

Appendix J
Transportation Analysis
Memorandum

December 7, 2020

Mr. Brian J. Allee
Managing Associate
Environmental Science Associates
2121 Alton Parkway, Suite 100
Irvine, California 92606

Subject: Crawford Canyon Park, Transportation Analysis

Dear Brian:

Translutions, Inc. (Translutions) is pleased to provide this letter discussing the trip generation, access analysis, and vehicle miles traveled (VMT) analysis for the proposed Crawford Canyon Park. The County is proposing to develop the Crawford Canyon Park (Project), a 2.5-acre neighborhood park located at the northwest corner of Newport Avenue and Crawford Canyon Road in North Tustin. Recreational amenities are anticipated to include walkways, trails, pedestrian bridges, two nature play areas for children, exercise stations, picnic tables, benches, landscape berms and natural rolling lawn areas. The Project would not include barbecues, restroom facilities, or any habitable structures. A paved surface parking lot with 11 vehicular parking spaces would be provided onsite with vehicular access from Newport Avenue. Figure 1 illustrates the site plan.



PROJECT TRIP GENERATION

The trip generation for the proposed project are based on rates based on rates for Land Use 411 - "Public Park" from the Institute of Transportation Engineers (ITE) *Trip Generation (10th Edition)*. Based on the description in the *Trip Generation*, Public parks are owned and operated by a municipal, county, state, or federal agency. The parks surveyed vary widely as to location, type, and number of facilities, including boating or swimming facilities, beaches, hiking trails, ball fields, soccer fields, campsites, and picnic facilities. The sites surveyed varied from 4 acres to 1,154 acres. Since the trip generation rate varies substantially based on size, the rates used in this evaluation are based on the data for the 4-acre park. Table A shows the trip generation for the proposed project.

Table A - Project Trip Generation

Land Use	Units	Peak Hour						Daily
		AM Peak Hour			PM Peak Hour			
		In	Out	Total	In	Out	Total	
Weekday	2.5 Acre	2.655	1.845	4.500	1.925	1.575	3.500	34.000
Inbound/Outbound Splits		59%	41%	100%	55%	45%	100%	50%/50%
Weekday Trip Generation		7	4	11	5	4	9	85
Saturday ²	2.5 Acre				2.475	2.025	4.500	22.750
Inbound/Outbound Splits					55%	45%	100%	50%/50%
Saturday Trip Generation					6	5	11	57
Sunday ²	2.5 Acre				1.950	3.050	5.000	19.500
Inbound/Outbound Splits					39%	61%	100%	50%/50%
Sunday Trip Generation					5	8	13	49

Notes:

¹ Rates based on 4-acre park for Land Use 411 - "Public Park" from Institute of Transportation Engineers (ITE) Trip Generation (10th Ed.).

² Peak hour rates for generator

As seen on Table A, the project is forecast to generate approximately 85 daily trips on weekdays, 57 trips on Saturdays, and 49 trips on Sundays. During the weekday peak hours of adjacent street traffic, the project is forecast to generate approximately 11 trips during the a.m. peak hour and 9 trips during the p.m. peak hour. On weekends, the project is forecast to generate 11 peak hour trips on Saturday and 13 peak hour trips on Sunday.

ACCESS ANALYSIS

While the trips generated by the project are less than the threshold requiring a traffic study based on County requirements, an evaluation of project access was conducted to evaluate traffic operations. Due to the proximity of the intersection of Crawford Canyon Road/Newport Avenue to the proposed driveway, the analysis also includes the intersection of Crawford Canyon Road/Newport Avenue. This analysis was conducted for weekday peak hours only since traffic on adjacent streets are typically highest on weekday peak hours.

Project Trips. Forecast project trips were calculated at the study intersections. The trip distribution for the project was forecast based on the location of the park in relation to residential uses in the area. The trip generation was applied to the trip distribution to obtain project trip assignment.

Traffic Volumes. Due to the current pandemic, new traffic counts could not be obtained at the intersections as current traffic counts would be atypical because schools are closed, and many residents are working from home. Therefore, traffic counts at the intersection of Crawford Canyon Road/Newport Avenue from 2014 were obtained from Orange County Transportation Authority (OCTA). A growth rate of 2 percent per annum was applied to these counts to obtain 2020 traffic volumes. Attachment A includes the 2014 traffic counts and calculation of 2020 volumes.

Traffic Operations and Delay. The evaluation of the project driveway was conducted based on traffic delay. Delay ranges are generally expressed as levels of service (LOS). There is a strong correlation between delay and safety. Research has shown that accidents increase as LOS worsens, especially at unsignalized intersections. For example, a driver is likely to take unnecessary risks to make a turn after waiting beyond a certain amount of time to make that turn. The Highway Capacity Manual (HCM) accounts for this psychological factor and uses different delay metrics for stop controlled and signalized intersections. Therefore, this analysis was based on HCM methodologies using Synchro software. The County of Orange uses LOS D as the threshold for acceptable operations.

Table B shows the levels of service at the analysis intersections. As seen on Table B, both intersections operate at acceptable levels of service. At the project driveway, there are minimal delays in making turns in and out of the project driveway. Detailed LOS worksheets are included in Attachment B.

Table B: Existing Levels of Service

Intersection	LOS Std.	Control	Without Project				With Project			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1 . Project Driveway/Newport Avenue	D	TWSC	Future Intersection				13.1	B	11.4	B
2 . Crawford Canyon Road/Newport Avenue	D	Signal	28.3	C	27.3	C	28.4	C	27.4	C

Notes:

- * Exceeds LOS Standard
- TWSC = Two-Way Stop Control; For TWSC intersections, reported delay is for worst-case movement.
- LOS = Level of Service

VMT SCREENING ANALYSIS

Senate Bill 743 (SB-743), which was codified in Public Resources Code section 21099, was signed by the Governor in 2013 and directed the Governor’s Office of Planning and Research (OPR) to identify alternative metrics for evaluating transportation impacts under CEQA. Pursuant to Section 21099, the criteria for determining the significance of transportation impacts must “promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses.” Recently adopted changes to the CEQA Guidelines in response to Section 21099 include a new section (15064.3) that specifies that Vehicle Miles Traveled (VMT) is the most appropriate measure of transportation impacts. A separate Technical Advisory issued by OPR provides additional technical details on calculating VMT and assessing transportation impacts for various types of projects.

The County of Orange has prepared the *Final Draft Guidelines for Evaluating Vehicle Miles Traveled Under CEQA* (Guidelines) for Land Use Projects in September 2020 to address changes to CEQA pursuant to SB-743 to include VMT analysis methodology and thresholds. Based on the Guidelines, once a development application is filed, project screening is conducted as the initial step. If the project meets any one of the screening criteria for VMT, the project may be presumed to create a less than significant impact in the area of transportation and circulation and no further analysis as to this topical environmental area is necessary. The Guidelines include the following screening criteria:

- **Project in High-Quality Transit Area (HQT):** The project is within 0.5 mile (mi) of a Transit Priority Area (TPA) or an HQT, unless the project is inconsistent with the RTP/SCS, has a floor area ratio (FAR) less than 0.75, provides an excessive amount of parking, or reduces the number of affordable residential units. In accordance with SB 743, “Transit priority areas” are defined as “an area within one-half mile of a major transit stop that is existing or planned, if the planned stop is scheduled to be completed within the planning horizon included in a Transportation Improvement Program. A Major Transit Stop means: “a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service of 15 minutes or less during the morning and afternoon peak commute periods.” An HQT or Corridor is a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.
 - *The project does not have high quality transit nearby, and therefore does not qualify.*
- **Low VMT Area Project:** The project is in low VMT areas. The applicant may submit data from the most recent OCTAM version showing the proposed project is within a low VMT area, which may be used, at the discretion of staff, to screen out the project.
 - *The project does not fall under a low VMT area, and therefore, does not qualify.*
- **Small Project:** A project generates 500 or fewer average daily trips (ADT).
 - *The project generates less than 500 daily trips, and therefore, qualifies as a Small Project, and therefore, the project impacts are less than significant.*
- **Public Facilities:** The development of institutional/government and public service uses that support community health, safety or welfare are also screened from subsequent CEQA VMT analysis. The following includes some examples and is not an exhaustive list of public facilities that are screened from subsequent CEQA VMT analysis: police/sheriff stations, fire stations,

community centers, refuse stations, jails, and landfills. These facilities are already part of the community and, as a public service, the VMT is accounted for in the existing regional average.

- o *The proposed project is a public facility that supports community health and welfare. Therefore, the project meets the screening criteria and impacts are less than significant.*

SUMMARY & CONCLUSION

As seen from the above discussion, the project is anticipated to generate approximately 85 daily trips on weekdays, 57 trips on Saturdays, and 49 trips on Sundays. During the weekday peak hours of adjacent street traffic, the project is forecast to generate approximately 11 trips during the a.m. peak hour and 9 trips during the p.m. peak hour. On weekends, the project is forecast to generate 11 peak hour trips on Saturday and 13 peak hour trips on Sunday. The project driveway is expected to operate satisfactorily with minimal delays and the project is unlikely to increase traffic delays at other intersections significantly. In addition, the project is exempt from a VMT analysis based on the thresholds set by the County of Orange *Final Draft Guidelines for Evaluating Vehicle Miles Traveled Under CEQA* based on the size of the project and the fact that the proposed project is a public facility. Therefore, the project's transportation impacts under CEQA are anticipated to be less than significant.

We hope you will find this information helpful. Should you have any questions, please don't hesitate to call me at (949) 656-3131.

Sincerely,

translutions, Inc.
Sandipan Bhattacharjee

Sandipan Bhattacharjee, P.E., T.E., AICP, ENV SP
Principal



Attachments:

Attachment A – Volume Development & Traffic Counts

Attachment B – Synchro Worksheets

ATTACHMENT A – VOLUME DEVELOPMENT & TRAFFIC COUNTS

Attachment A - Existing Peak Hour Volume Summary

	AM Peak Hour					PM Peak Hour				
	Yr. 2014	2014-2020	2020	Yr. 2020		Yr. 2014	2014-2020	2020	Yr. 2020	
	Traffic Volume	Traffic Growth	Without Project	Project Trips	With Project	PCE Volume	Traffic Growth	Without Project	Project Trips	With Project
1 . Project Driveway/Newport Avenue										
NBL	0	0	0	0	0	0	0	0	0	0
NBT	0	0	0	0	0	0	0	0	0	0
NBR	0	0	0	0	0	0	0	0	0	0
SBL	0	0	0	2	2	0	0	0	2	2
SBT	0	0	0	0	0	0	0	0	0	0
SBR	0	0	0	2	2	0	0	0	2	2
EBL	0	0	0	3	3	0	0	0	2	2
EBT	509	61	570	0	570	1,004	120	1,124	0	1,124
EBR	0	0	0	0	0	0	0	0	0	0
WBL	0	0	0	0	0	0	0	0	0	0
WBT	1,265	152	1,417	0	1,417	630	76	706	0	706
WBR	0	0	0	4	4	0	0	0	3	3
North Leg										
Approach	0	0	0	4	4	0	0	0	4	4
Departure	0	0	0	7	7	0	0	0	5	5
Total	0	0	0	11	11	0	0	0	9	9
South Leg										
Approach	0	0	0	0	0	0	0	0	0	0
Departure	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
East Leg										
Approach	1,265	152	1,417	4	1,421	630	76	706	3	709
Departure	509	61	570	2	572	1,004	120	1,124	2	1,126
Total	1,774	213	1,987	6	1,993	1,634	196	1,830	5	1,835
West Leg										
Approach	509	61	570	3	573	1,004	120	1,124	2	1,126
Departure	1,265	152	1,417	2	1,419	630	76	706	2	708
Total	1,774	213	1,987	5	1,992	1,634	196	1,830	4	1,834
Total Approaches										
Approach	1,774	213	1,987	11	1,998	1,634	196	1,830	9	1,839
Departure	1,774	213	1,987	11	1,998	1,634	196	1,830	9	1,839
Total	3,548	426	3,974	22	3,996	3,268	392	3,660	18	3,678

Attachment A - Existing Peak Hour Volume Summary

	AM Peak Hour					PM Peak Hour				
	Yr. 2014	2014-2020	2020	Yr. 2020	Yr. 2014	2014-2020	2020	Yr. 2020	Yr. 2020	
	Traffic Volume	Traffic Growth	Without Project	Project Trips	With Project	PCE Volume	Traffic Growth	Without Project	Project Trips	With Project
2 . Crawford Canyon Road/Newport Avenue										
NBL	0	0	0	0	0	0	0	0	0	0
NBT	0	0	0	0	0	0	0	0	0	0
NBR	0	0	0	0	0	0	0	0	0	0
SBL	92	11	103	0	103	85	10	95	0	95
SBT	0	0	0	0	0	0	0	0	0	0
SBR	463	56	519	2	521	132	16	148	2	150
EBL	68	8	76	1	77	355	43	398	1	399
EBT	441	53	494	1	495	649	78	727	1	728
EBR	0	0	0	0	0	0	0	0	0	0
WBL	0	0	0	0	0	0	0	0	0	0
WBT	802	96	898	2	900	498	60	558	2	560
WBR	97	12	109	0	109	85	10	95	0	95
North Leg										
Approach	555	67	622	2	624	217	26	243	2	245
Departure	165	20	185	1	186	440	53	493	1	494
Total	720	87	807	3	810	657	79	736	3	739
South Leg										
Approach	0	0	0	0	0	0	0	0	0	0
Departure	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
East Leg										
Approach	899	108	1,007	2	1,009	583	70	653	2	655
Departure	533	64	597	1	598	734	88	822	1	823
Total	1,432	172	1,604	3	1,607	1,317	158	1,475	3	1,478
West Leg										
Approach	509	61	570	2	572	1,004	121	1,125	2	1,127
Departure	1,265	152	1,417	4	1,421	630	76	706	4	710
Total	1,774	213	1,987	6	1,993	1,634	197	1,831	6	1,837
Total Approaches										
Approach	1,963	236	2,199	6	2,205	1,804	217	2,021	6	2,027
Departure	1,963	236	2,199	6	2,205	1,804	217	2,021	6	2,027
Total	3,926	472	4,398	12	4,410	3,608	434	4,042	12	4,054

ITM Peak Hour Summary

Prepared by:



National Data & Surveying Services

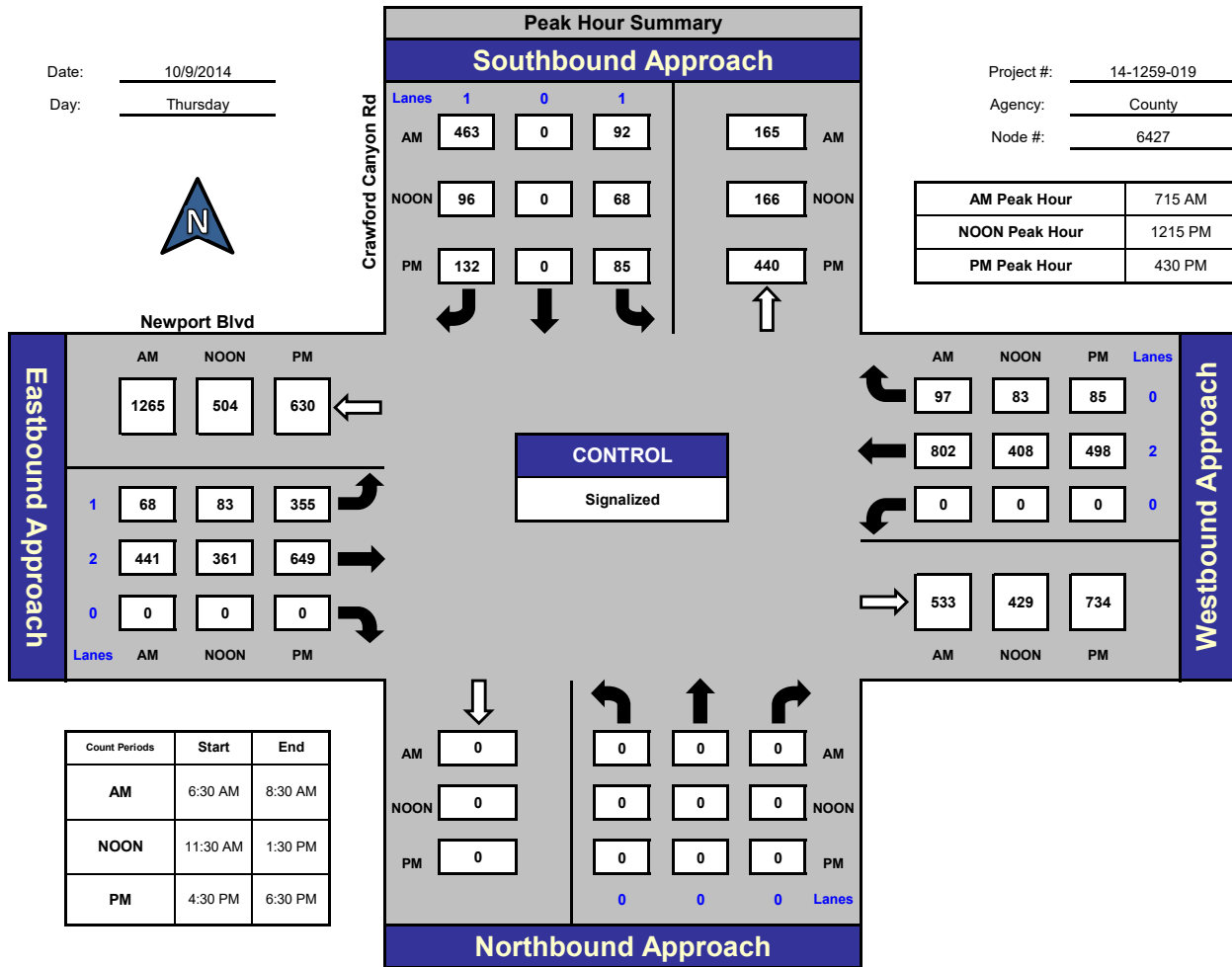
Crawford Canyon Rd and Newport Blvd, County

Date: 10/9/2014
Day: Thursday

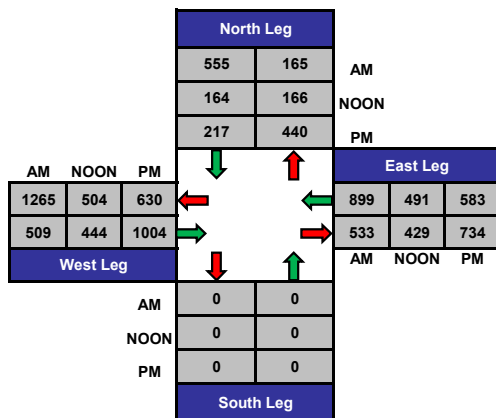


Project #: 14-1259-019
Agency: County
Node #: 6427

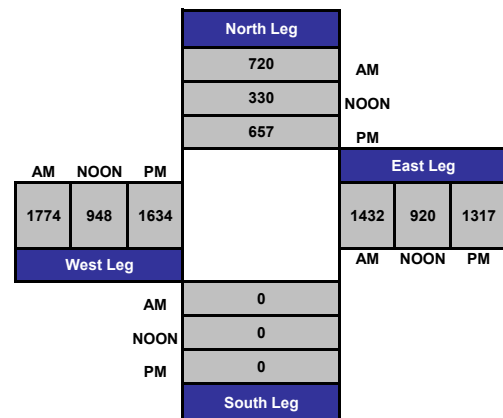
AM Peak Hour	715 AM
NOON Peak Hour	1215 PM
PM Peak Hour	430 PM



Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-1259-019

Day: Thursday

City: County

Date: 10/9/2014

AM													
NS/EW Streets:	Crawford Canyon Rd			Crawford Canyon Rd			Newport Blvd			Newport Blvd			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
6:30 AM	0	0	0	11	0	72	5	40	0	0	140	10	278
6:45 AM	0	0	0	21	0	87	10	75	0	0	117	13	323
7:00 AM	0	0	0	10	0	111	12	58	0	0	137	13	341
7:15 AM	0	0	0	14	0	155	11	77	0	0	213	21	491
7:30 AM	0	0	0	20	0	108	21	111	0	0	221	29	510
7:45 AM	0	0	0	30	0	67	21	123	0	0	169	31	441
8:00 AM	0	0	0	28	0	133	15	130	0	0	199	16	521
8:15 AM	0	0	0	26	0	116	25	124	0	0	175	15	481
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	15.86%	0.00%	84.14%	13.99%	86.01%	0.00%	0.00%	90.26%	9.74%	3386
PEAK HR START TIME :	7:15 AM												TOTAL
PEAK HR VOL :	0	0	0	92	0	463	68	441	0	0	802	97	1963
PEAK HR FACTOR :	0.000			0.821			0.878			0.899			0.942

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-1259-019

Day: Thursday

City: County

Date: 10/9/2014

		PM												
NS/EW Streets:		Crawford Canyon Rd			Crawford Canyon Rd			Newport Blvd			Newport Blvd			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:30 PM		0	0	0	23	0	33	76	176	0	0	128	16	452
4:45 PM		0	0	0	27	0	30	84	159	0	0	125	19	444
5:00 PM		0	0	0	17	0	36	93	169	0	0	123	26	464
5:15 PM		0	0	0	18	0	33	102	145	0	0	122	24	444
5:30 PM		0	0	0	17	0	46	90	164	0	0	105	17	439
5:45 PM		0	0	0	19	0	25	85	138	0	0	124	19	410
6:00 PM		0	0	0	18	0	30	93	172	0	0	107	21	441
6:15 PM		0	0	0	26	0	36	75	152	0	0	87	20	396
TOTAL VOLUMES :		0	0	0	165	0	269	698	1275	0	0	921	162	3490
APPROACH %'s :		#DIV/0!	#DIV/0!	#DIV/0!	38.02%	0.00%	61.98%	35.38%	64.62%	0.00%	0.00%	85.04%	14.96%	
PEAK HR START TIME :		430 PM												TOTAL
PEAK HR VOL :		0	0	0	85	0	132	355	649	0	0	498	85	1804
PEAK HR FACTOR :		0.000			0.952			0.958			0.978			0.972

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
0	0	0	0

NB	SB	EB	WB
0	0	0	0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-1259-019

Day: Thursday

City: County

Date: 10/9/2014

NOON													
NS/EW Streets:	Crawford Canyon Rd			Crawford Canyon Rd			Newport Blvd			Newport Blvd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
11:30 AM	0	0	0	18	0	34	28	97	0	0	104	19	300
11:45 AM	0	0	0	22	0	26	17	90	0	0	115	17	287
12:00 PM	0	0	0	14	0	16	16	78	0	0	84	24	232
12:15 PM	0	0	0	22	0	28	21	97	0	0	87	18	273
12:30 PM	0	0	0	15	0	18	23	83	0	0	111	27	277
12:45 PM	0	0	0	15	0	27	22	92	0	0	99	18	273
1:00 PM	0	0	0	16	0	23	17	89	0	0	111	20	276
1:15 PM	0	0	0	24	0	21	29	76	0	0	98	17	265
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	43.07%	0.00%	56.93%	19.77%	80.23%	0.00%	0.00%	83.49%	16.51%	2183
PEAK HR START TIME :	1215 PM												TOTAL
PEAK HR VOL :	0	0	0	68	0	96	83	361	0	0	408	83	1099
PEAK HR FACTOR :	0.000			0.820			0.941			0.889			0.992

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

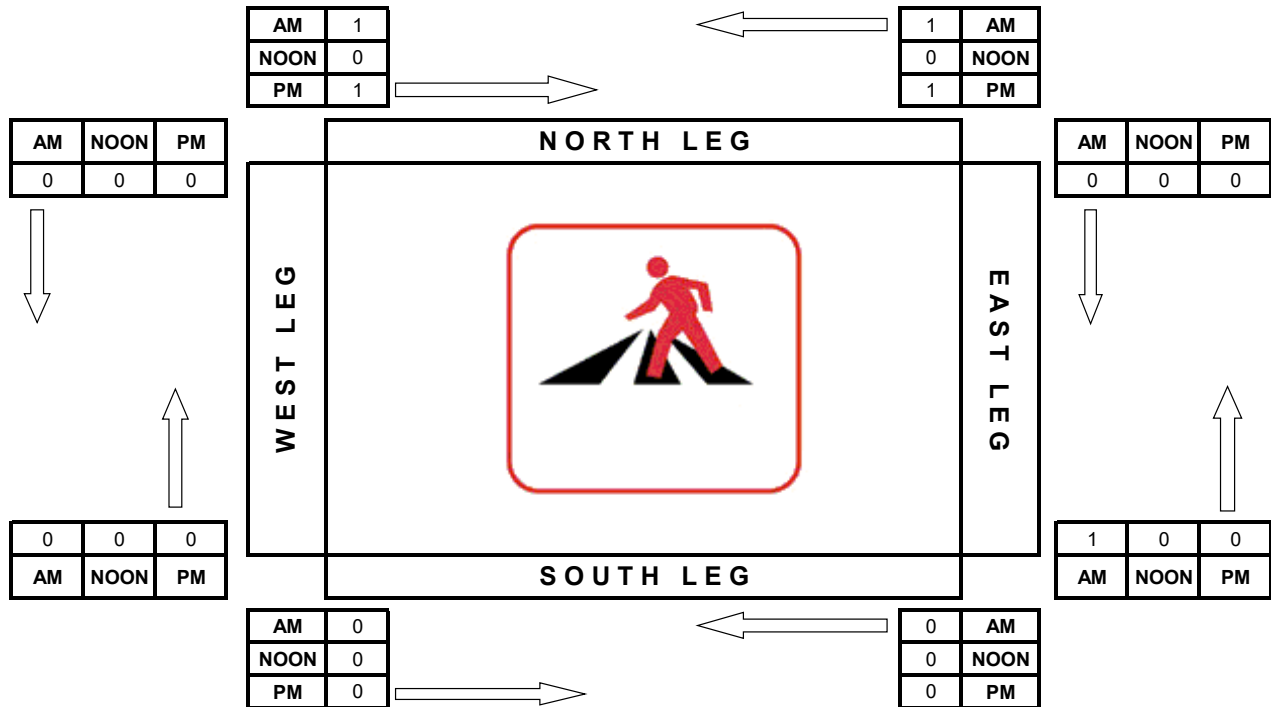
PREPARED BY NATIONAL DATA & SURVEYING SERVICES

Pedestrian Count Peak Hour

PROJECT#: 14-1259-019 Node #: 6427
 N/S Street: Crawford Canyon Rd
 E/W Street: Newport Ave
 DATE: 10/9/2014
 CITY: Tustin

DAY: Thursday

	Start:	End:
AM	6:30	8:30
NOON	11:30	13:30
PM	16:30	18:30



PREPARED BY NATIONAL DATA & SURVEYING SERVICES

Bicycle Count Peak Hour

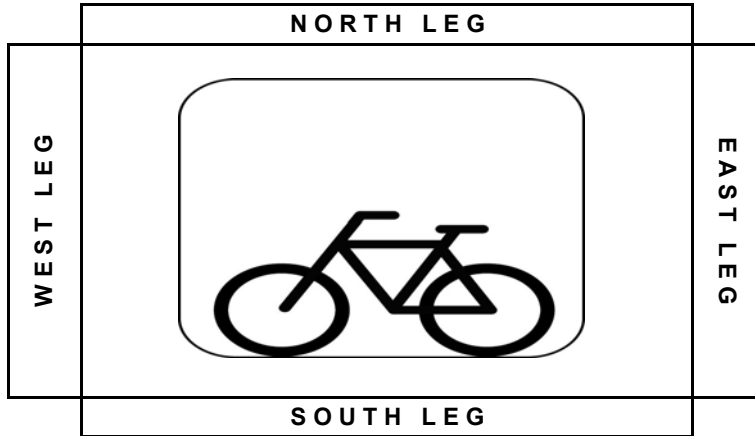
PROJECT#: 14-1259-019 Node #: 6427
 N/S Street: Crawford Canyon Rd
 E/W Street: Newport Ave
 DATE: 10/9/2014
 CITY: Tustin

DAY: Thursday

	Start:	End:
AM	6:30	8:30
NOON	11:30	13:30
PM	16:30	18:30

AM	0	0	0
NOON	0	0	1
PM	1	0	0

AM	NOON	PM
0	0	0
2	0	4
0	0	0



AM	NOON	PM
0	2	0
4	0	0
0	0	0

AM	0	0	0
NOON	0	0	0
PM	0	0	0

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 14-1259-019 Node #: 6427
 N/S Street: Crawford Canyon Rd
 E/W Street: Newport Ave
 DATE: 10/9/2014
 CITY: Tustin

DAY: Thursday

A M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:30 AM	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	0	1	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0
7:45 AM	1	0	0	0	1	0	0	0
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0
TOTALS	1	1	0	0	1	0	0	0

BIKES

TIME	NB			SB			EB			WB			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
6:30 AM	0	0	0	0	0	0	0	1	0	0	0	1	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	1	0	0	0	1	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	3	0
7:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	0
TOTALS	0	0	0	0	0	0	1	3	0	0	0	5	0

NOON

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
11:30 AM	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	0	0

BIKES

TIME	NB			SB			EB			WB			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	1
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1
12:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	0	0	0	1	0	0	0	0	0	0	0	0	2

P M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
4:30 PM	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0
6:00 PM	0	1	0	0	0	0	0	0
6:15 PM	1	0	0	0	0	0	0	0
TOTALS	1	1	0	0	0	0	0	0

BIKES

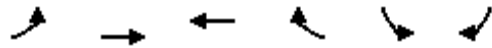
TIME	NB			SB			EB			WB			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	2	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0
5:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	0
TOTALS	0	0	0	1	0	1	0	4	0	0	0	0	0

ATTACHMENT B – SYNCHRO WORKSHEETS

Lanes, Volumes, Timings

2: Newport Ave & Crawford Canyon Road

12/06/2020



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	76	494	898	109	103	519
Future Volume (vph)	76	494	898	109	103	519
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.984			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3483	0	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	3539	3483	0	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			23			235
Link Speed (mph)		30	30		30	
Link Distance (ft)		572	1060		879	
Travel Time (s)		13.0	24.1		20.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	83	537	976	118	112	564
Shared Lane Traffic (%)						
Lane Group Flow (vph)	83	537	1094	0	112	564
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases						6

Lanes, Volumes, Timings
2: Newport Ave & Crawford Canyon Road

12/06/2020

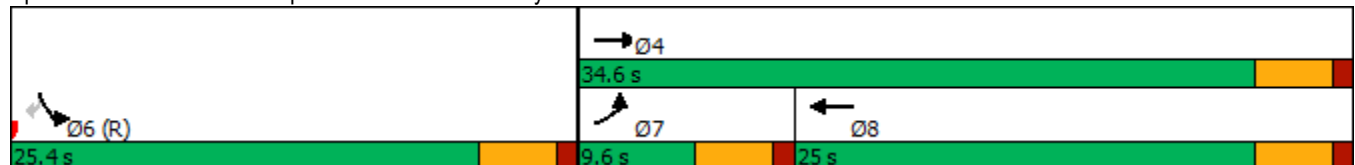


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8		6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	9.5	22.5	22.5		22.5	22.5
Total Split (s)	9.6	34.6	25.0		25.4	25.4
Total Split (%)	16.0%	57.7%	41.7%		42.3%	42.3%
Maximum Green (s)	5.1	30.1	20.5		20.9	20.9
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		4.5	4.5
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	None		C-Max	C-Max
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)	5.1	28.2	20.5		22.8	22.8
Actuated g/C Ratio	0.08	0.47	0.34		0.38	0.38
v/c Ratio	0.55	0.32	0.91		0.17	0.76
Control Delay	42.6	10.1	31.5		14.5	18.6
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	42.6	10.1	31.5		14.5	18.6
LOS	D	B	C		B	B
Approach Delay		14.5	31.5		17.9	
Approach LOS		B	C		B	

Intersection Summary

Area Type: Other
 Cycle Length: 60
 Actuated Cycle Length: 60
 Offset: 0 (0%), Referenced to phase 2: and 6:SBL, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 23.2
 Intersection LOS: C
 Intersection Capacity Utilization 67.9%
 ICU Level of Service C
 Analysis Period (min) 15

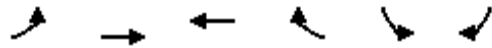
Splits and Phases: 2: Newport Ave & Crawford Canyon Road



HCM 6th Signalized Intersection Summary

2: Newport Ave & Crawford Canyon Road

12/06/2020

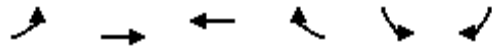


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	76	494	898	109	103	519
Future Volume (veh/h)	76	494	898	109	103	519
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	83	537	976	118	112	564
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	111	1684	1074	130	0	0
Arrive On Green	0.06	0.47	0.34	0.34	0.00	0.00
Sat Flow, veh/h	1781	3647	3285	386	0	
Grp Volume(v), veh/h	83	537	543	551	0.0	
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1801		
Q Serve(g_s), s	2.7	5.6	17.5	17.5		
Cycle Q Clear(g_c), s	2.7	5.6	17.5	17.5		
Prop In Lane	1.00			0.21		
Lane Grp Cap(c), veh/h	111	1684	598	606		
V/C Ratio(X)	0.75	0.32	0.91	0.91		
Avail Cap(c_a), veh/h	151	1783	607	615		
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	27.7	9.8	19.0	19.0		
Incr Delay (d2), s/veh	12.5	0.1	17.5	17.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.5	1.9	9.3	9.4		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	40.2	9.9	36.5	36.4		
LnGrp LOS	D	A	D	D		
Approach Vol, veh/h		620	1094			
Approach Delay, s/veh		13.9	36.5			
Approach LOS		B	D			
Timer - Assigned Phs				4	7	8
Phs Duration (G+Y+Rc), s				32.9	8.2	24.7
Change Period (Y+Rc), s				4.5	4.5	4.5
Max Green Setting (Gmax), s				30.1	5.1	20.5
Max Q Clear Time (g_c+I1), s				7.6	4.7	19.5
Green Ext Time (p_c), s				3.7	0.0	0.7
Intersection Summary						
HCM 6th Ctrl Delay			28.3			
HCM 6th LOS			C			

Lanes, Volumes, Timings

2: Newport Ave & Crawford Canyon Road

12/06/2020



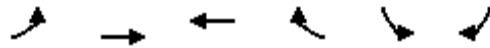
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	398	727	558	95	95	148
Future Volume (vph)	398	727	558	95	95	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.978			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3461	0	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	3539	3461	0	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			26			161
Link Speed (mph)		30	30		30	
Link Distance (ft)		572	1060		879	
Travel Time (s)		13.0	24.1		20.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	433	790	607	103	103	161
Shared Lane Traffic (%)						
Lane Group Flow (vph)	433	790	710	0	103	161
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases						6

2020 Without Project PM 1:45 am 11/02/2020

Synchro 11 Report
Page 3

Lanes, Volumes, Timings
 2: Newport Ave & Crawford Canyon Road

12/06/2020

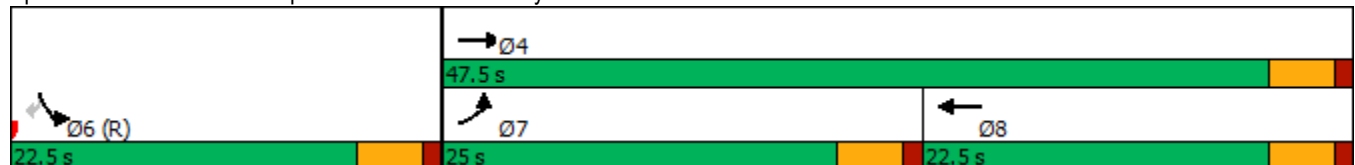


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8		6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	9.5	22.5	22.5		22.5	22.5
Total Split (s)	25.0	47.5	22.5		22.5	22.5
Total Split (%)	35.7%	67.9%	32.1%		32.1%	32.1%
Maximum Green (s)	20.5	43.0	18.0		18.0	18.0
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		4.5	4.5
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	None		C-Max	C-Max
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)	19.5	41.3	17.2		19.7	19.7
Actuated g/C Ratio	0.28	0.59	0.25		0.28	0.28
v/c Ratio	0.88	0.38	0.81		0.21	0.29
Control Delay	44.9	8.0	32.6		21.8	5.5
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	44.9	8.0	32.6		21.8	5.5
LOS	D	A	C		C	A
Approach Delay		21.0	32.6		11.9	
Approach LOS		C	C		B	

Intersection Summary

Area Type: Other
 Cycle Length: 70
 Actuated Cycle Length: 70
 Offset: 0 (0%), Referenced to phase 2: and 6:SBL, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 23.7
 Intersection LOS: C
 Intersection Capacity Utilization 57.0%
 ICU Level of Service B
 Analysis Period (min) 15

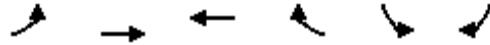
Splits and Phases: 2: Newport Ave & Crawford Canyon Road



HCM 6th Signalized Intersection Summary

2: Newport Ave & Crawford Canyon Road

12/06/2020

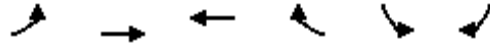


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	398	727	558	95	95	148
Future Volume (veh/h)	398	727	558	95	95	148
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	433	790	607	103	103	161
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	478	2020	717	121	0	0
Arrive On Green	0.27	0.57	0.24	0.24	0.00	0.00
Sat Flow, veh/h	1781	3647	3133	515	0	
Grp Volume(v), veh/h	433	790	354	356	0.0	
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1778		
Q Serve(g_s), s	16.4	8.6	13.3	13.4		
Cycle Q Clear(g_c), s	16.4	8.6	13.3	13.4		
Prop In Lane	1.00			0.29		
Lane Grp Cap(c), veh/h	478	2020	419	419		
V/C Ratio(X)	0.91	0.39	0.84	0.85		
Avail Cap(c_a), veh/h	522	2183	457	457		
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	24.8	8.4	25.5	25.5		
Incr Delay (d2), s/veh	18.5	0.1	12.8	13.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	9.0	2.8	6.8	6.8		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	43.3	8.5	38.3	38.6		
LnGrp LOS	D	A	D	D		
Approach Vol, veh/h		1223	710			
Approach Delay, s/veh		20.8	38.5			
Approach LOS		C	D			
Timer - Assigned Phs				4	7	8
Phs Duration (G+Y+Rc), s				44.3	23.3	21.0
Change Period (Y+Rc), s				4.5	4.5	4.5
Max Green Setting (Gmax), s				43.0	20.5	18.0
Max Q Clear Time (g_c+I1), s				10.6	18.4	15.4
Green Ext Time (p_c), s				6.4	0.3	1.1
Intersection Summary						
HCM 6th Ctrl Delay			27.3			
HCM 6th LOS			C			

Lanes, Volumes, Timings

1: Newport Ave & Project Driveway

12/06/2020



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	3	570	1417	4	2	2
Future Volume (vph)	3	570	1417	4	2	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Fr't					0.932	
Flt Protected	0.950				0.976	
Satd. Flow (prot)	1770	3539	3539	0	1694	0
Flt Permitted	0.950				0.976	
Satd. Flow (perm)	1770	3539	3539	0	1694	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		919	572		283	
Travel Time (s)		20.9	13.0		6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	620	1540	4	2	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3	620	1544	0	4	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane					Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 49.3% ICU Level of Service A

Analysis Period (min) 15

HCM 6th TWSC

1: Newport Ave & Project Driveway

12/06/2020

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	570	1417	4	2	2
Future Vol, veh/h	3	570	1417	4	2	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	620	1540	4	2	2
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	1544	0	-	0	1858	772
Stage 1	-	-	-	-	1542	-
Stage 2	-	-	-	-	316	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	*740	-	-	-	*228	*495
Stage 1	-	-	-	-	*467	-
Stage 2	-	-	-	-	*712	-
Platoon blocked, %	1	-	-	-	1	1
Mov Cap-1 Maneuver	*740	-	-	-	*228	*495
Mov Cap-2 Maneuver	-	-	-	-	*410	-
Stage 1	-	-	-	-	*465	-
Stage 2	-	-	-	-	*712	-
Approach	EB	WB	SB			
HCM Control Delay, s	0.1	0	13.1			
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	*740	-	-	-	449	
HCM Lane V/C Ratio	0.004	-	-	-	0.01	
HCM Control Delay (s)	9.9	-	-	-	13.1	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0	
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

Lanes, Volumes, Timings

2: Newport Ave & Crawford Canyon Road

12/06/2020



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	77	495	900	109	103	521
Future Volume (vph)	77	495	900	109	103	521
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.984			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3483	0	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	3539	3483	0	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			23			235
Link Speed (mph)		30	30		30	
Link Distance (ft)		572	1060		879	
Travel Time (s)		13.0	24.1		20.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	84	538	978	118	112	566
Shared Lane Traffic (%)						
Lane Group Flow (vph)	84	538	1096	0	112	566
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases						6

Lanes, Volumes, Timings 2: Newport Ave & Crawford Canyon Road

12/06/2020

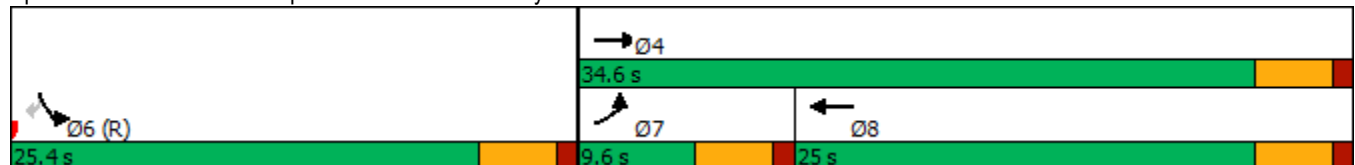


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8		6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	9.5	22.5	22.5		22.5	22.5
Total Split (s)	9.6	34.6	25.0		25.4	25.4
Total Split (%)	16.0%	57.7%	41.7%		42.3%	42.3%
Maximum Green (s)	5.1	30.1	20.5		20.9	20.9
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		4.5	4.5
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	None		C-Max	C-Max
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)	5.1	28.2	20.5		22.8	22.8
Actuated g/C Ratio	0.08	0.47	0.34		0.38	0.38
v/c Ratio	0.56	0.32	0.91		0.17	0.76
Control Delay	43.1	10.1	31.7		14.5	18.8
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	43.1	10.1	31.7		14.5	18.8
LOS	D	B	C		B	B
Approach Delay		14.6	31.7		18.0	
Approach LOS		B	C		B	

Intersection Summary

Area Type: Other
 Cycle Length: 60
 Actuated Cycle Length: 60
 Offset: 0 (0%), Referenced to phase 2: and 6:SBL, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 23.4
 Intersection LOS: C
 Intersection Capacity Utilization 68.1%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 2: Newport Ave & Crawford Canyon Road



HCM 6th Signalized Intersection Summary

2: Newport Ave & Crawford Canyon Road

12/06/2020

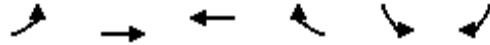


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	77	495	900	109	103	521
Future Volume (veh/h)	77	495	900	109	103	521
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	84	538	978	118	112	566
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	112	1686	1075	130	0	0
Arrive On Green	0.06	0.47	0.34	0.34	0.00	0.00
Sat Flow, veh/h	1781	3647	3286	385	0	
Grp Volume(v), veh/h	84	538	544	552	0.0	
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1801		
Q Serve(g_s), s	2.8	5.6	17.6	17.6		
Cycle Q Clear(g_c), s	2.8	5.6	17.6	17.6		
Prop In Lane	1.00			0.21		
Lane Grp Cap(c), veh/h	112	1686	598	607		
V/C Ratio(X)	0.75	0.32	0.91	0.91		
Avail Cap(c_a), veh/h	151	1783	607	615		
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	27.7	9.8	19.0	19.0		
Incr Delay (d2), s/veh	13.1	0.1	17.6	17.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.5	1.9	9.3	9.4		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	40.8	9.9	36.7	36.6		
LnGrp LOS	D	A	D	D		
Approach Vol, veh/h		622	1096			
Approach Delay, s/veh		14.0	36.6			
Approach LOS		B	D			
Timer - Assigned Phs				4	7	8
Phs Duration (G+Y+Rc), s				33.0	8.3	24.7
Change Period (Y+Rc), s				4.5	4.5	4.5
Max Green Setting (Gmax), s				30.1	5.1	20.5
Max Q Clear Time (g_c+I1), s				7.6	4.8	19.6
Green Ext Time (p_c), s				3.7	0.0	0.6
Intersection Summary						
HCM 6th Ctrl Delay			28.4			
HCM 6th LOS			C			

Lanes, Volumes, Timings

1: Newport Ave & Project Driveway

12/06/2020



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	2	1124	706	3	2	2
Future Volume (vph)	2	1124	706	3	2	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Flt			0.999		0.932	
Flt Protected	0.950				0.976	
Satd. Flow (prot)	1770	3539	3536	0	1694	0
Flt Permitted	0.950				0.976	
Satd. Flow (perm)	1770	3539	3536	0	1694	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		919	572		283	
Travel Time (s)		20.9	13.0		6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	1222	767	3	2	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	1222	770	0	4	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane					Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 41.1% ICU Level of Service A

Analysis Period (min) 15

HCM 6th TWSC

1: Newport Ave & Project Driveway

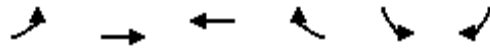
12/06/2020

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗	↗		↖	
Traffic Vol, veh/h	2	1124	706	3	2	2
Future Vol, veh/h	2	1124	706	3	2	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	1222	767	3	2	2
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	770	0	-	0	1384	385
Stage 1	-	-	-	-	769	-
Stage 2	-	-	-	-	615	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	*1200	-	-	-	*233	*802
Stage 1	-	-	-	-	*757	-
Stage 2	-	-	-	-	*502	-
Platoon blocked, %	1	-	-	-	1	1
Mov Cap-1 Maneuver	*1200	-	-	-	*232	*802
Mov Cap-2 Maneuver	-	-	-	-	*438	-
Stage 1	-	-	-	-	*755	-
Stage 2	-	-	-	-	*502	-
Approach	EB	WB	SB			
HCM Control Delay, s	0	0	11.4			
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	* 1200	-	-	-	-	567
HCM Lane V/C Ratio	0.002	-	-	-	-	0.008
HCM Control Delay (s)	8	-	-	-	-	11.4
HCM Lane LOS	A	-	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	-	0
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

Lanes, Volumes, Timings

2: Newport Ave & Crawford Canyon Road

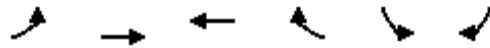
12/06/2020



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	399	728	560	95	95	150
Future Volume (vph)	399	728	560	95	95	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250			0	0	0
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.978			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3461	0	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	3539	3461	0	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			26			163
Link Speed (mph)		30	30		30	
Link Distance (ft)		572	1060		879	
Travel Time (s)		13.0	24.1		20.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	434	791	609	103	103	163
Shared Lane Traffic (%)						
Lane Group Flow (vph)	434	791	712	0	103	163
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases						6

Lanes, Volumes, Timings
 2: Newport Ave & Crawford Canyon Road

12/06/2020

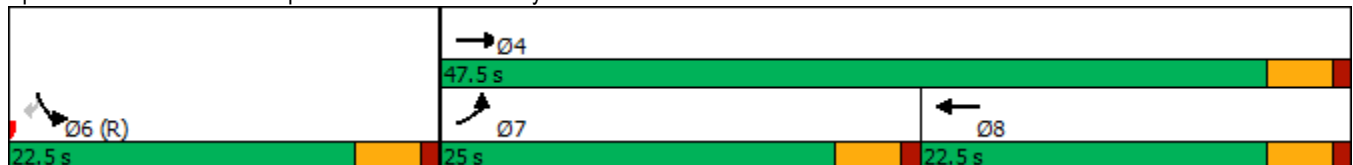


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8		6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	9.5	22.5	22.5		22.5	22.5
Total Split (s)	25.0	47.5	22.5		22.5	22.5
Total Split (%)	35.7%	67.9%	32.1%		32.1%	32.1%
Maximum Green (s)	20.5	43.0	18.0		18.0	18.0
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		4.5	4.5
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	None		C-Max	C-Max
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)	19.6	41.4	17.3		19.6	19.6
Actuated g/C Ratio	0.28	0.59	0.25		0.28	0.28
v/c Ratio	0.88	0.38	0.81		0.21	0.29
Control Delay	44.9	7.9	32.6		21.8	5.5
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	44.9	7.9	32.6		21.8	5.5
LOS	D	A	C		C	A
Approach Delay		21.0	32.6		11.8	
Approach LOS		C	C		B	

Intersection Summary

Area Type: Other
 Cycle Length: 70
 Actuated Cycle Length: 70
 Offset: 0 (0%), Referenced to phase 2: and 6:SBL, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 23.7
 Intersection LOS: C
 Intersection Capacity Utilization 57.1%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 2: Newport Ave & Crawford Canyon Road



HCM 6th Signalized Intersection Summary

2: Newport Ave & Crawford Canyon Road

12/06/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	399	728	560	95	95	150
Future Volume (veh/h)	399	728	560	95	95	150
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	434	791	609	103	103	163
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	479	2024	719	121	0	0
Arrive On Green	0.27	0.57	0.24	0.24	0.00	0.00
Sat Flow, veh/h	1781	3647	3135	513	0	
Grp Volume(v), veh/h	434	791	355	357	0.0	
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1778		
Q Serve(g_s), s	16.5	8.6	13.4	13.4		
Cycle Q Clear(g_c), s	16.5	8.6	13.4	13.4		
Prop In Lane	1.00			0.29		
Lane Grp Cap(c), veh/h	479	2024	420	420		
V/C Ratio(X)	0.91	0.39	0.85	0.85		
Avail Cap(c_a), veh/h	522	2183	457	457		
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	24.7	8.3	25.5	25.5		
Incr Delay (d2), s/veh	18.6	0.1	12.9	13.2		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	9.0	2.8	6.8	6.9		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	43.3	8.5	38.4	38.7		
LnGrp LOS	D	A	D	D		
Approach Vol, veh/h		1225	712			
Approach Delay, s/veh		20.8	38.6			
Approach LOS		C	D			
Timer - Assigned Phs				4	7	8
Phs Duration (G+Y+Rc), s				44.4	23.3	21.0
Change Period (Y+Rc), s				4.5	4.5	4.5
Max Green Setting (Gmax), s				43.0	20.5	18.0
Max Q Clear Time (g_c+I1), s				10.6	18.5	15.4
Green Ext Time (p_c), s				6.4	0.3	1.1
Intersection Summary						
HCM 6th Ctrl Delay			27.4			
HCM 6th LOS			C			