26.5	57.5	35.5	52.5		26.5	43.5	
Actuated g/C Ratio	0.05	0.15	0.46	0.10	0.20	0.44	0.27	0.40		0.20	0.33	
v/c Ratio	0.35	0.52	0.37	0.52	0.54	0.38	0.59	0.60		0.62	0.65	

Lanes, Volumes, Timings
 3: Imperial Hwy & Yorba Linda Blvd

01/24/2024

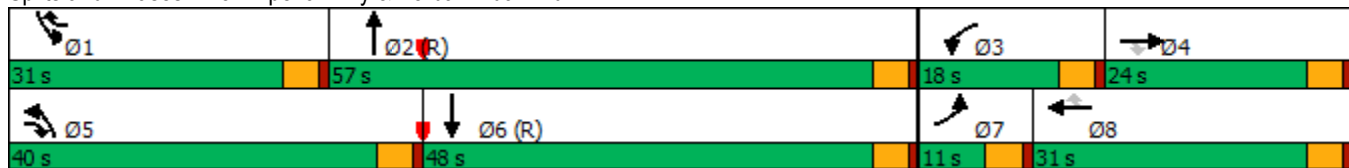


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	65.5	53.7	17.2	91.9	38.2	8.8	46.8	30.4		51.7	38.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	65.5	53.7	17.2	91.9	38.2	8.8	46.8	30.4		51.7	38.9	
LOS	E	D	B	F	D	A	D	C		D	D	
Approach Delay		40.5			34.5			33.5			42.5	
Approach LOS		D			C			C			D	
Stops (vph)	50	329	119	168	250	108	223	810		358	843	
Fuel Used(gal)	1	9	4	5	8	3	6	21		9	19	
CO Emissions (g/hr)	102	624	270	341	541	244	412	1437		605	1333	
NOx Emissions (g/hr)	20	121	52	66	105	47	80	280		118	259	
VOC Emissions (g/hr)	24	145	63	79	125	57	95	333		140	309	
Dilemma Vehicles (#)	0	0	0	0	0	0	0	0		0	0	
Queue Length 50th (ft)	25	114	106	85	83	28	208	275		173	289	
Queue Length 95th (ft)	48	151	176	126	123	44	304	324		229	341	
Internal Link Dist (ft)		1016			512			988			717	
Turn Bay Length (ft)	120		250	160		300	275			165		
Base Capacity (vph)	171	762	772	356	1036	1297	483	2024		699	1694	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.35	0.52	0.37	0.52	0.54	0.38	0.59	0.60		0.62	0.65	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 75
 Control Type: Pretimed
 Maximum v/c Ratio: 0.65
 Intersection Signal Delay: 37.5
 Intersection LOS: D
 Intersection Capacity Utilization 63.4%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 3: Imperial Hwy & Yorba Linda Blvd



Lanes, Volumes, Timings
7: Lakeview Ave & Yorba Linda Blvd

01/24/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	152	675	204	265	932	79	173	208	194	72	313	93
Future Volume (vph)	152	675	204	265	932	79	173	208	194	72	313	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		0	190		0	70		85	100		0
Storage Lanes	2		0	2		0	2		1	2		0
Taper Length (ft)	120			150			25			25		
Lane Util. Factor	0.97	0.91	0.91	0.97	0.91	0.91	0.97	0.95	1.00	0.97	0.95	0.95
Frt		0.965			0.988				0.850		0.966	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	4907	0	3433	5024	0	3433	3539	1583	3433	3419	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	4907	0	3433	5024	0	3433	3539	1583	3433	3419	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		63			12							27
Link Speed (mph)		30			30			30				30
Link Distance (ft)		592			736			1154				941
Travel Time (s)		13.5			16.7			26.2				21.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	165	734	222	288	1013	86	188	226	211	78	340	101
Shared Lane Traffic (%)												
Lane Group Flow (vph)	165	956	0	288	1099	0	188	226	211	78	441	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases									2			
Minimum Split (s)	9.5	22.5		9.5	22.5		9.5	22.5	9.5	9.5	22.5	
Total Split (s)	20.0	48.0		28.0	56.0		22.0	32.0	28.0	22.0	32.0	
Total Split (%)	15.4%	36.9%		21.5%	43.1%		16.9%	24.6%	21.5%	16.9%	24.6%	
Maximum Green (s)	15.5	43.5		23.5	51.5		17.5	27.5	23.5	17.5	27.5	
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	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Walk Time (s)		7.0			7.0			7.0				7.0
Flash Dont Walk (s)		11.0			11.0			11.0				11.0
Pedestrian Calls (#/hr)		0			0			0				0
Act Effct Green (s)	15.5	43.5		23.5	51.5		17.5	27.5	55.5	17.5	27.5	
Actuated g/C Ratio	0.12	0.33		0.18	0.40		0.13	0.21	0.43	0.13	0.21	
v/c Ratio	0.40	0.57		0.46	0.55		0.41	0.30	0.31	0.17	0.59	

Lanes, Volumes, Timings
7: Lakeview Ave & Yorba Linda Blvd

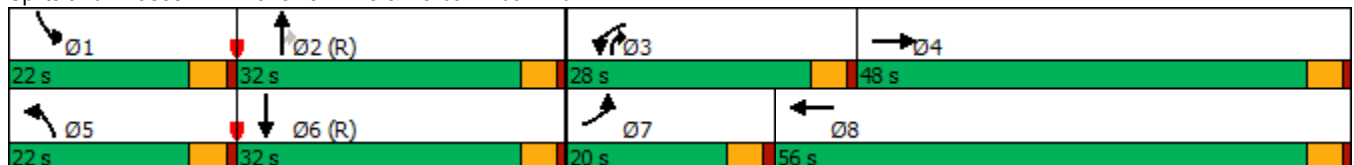
01/24/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	59.0	43.1		50.4	31.2		54.5	44.5	26.3	50.9	47.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	59.0	43.1		50.4	31.2		54.5	44.5	26.3	50.9	47.0	
LOS	E	D		D	C		D	D	C	D	D	
Approach Delay		45.4			35.2			41.3				47.6
Approach LOS		D			D			D				D
Stops (vph)	147	791		232	750		156	171	125	62		339
Fuel Used(gal)	3	16		6	16		4	5	3	2		9
CO Emissions (g/hr)	233	1129		386	1145		303	329	243	113		611
NOx Emissions (g/hr)	45	220		75	223		59	64	47	22		119
VOC Emissions (g/hr)	54	262		89	265		70	76	56	26		142
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0		0
Queue Length 50th (ft)	74	185		113	256		75	85	116	30		166
Queue Length 95th (ft)	112	216		159	302		114	124	178	55		224
Internal Link Dist (ft)		512			656			1074				861
Turn Bay Length (ft)	125			190			70		85	100		
Base Capacity (vph)	409	1683		620	1997		462	748	675	462		744
Starvation Cap Reductn	0	0		0	0		0	0	0	0		0
Spillback Cap Reductn	0	0		0	0		0	0	0	0		0
Storage Cap Reductn	0	0		0	0		0	0	0	0		0
Reduced v/c Ratio	0.40	0.57		0.46	0.55		0.41	0.30	0.31	0.17		0.59

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 65
 Control Type: Pretimed
 Maximum v/c Ratio: 0.59
 Intersection Signal Delay: 41.2
 Intersection LOS: D
 Intersection Capacity Utilization 56.7%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 7: Lakeview Ave & Yorba Linda Blvd



Lanes, Volumes, Timings
 3: Imperial Hwy & Yorba Linda Blvd

01/24/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↗	↔↔	↑↑↑	↗↗	↗	↑↑↑		↔↔	↑↑↑	
Traffic Volume (vph)	117	652	313	188	575	473	318	1011	208	588	900	72
Future Volume (vph)	117	652	313	188	575	473	318	1011	208	588	900	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		250	160		300	275		0	165		0
Storage Lanes	2		1	2		1	1		0	2		0
Taper Length (ft)	120			120			25			25		
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	0.88	1.00	0.91	0.91	0.97	0.91	0.91
Frt			0.850			0.850		0.974			0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	5085	1583	3433	5085	2787	1770	4953	0	3433	5029	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	5085	1583	3433	5085	2787	1770	4953	0	3433	5029	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			50			88		37			10	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1096			592			1068			797	
Travel Time (s)		24.9			13.5			24.3			18.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	127	709	340	204	625	514	346	1099	226	639	978	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	127	709	340	204	625	514	346	1325	0	639	1056	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	7	4	5	3	8	1	5	2		1	6	
Permitted Phases			4			8						
Minimum Split (s)	9.5	22.5	9.5	9.5	22.5	9.5	9.5	22.5		9.5	22.5	
Total Split (s)	14.1	28.0	41.0	17.0	30.9	36.0	41.0	49.0		36.0	44.0	
Total Split (%)	10.8%	21.5%	31.5%	13.1%	23.8%	27.7%	31.5%	37.7%		27.7%	33.8%	
Maximum Green (s)	9.6	23.5	36.5	12.5	26.4	31.5	36.5	44.5		31.5	39.5	
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	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	9.6	23.5	64.5	12.5	26.4	62.4	36.5	44.5		31.5	39.5	
Actuated g/C Ratio	0.07	0.18	0.50	0.10	0.20	0.48	0.28	0.34		0.24	0.30	
v/c Ratio	0.50	0.77	0.42	0.62	0.61	0.37	0.70	0.77		0.77	0.69	

Lanes, Volumes, Timings
 3: Imperial Hwy & Yorba Linda Blvd

01/24/2024

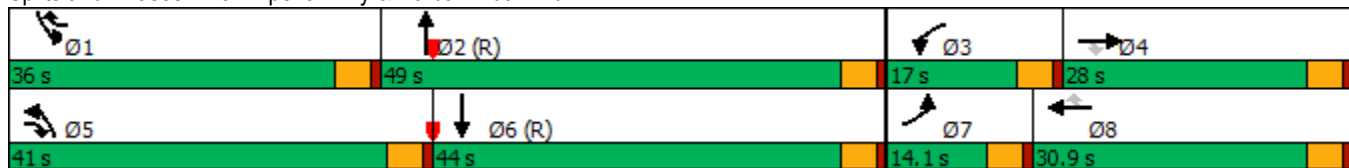


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	65.2	57.2	19.4	97.3	33.9	4.3	50.5	40.7		53.0	42.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	65.2	57.2	19.4	97.3	33.9	4.3	50.5	40.7		53.0	42.2	
LOS	E	E	B	F	C	A	D	D		D	D	
Approach Delay		47.1			32.2			42.7				46.3
Approach LOS		D			C			D				D
Stops (vph)	111	609	166	189	343	55	280	1037		536	827	
Fuel Used(gal)	3	17	5	6	9	3	7	26		13	19	
CO Emissions (g/hr)	221	1155	337	394	595	203	522	1817		906	1325	
NOx Emissions (g/hr)	43	225	66	77	116	39	101	353		176	258	
VOC Emissions (g/hr)	51	268	78	91	138	47	121	421		210	307	
Dilemma Vehicles (#)	0	0	0	0	0	0	0	0		0	0	
Queue Length 50th (ft)	54	210	150	94	91	9	262	354		259	284	
Queue Length 95th (ft)	88	258	228	136	131	27	373	413		329	336	
Internal Link Dist (ft)		1016			512			988				717
Turn Bay Length (ft)	120		250	160		300	275			165		
Base Capacity (vph)	253	919	810	330	1032	1383	496	1719		831	1535	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.50	0.77	0.42	0.62	0.61	0.37	0.70	0.77		0.77	0.69	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 90
 Control Type: Pretimed
 Maximum v/c Ratio: 0.77
 Intersection Signal Delay: 42.2
 Intersection LOS: D
 Intersection Capacity Utilization 73.9%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 3: Imperial Hwy & Yorba Linda Blvd



Lanes, Volumes, Timings
7: Lakeview Ave & Yorba Linda Blvd

01/24/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑		↔↔	↑↑↑		↔↔	↑↑	↔	↔↔	↑↔	
Traffic Volume (vph)	211	1183	126	205	919	111	182	262	262	193	273	130
Future Volume (vph)	211	1183	126	205	919	111	182	262	262	193	273	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		0	190		0	70		85	100		0
Storage Lanes	2		0	2		0	2		1	2		0
Taper Length (ft)	120			150			25			25		
Lane Util. Factor	0.97	0.91	0.91	0.97	0.91	0.91	0.97	0.95	1.00	0.97	0.95	0.95
Frt		0.986			0.984				0.850		0.952	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	5014	0	3433	5004	0	3433	3539	1583	3433	3369	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	5014	0	3433	5004	0	3433	3539	1583	3433	3369	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		15			19							58
Link Speed (mph)		30			30			30				30
Link Distance (ft)		592			736			1154				941
Travel Time (s)		13.5			16.7			26.2				21.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	229	1286	137	223	999	121	198	285	285	210	297	141
Shared Lane Traffic (%)												
Lane Group Flow (vph)	229	1423	0	223	1120	0	198	285	285	210	438	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases									2			
Minimum Split (s)	9.5	22.5		9.5	22.5		9.5	22.5	9.5	9.5	22.5	
Total Split (s)	19.0	50.0		24.5	55.5		17.7	25.0	24.5	30.5	37.8	
Total Split (%)	14.6%	38.5%		18.8%	42.7%		13.6%	19.2%	18.8%	23.5%	29.1%	
Maximum Green (s)	14.5	45.5		20.0	51.0		13.2	20.5	20.0	26.0	33.3	
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	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Walk Time (s)		7.0			7.0			7.0				7.0
Flash Dont Walk (s)		11.0			11.0			11.0				11.0
Pedestrian Calls (#/hr)		0			0			0				0
Act Effct Green (s)	14.5	45.5		20.0	51.0		13.2	20.5	45.0	26.0	33.3	
Actuated g/C Ratio	0.11	0.35		0.15	0.39		0.10	0.16	0.35	0.20	0.26	
v/c Ratio	0.60	0.81		0.42	0.57		0.57	0.51	0.52	0.31	0.48	

Lanes, Volumes, Timings
7: Lakeview Ave & Yorba Linda Blvd

01/24/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	60.1	39.3		52.6	31.7		62.6	53.8	38.1	45.8	37.4	
Queue Delay	0.0	0.1		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	60.1	39.4		52.6	31.7		62.6	53.8	38.1	45.8	37.4	
LOS	E	D		D	C		E	D	D	D	D	
Approach Delay		42.3			35.1			50.2			40.1	
Approach LOS		D			D			D			D	
Stops (vph)	205	752		182	769		171	235		205	162	292
Fuel Used(gal)	5	21		4	17		5	7		6	4	8
CO Emissions (g/hr)	328	1446		306	1175		343	456		386	287	534
NOx Emissions (g/hr)	64	281		60	229		67	89		75	56	104
VOC Emissions (g/hr)	76	335		71	272		79	106		89	67	124
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	0
Queue Length 50th (ft)	101	264		88	263		83	117		191	78	143
Queue Length 95th (ft)	m134	309		129	310		124	164		282	115	196
Internal Link Dist (ft)		512			656			1074			861	
Turn Bay Length (ft)	125			190			70		85	100		
Base Capacity (vph)	382	1764		528	1974		348	558		547	686	906
Starvation Cap Reductn	0	12		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.60	0.81		0.42	0.57		0.57	0.51		0.52	0.31	0.48

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 70

Control Type: Pretimed

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 41.2

Intersection LOS: D

Intersection Capacity Utilization 63.4%

ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Lakeview Ave & Yorba Linda Blvd

