

TRAFFIC IMPACT ANALYSIS

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HONDA DEALERSHIP

LAKE ELSINORE, CALIFORNIA

Prepared by:



DAVID EVANS
AND ASSOCIATES INC.

FINAL REPORT
June 19, 2018



June 19, 2018

Job No. DLRCRZY-0001

Mr. Bob Zamora
SRZ Yuma, LLC
3158 Auto Center Circle, Suite E
Stockton, CA 95212

RE: Traffic Impact Analysis – Honda Dealership – Lake Elsinore, CA

Dear Mr. Zamora,

David Evans and Associates, Inc. is pleased to submit this Traffic Impact Analysis (TIA) for the proposed project consisting of an Automobile Sales Building. The proposed project is located at the southeast corner of the intersection of Collier Avenue and Crane Street in the City of Lake Elsinore, California.

The report evaluates potential project-specific traffic impacts and recommends traffic improvements if any impacts are determined to be significant. The report also evaluates the impacts of overall growth in development to determine if the proposed project, cumulatively with other development, contributes to significant impacts. The report has been prepared in coordination with the City of Lake Elsinore Engineering Department who approved the scope of work prior to preparation of the report, provided in the *APPENDIX A*. The analysis and methods employed in the report comply with California Environmental Quality Act (CEQA) requirements.

We are pleased to have been of assistance to you in processing and obtaining approval for the project. If you have any questions or comments, please feel free to contact me at 760-524-9115.

Respectfully submitted,

David Evans and Associates, Inc.


Robert A. Kilpatrick, P.E., T.E.
Senior Project Manager / Senior Associate





TABLE OF CONTENTS

1	INTRODUCTION	1
2	EXISTING CONDITIONS	4
	Local and Major Roadways	4
	Existing Traffic Volumes	4
	Capacity Analysis Methodologies	7
	Level of Significance	8
	Existing Traffic Analysis	8
3	EXISTING PLUS PROJECT CONDITIONS	9
	Project Trip Generation	9
	Project Trip Distribution and Assignment	9
	Existing Plus Project Traffic Analysis	9
4	PROJECT TRAFFIC CONDITIONS	16
	Project Traffic Analysis	16
5	CUMULATIVE CONDITIONS	18
	Cumulative Development	18
	Cumulative Traffic Analysis	20
6	PROJECT MITIGATION AND SUMMARY	23
	Project Specific Improvements	23
7	APPENDICES	26

LIST OF FIGURES

Figure 1: Vicinity Map	2
Figure 2: Site Plan	3
Figure 3: Existing Condition Intersection Geometrics	5
Figure 4: Existing Condition Traffic Volumes	6
Figure 5: Primary Project Trip Distribution	10
Figure 6: Project Trips	11
Figure 7: Existing plus Project Condition Traffic Volumes	14
Figure 8: Existing plus Project Condition Intersection Geometrics	15
Figure 9: Opening Year with Project Traffic Volumes	17
Figure 10: Other Area Project Trips	19
Figure 11: Cumulative Condition with Project Traffic Volumes	21
Figure 12: Cumulative Condition Intersection Geometrics	22
Figure 13: Summary of Traffic Improvements	25



LIST OF TABLES

Table 2-1: HCM 2010 – LOS Criteria for Signalized Intersections	7
Table 2-2: HCM 2010 – LOS Criteria for OWSC, TWSC, and AWSC.....	7
Table 2-3: Intersection Capacity Analysis - Existing Conditions	8
Table 3-1: Project Trip Generation	9
Table 3-2: Intersection Capacity Analysis – Existing Plus Project Conditions	12
Table 4-1: Intersection Capacity Analysis – Project Conditions	16
Table 5-1: Estimated Trip Generation for Cumulative Development	18
Table 5-2: Intersection Capacity Analysis – Cumulative Conditions	20

LIST OF APPENDICES

APPENDIX A: APPROVED SCOPE AGREEMENT
APPENDIX B: INTERSECTION CAPACITY ANALYSIS CALCULATIONS
APPENDIX C: OTHER AREA PROJECTS
APPENDIX D: CENTRAL PLAZA DEVELOPMENT PROJECT STATUS MEMO

1 INTRODUCTION

This report identifies the traffic impacts and presents recommendations for access and traffic mitigation for the proposed Honda Automobile Dealership located on the southeast corner of Collier Avenue and Crane Street. The project identified as Honda Automobile Dealership, consist of an approximate 53,425 SF Automobile Sales Building on an approximate 6.96 acre lot located in the City of Lake Elsinore. The facility will be accessible from three driveways; two driveways on Collier Avenue and a driveway of future extension of Crane Street. Driveway access and internal site circulation are described in Section 6 of this report. *Figure 1* illustrates the vicinity map and *Figure 2* illustrates the proposed project site plan.

The intent of this Traffic Impact Analysis (TIA) report is to identify and recommend mitigation for significant impacts caused by, or contributed by, the proposed project under the following study scenarios:

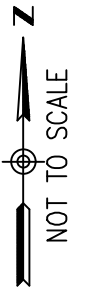
- Existing Conditions
- Existing plus Project Conditions
- Project Conditions
- Cumulative (Background) Conditions

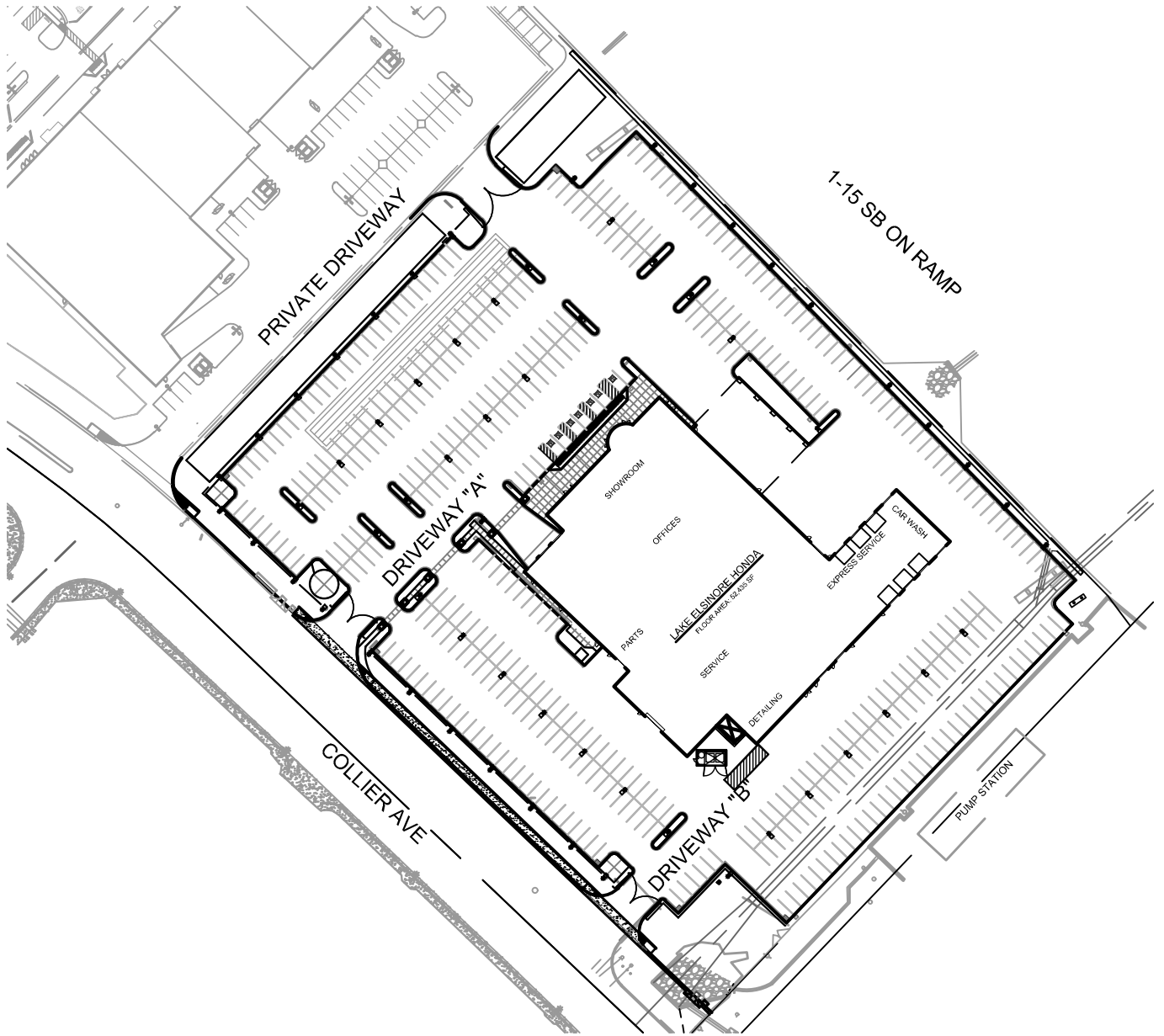
The Existing Condition analysis is based on existing traffic counts collected in February 2018 and reflects the current conditions of the project area.

The Existing plus Project Condition addresses anticipated impacts if the project were completed today. This analysis identifies impacts solely caused by the proposed project when compared to existing conditions.

The Project Condition addresses impacts due to the development of the project and ambient growth in traffic up to the project buildout year of 2019 within the study area. Ambient growth is estimated at two percent of the existing traffic volumes annually.

The Cumulative Condition addresses the Project Condition plus the cumulative impact of other developments in the vicinity of the project.





2 EXISTING CONDITIONS

Currently the project site is vacant and undeveloped land. It is bounded to the north by Crane Street, to the south by 3rd Street, to the west by Collier Avenue, and to the east by the I-15 Freeway.

Local and Major Roadways

Interstate 15 (I-15) Freeway provides regional access to the proposed project site. Regional project access is provided from the I-15 Freeway via an interchange at Central Avenue. This freeway facility is an interstate highway which extends through Southern California and Nevada. It links the City of Lake Elsinore with the neighboring communities of Murrieta, Terra Cotta, and El Cerrito as well as the larger surrounding cities such as Corona and Temecula.

Central Avenue is primarily a four-lane roadway (two-lane each direction) oriented in the east-west direction with left turn pockets at key intersections. On the City of Lake Elsinore Roadway Classification Figure Central Avenue is designated a major which would provide 4 lanes.

Collier Avenue is primarily a four-lane roadway (two-lane each direction) oriented in the north-south direction with left turn key pockets at key intersections. Parking is not permitted on either side of this roadway within the vicinity of the project. On the City of Lake Elsinore Roadway Classification Figure Collier Avenue is designated as an augmented urban arterial which would provide 8 lanes.

Crane Street is a local street with left turn pocket at intersection with Collier Avenue. On the City of Lake Elsinore Roadway Classification Figure Crane Street is designated a local roadway.

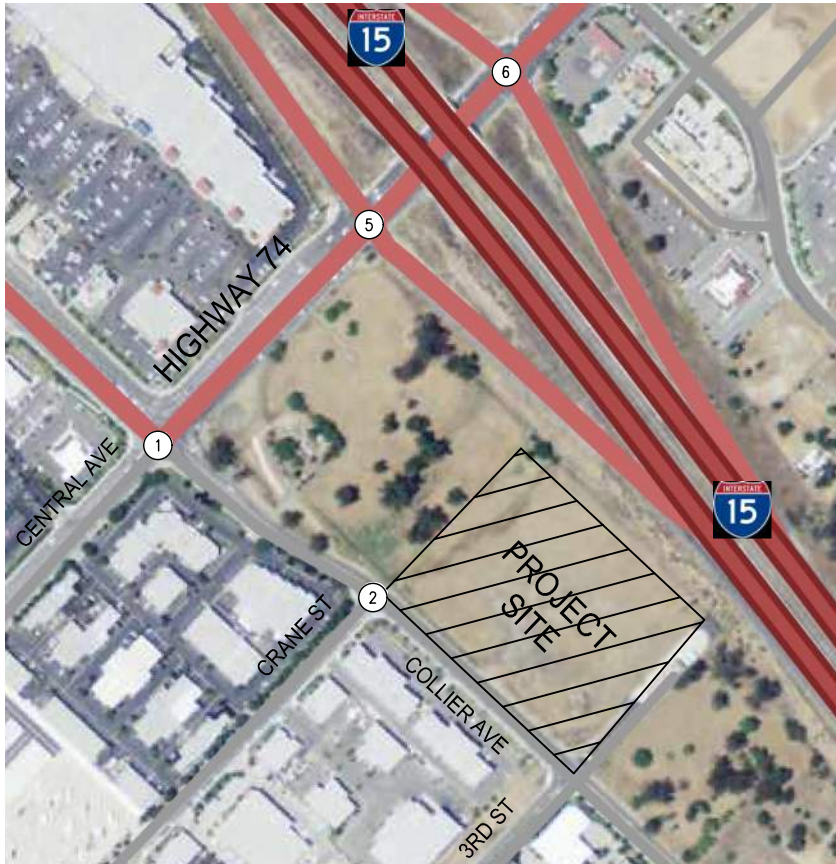
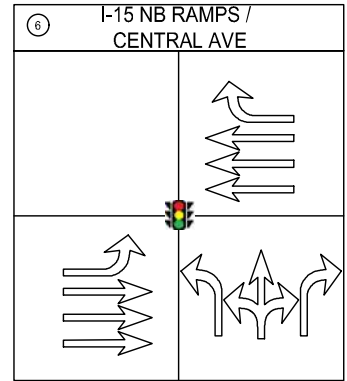
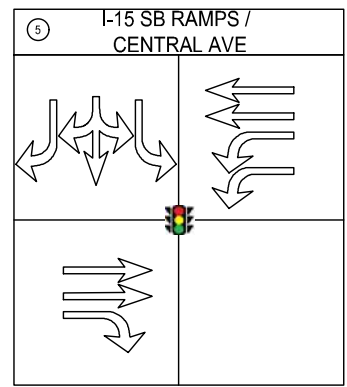
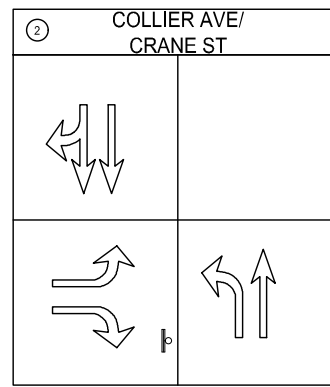
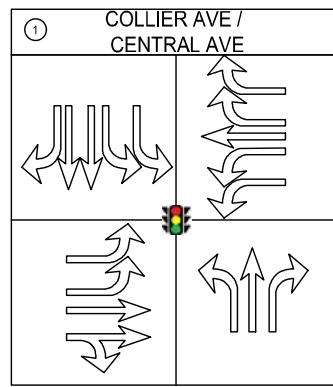
Primary access to the project is from Collier Avenue and Crane Street. The proposed Collier Avenue driveways (Project Driveways "A" and "B" shown in Figure 2) provide right-in/right-out and right-in only access to the site respectively. Vehicles accessing the project would potentially impact the following four (4) existing intersections and two (2) proposed intersections within the study area:

1. Collier Avenue at Crane Street
2. Collier Avenue at Central Avenue
3. Collier Avenue at Project Driveway "A" (future intersection)
4. Collier Avenue at Project Driveway "B" (future intersection)
5. I-15 SB Ramps at Central Avenue
6. I-15 NB Ramps at Central Avenue

The intersection of Collier Avenue at Central Avenue, I-15 SB Ramps at Central Avenue, and I-15 NB Ramps at Central Avenue are signalized. A traffic signal is currently under construction at the intersection of Collier Avenue and Crane Street and is expected to be operational prior to construction of the proposed project. *Figure 3* illustrates the existing intersection geometrics.

Existing Traffic Volumes

Figure 4 provides the existing intersection traffic volumes. Newport Traffic Studies (NTS) conducted AM (7:00-9:00 AM) and PM (4:00-6:00 PM) peak period turn movement counts in February 2018. The resulting turning movement volumes are presented in the *APPENDIX B* of this study.



LEGEND



- EXISTING GEOMETRICS



- STUDY INTERSECTIONS



- STOP CONTROLLED INTERSECTION



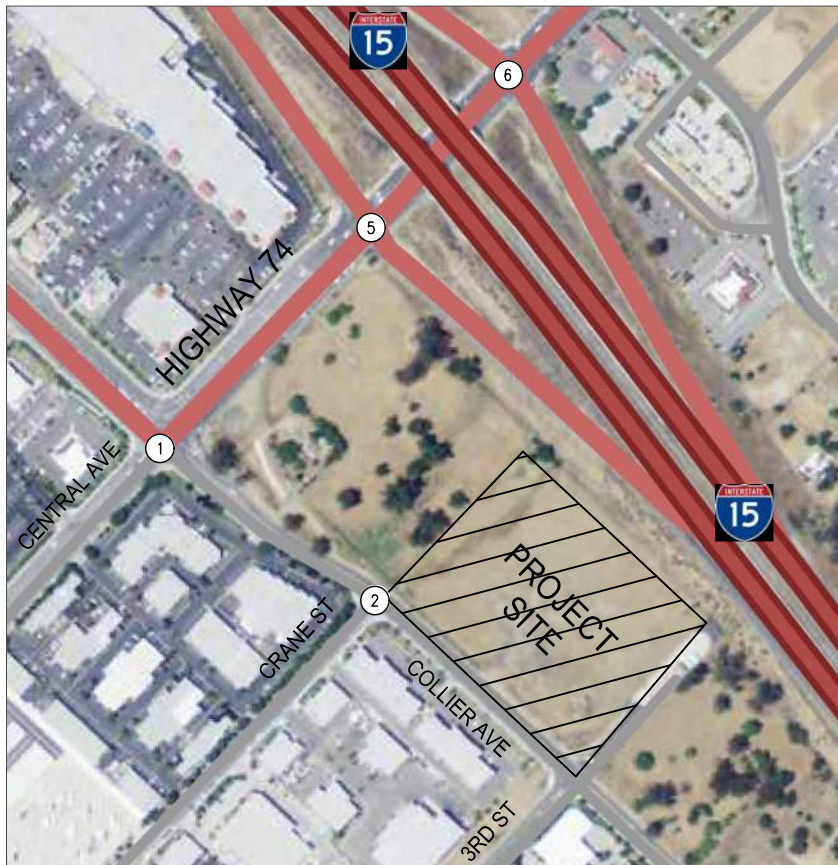
- SIGNAL CONTROLLED INTERSECTION

① COLLIER AVE / CENTRAL AVE	
12/73/156 62/172/146 737/785/991	532/339/695 217/288/231 508/231/73
24/156/221 67/350/265 20/76/73	35/68/47 60/225/157 271/300/117

② COLLIER AVE/ CRANE ST	
93/27/10 532/453/303	
6/50/14 7/19/8	23/12/15 411/543/298

⑤ I-15 SB RAMPS / CENTRAL AVE	
156/120/121 5/1/1 258/499/311	1096/774/880 619/328/442
504/956/895 575/460/493	

⑥ I-15 NB RAMPS / CENTRAL AVE	
	484/279/410 1253/695/915
68/97/75 692/1358/1142	464/421/462 14/4/2 499/548/610



LEGEND

- XX/XX/XX ↗ - AM/PM/SAT TOTAL PROJECT TRIPS
- ① - STUDY INTERSECTIONS
- ⊥ - STOP CONTROLLED INTERSECTION
- 🚦 - SIGNAL CONTROLLED INTERSECTION

Capacity Analysis Methodologies

Intersection capacity analyses were conducted using Synchro software (1), which implements the methods of the Highway Capacity Manual (HCM 2010) used in this report. The intersection capacity analyses utilize existing intersection geometrics and existing and forecasted traffic volumes in analyzing AM and PM peak hour intersection operating conditions. The Highway Capacity Manual (HCM) (2) traffic analysis methodology calculates intersection Level of Service (LOS) based on the control delay (in seconds per vehicle) of vehicles utilizing intersections. However, the use of delay to determine LOS for intersections controlled by traffic signals is different than intersections controlled by stop signs as described in the following sections.

Signalized Intersections

The analysis determines a level of service that quantitatively describes the operating characteristics of signalized intersections. Level of service is defined by the control delay of all vehicles passing through the intersection that is attributed to the traffic signal. *Table 2-1* provides the HCM 2010 LOS thresholds for signalized intersections.

Table 2-1: HCM 2010 – LOS Criteria for Signalized Intersections

LOS	Control Delay per Vehicle (s/veh)
A	≤ 10
B	> 10 and ≤ 20
C	> 20 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Source: Highway Capacity Manual, 2010.

Unsignalized Intersections

Table 2-2 provides the HCM 2010 LOS thresholds for one way stop controlled (OWSC), two way stop controlled (TWSC), and all way stop controlled (AWSC) intersections. The performance measure defining level of service is control delay similar to signalized intersections, however, the delay at OWSC and TWSC intersections is computed for each movement and identifies the most critical (or worst) movement to define LOS for the entire intersection. The critical movement is typically the stop controlled left turn or through movement from the minor street. At AWSC intersections, the average control delay of the entire intersection defines LOS since each movement can proceed in a sequential manner.

Table 2-2: HCM 2010 – LOS Criteria for OWSC, TWSC, and AWSC

LOS	Average Control Delay per Vehicle (s/veh)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Source: Highway Capacity Manual, 2010.

1 Trafficware Ltd, version 10.

2 Transportation Research Board, Washington D.C., 2010.

Level of Significance

The City of Lake Elsinore has adopted a LOS "D" as the minimum acceptable level of service at intersections within the City's jurisdiction regardless of type of control, and require mitigation if a development project causes the LOS to degrade below this minimum or pay a fair-share of the mitigation if a development project contributes to a degraded LOS under cumulative conditions.

Caltrans' Traffic Impact Guidelines [3] identifies a minimum target level of service is the transition between LOS C and D on State highway facilities. At intersections, this minimum level of service is applied to signalized intersections and ramp terminals and is considered the State standard. However, the State recognizes that this standard may not be achievable—particularly in suburban and urban areas—and therefore recommends that the lead agency consult with Caltrans to determine the appropriate target level of service. At a minimum, the existing level of service should be maintained at a Caltrans intersection if it found to be operating below the target level of service without any proposed development.

Existing Traffic Analysis

The existing intersection capacity analysis uses existing intersection geometrics and existing AM and PM peak hour traffic counts to determine level of service. The *Table 2-3* and *APPENDIX B* provide the results of the analysis.

Table 2-3: Intersection Capacity Analysis - Existing Conditions

Intersection		Weekday AM Peak Hour		Weekday PM Peak Hour		Saturday Peak Hour	
		Delay (1)	LOS (2)	Delay (1)	LOS (2)	Delay (1)	LOS (2)
1	Collier Avenue at Central Avenue	29.9	C	43.8	D	44.9	D
2	Collier Avenue at Crane Street (3)	23.6	C	31.6	D	14.4	B
5	I-15 SB Ramps at Central Avenue	42.0	D	23.8	C	17.3	B
6	I-15 NB Ramps at Central Avenue	20.3	C	16.7	B	18.1	B

(1) Delay in seconds per vehicle.

(2) LOS = Level of Service.

(3) Currently an unsignalized Intersection.

Source: David Evans and Associates, Inc.

As shown in *Table 2-3*, all of the intersections are operating acceptably during the AM (7:00-9:00 AM), PM (4:00-6:00 PM), and Saturday (1:00-3:00 PM) peak periods.

3 *Guide for the Preparation of Traffic Impact Studies*. State of California Department of Transportation (Caltrans). Sacramento, California. December, 2002.

3 EXISTING PLUS PROJECT CONDITIONS

The Existing plus Project Conditions scenario identifies the project's impacts if it were built today. This section describes the estimated trip generation of the project and the Existing Plus Project analysis.

Project Trip Generation

To identify potential traffic impacts, trip generation rates are applied to the proposed land uses to estimate project vehicle trips. Trip generation rates for the Automobile Sales (ITE Land Use Category 840) obtained from the Institute of Transportation Engineers (ITE) Trip Generation manual, 10th Edition.

Table 3-1 summarizes the estimated trip generation for the project site during the weekday AM peak hour (7-9 AM), the weekday PM peak hour (4-6 PM), and the Saturday peak hour (1:00-3:00 PM) for automobile sales land uses.

Table 3-1: Project Trip Generation

Use	Daily	Weekday AM Peak Hour			Weekday PM Peak Hour			Saturday Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
Automobile Sales										
Trip Generation Rates (ITE 840) Per 1,000 Sq. Ft GFA	27.84	1.37	0.50	1.87	0.97	1.46	2.43	2.01	2.01	4.02
Project Trip Generation 53,425 Sq. Ft GFA	1,487	73	27	100	52	78	130	107	107	215

GFA = Gross floor area.

Source: "Trip Generation Manual, Institute of Transportation Engineers", 10th Edition. ITE land use category 840.

As presented in *Table 3-1*, the project would generate 100 primary trips during the AM peak, 130 primary trips during the PM peak, and 215 trips during the Saturday peak periods.

Project Trip Distribution and Assignment

Project trips are distributed by direction and assigned to the local street network. The distribution of the primary project trips are illustrated in *Figure 5*. The project trips assigned to the existing street network are illustrated in *Figure 6*.

Existing Plus Project Traffic Analysis

The intersection capacity analysis of Existing plus Project conditions utilized existing intersection geometrics and the AM and PM peak hour, and Saturday peak traffic volumes shown in *Figure 7*. *Figure 8* illustrates the Existing plus Project Conditions intersection geometrics. *Table 3-2* and APPENDIX B provide the results of the analysis.

① COLLIER AVE / CENTRAL AVE	
25% ↓	50% ↘
	25% ↑ 50% ↗

② COLLIER AVE/ CRANE ST	
75% ↙	40% ↖ 25% ↗
	40% ↑

③ COLLIER AVE / PROJECT DWY "A"	
25% ↓	35% ↖
	5% ↑ 15% ↗

④ COLLIER AVE / PROJECT DWY "B"	
25% ↓	
	15% ↑ 10% ↗

⑤ I-15 SB RAMPS / CENTRAL AVE	
15% ↙	35% ←
35% ↘ 15% ↗	

⑥ I-15 NB RAMPS / CENTRAL AVE	
	20% ←
15% ↘ 20% ↗	15% ↖



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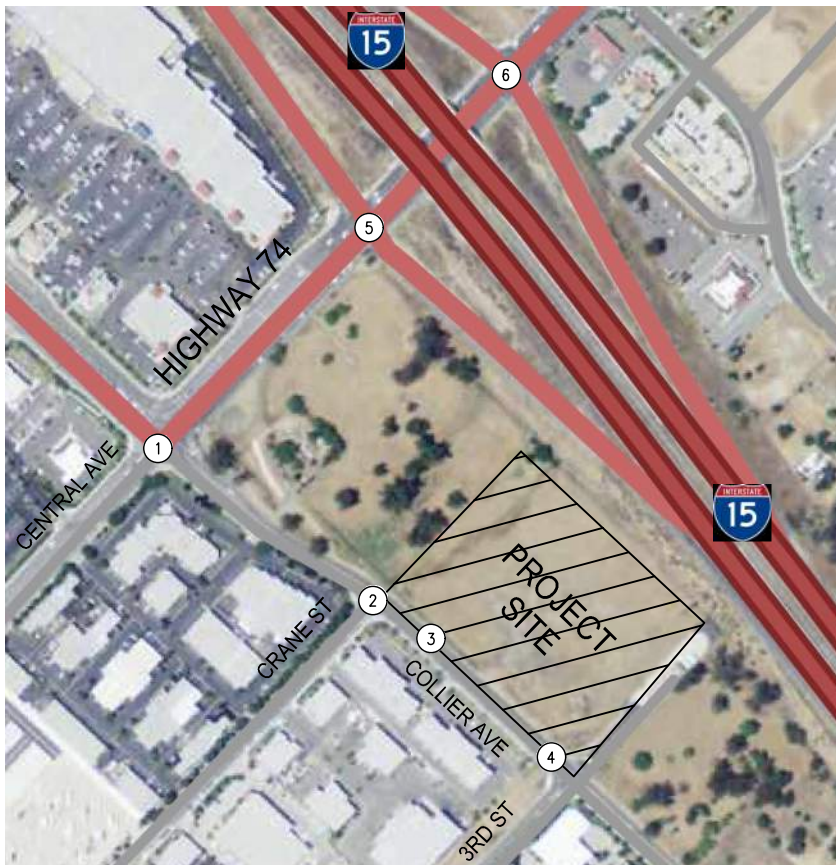
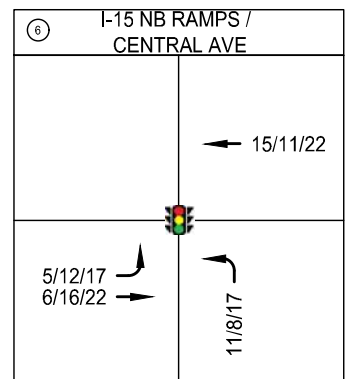
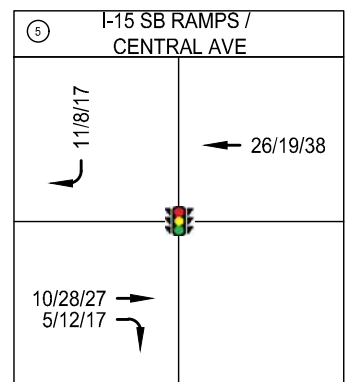
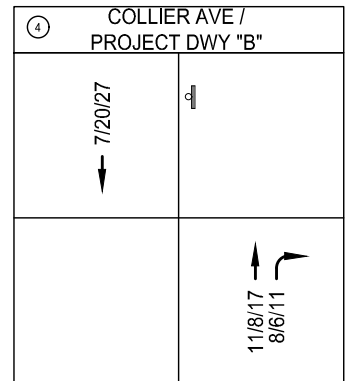
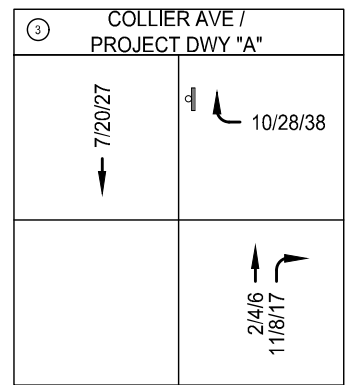
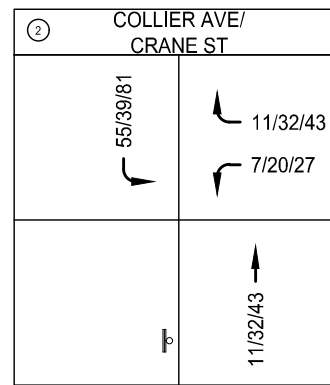
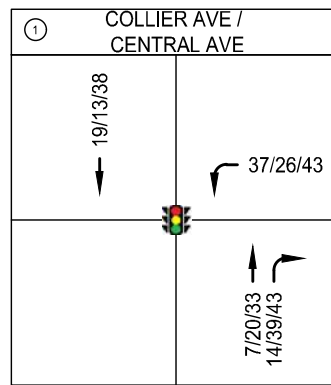
XX% - GENERAL PROJECT TRIP DISTRIBUTION XX/XX/XX

XX% - SPECIFIC PROJECT TRIP PERCENTAGE

① - STUDY INTERSECTIONS

- STOP CONTROLLED INTERSECTION

- SIGNAL CONTROLLED INTERSECTION



PROJECT TRIPS

AM PEAK PERIOD - 73 IN / 27 OUT
 PM PEAK PERIOD - 52 IN / 78 OUT
 SATURDAY PEAK PERIOD - 107 IN / 107 OUT

LEGEND

- XX/XX/XX ↘ - AM/PM/SAT TOTAL PROJECT TRIPS
 ① - STUDY INTERSECTIONS
 d | - STOP CONTROLLED INTERSECTION
 🚦 - SIGNAL CONTROLLED INTERSECTION

Table 3-2: Intersection Capacity Analysis – Existing Plus Project Conditions

Intersection	Weekday AM Peak Hour		Weekday PM Peak Hour		Saturday Peak Hour	
	Delay (1)	LOS (2)	Delay (1)	LOS (2)	Delay (1)	LOS (2)
1 Collier Avenue at Central Avenue	30.2	C	45.7	D	51.2	D
2 Collier Avenue at Crane Street/ Project Driveway (4) With Committed Intersection Improvements (3)	36.8 8.8	E A	72.3 11.9	F B	23.4 12.9	C B
3 Collier Avenue at Project Driveway "A" (4)	11.6	B	10.6	B	10.5	B
5 I-15 SB Ramps at Central Avenue	42.6	D	24.5	C	18.1	B
6 I-15 NB Ramps at Central Avenue	20.7	C	16.9	B	18.5	B

(1) Delay in seconds per vehicle.

(2) LOS = Level of Service.

(3) See Section 3 discussion on planned, committed and funded transportation improvements.

(4) Unsignalized intersection.

Source: David Evans and Associates, Inc.

As provided in *Table 3-2* under Existing Plus Project Condition, the study intersections would continue to operate acceptably with existing and currently under construction traffic control and lane geometrics.

Planned, Committed and Funded Transportation Improvements

This section describes intersection and roadway improvements that are anticipated to be implemented by others under either existing or future cumulative conditions. The improvements and their sources are described below:

- 1) **Collier Avenue at Crane Street/Private Driveway.** The installation of a traffic signal at the intersection of Collier Avenue / Crane Street / Private Driveway is a conditioned improvement required of the Central Plaza development (the property immediately to north of the proposed project) currently under construction. As such, the traffic signal is considered a quasi-funded and committed improvement and is anticipated to be completed before opening day of the Central Plaza development. The mitigation measure for this intersection that includes:
 - a. Construction of the east leg a Private Driveway providing access to the Central Plaza development (Central Plaza is responsible for constructing half of the private driveway and the proposed project is responsible for the other half).
 - b. Modify the lane configuration on all approaches to accommodate movements into and out of the new private driveway including an exclusive left-turn lane and a shared through-right lane on the westbound and northbound approaches; an exclusive left-turn lane, a through lane, and a shared through-right lane on the southbound approach, and a single shared left-through-right lane on the westbound approach.
 - c. Install a traffic signal.

The improvements above are project specific improvements for the Central Plaza development under construction concurrent to the construction of the development. Therefore, the analysis in this report assumes this improvement is implemented under the Existing Plus Project scenario.

These improvements are illustrated in *Figure 8*.

- 2) **Collier Avenue at Central Avenue.** The Central Plaza development proposed improvements along its frontage with Collier Avenue and the intersection of Collier Avenue/Central Avenue that include:
 - a. Widen the northbound Collier Avenue approach to Collier Avenue/Central Avenue intersection to provide an additional northbound through lane, an additional right-turn lane, and modify the signal phasing to provide a northbound and a westbound right-turn overlap.
- 3) **Central Avenue at I-15 Southbound Ramps.** The Central Plaza development proposed improvements along its frontage with Central Avenue and the intersection of Central Avenue/I-15 Southbound Ramps that include:
 - a. Widen Central Avenue along the development's frontage between Collier Avenue and the I-15 Southbound Ramps to add an eastbound travel lane, and reconfigure the eastbound approach of the intersection to provide three through lanes and an exclusive right turn lane.

These improvements are under construction concurrent to the construction of the development. The analysis in this report identifies that the intersection does not incur impacts until Cumulative Conditions. The improvements above are off-site improvements conditioned for the Central Plaza development. Therefore, the analysis in this report assumes this improvement is implemented under the Future Cumulative Condition scenario.

These improvements are illustrated in *Figure 12*.

① COLLIER AVE / CENTRAL AVE	
12/73/156 81/185/184 737/785/991	532/339/695 217/288/231 545/257/116
24/156/221 67/350/265 20/76/73	35/68/47 67/245/190 285/339/160

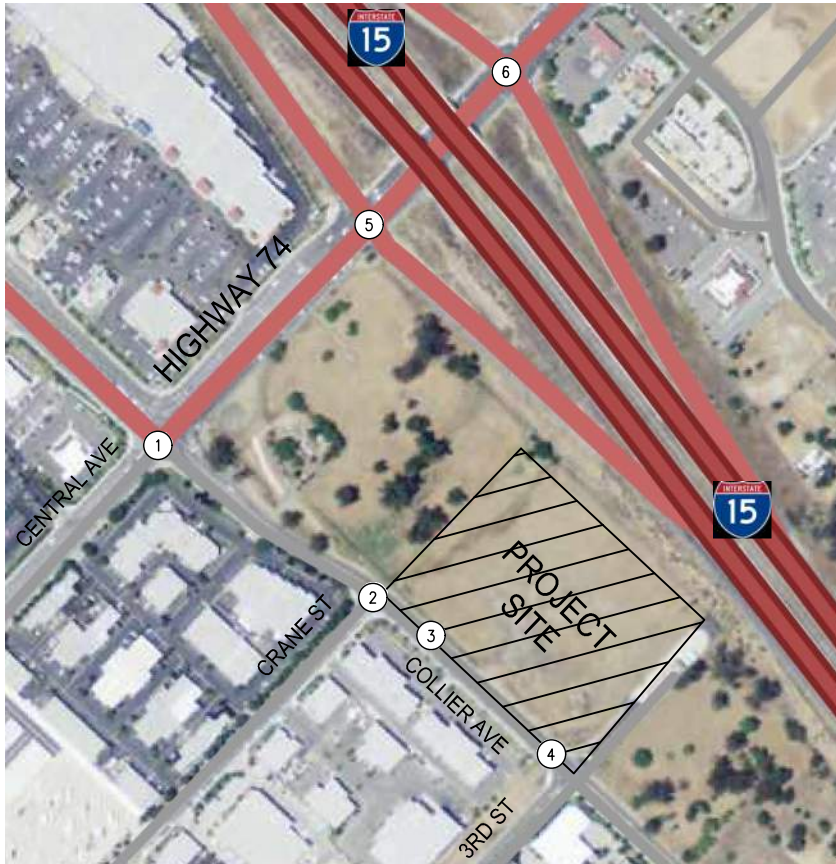
② COLLIER AVE/ CRANE ST	
93/27/10 532/453/303 55/39/81	11/32/43 7/20/27
6/50/14 7/19/8	23/12/15 422/575/341 0/0/0

③ COLLIER AVE / PROJECT DWY "A"	
546/492/338	10/28/38
	436/559/319 11/8/17

④ COLLIER AVE / PROJECT DWY "B"	
546/492/338	
	445/563/330 8/6/11

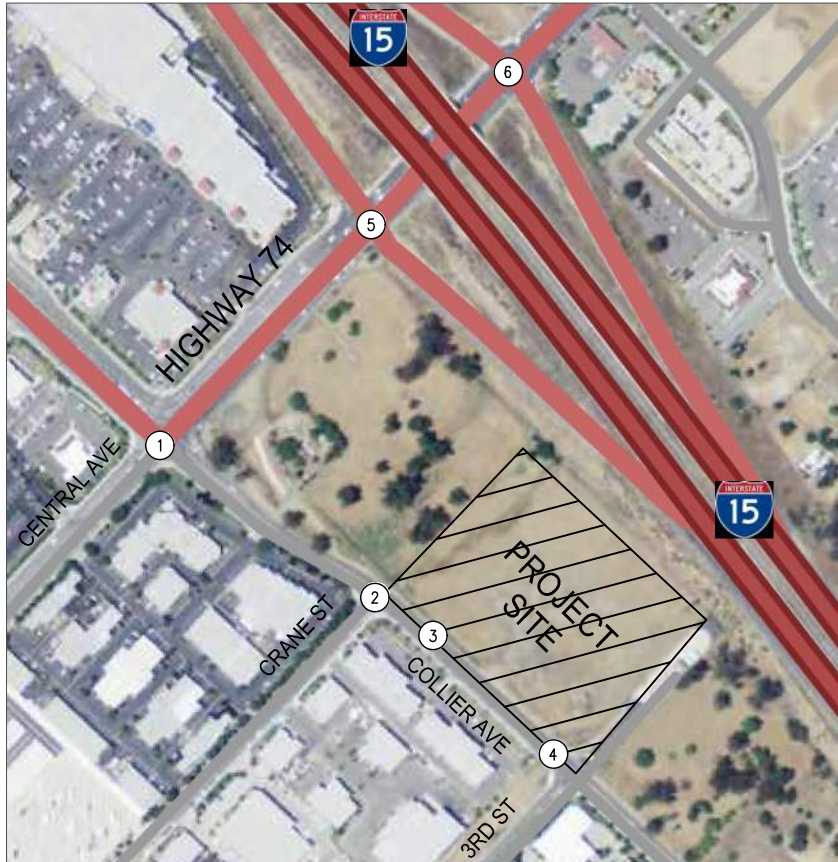
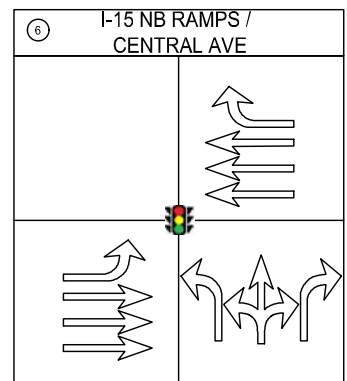
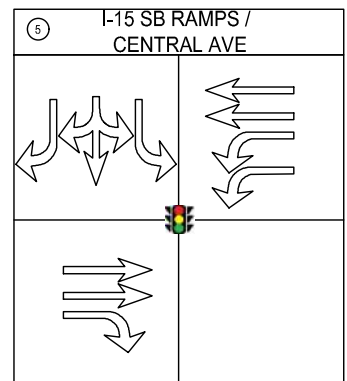
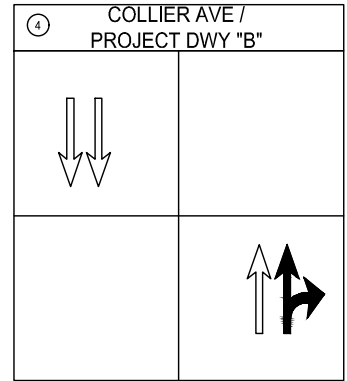
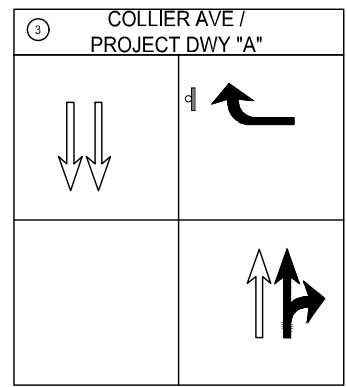
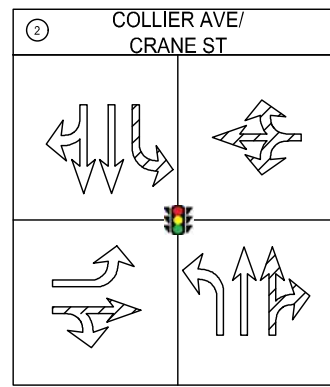
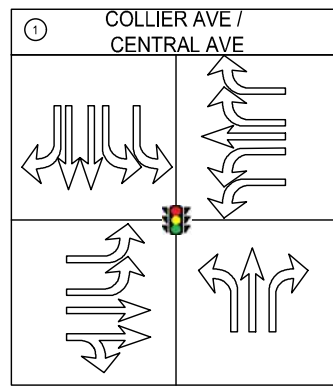
⑤ I-15 SB RAMPS / CENTRAL AVE	
167/128/138 5/1/1 258/499/311	1122/793/918 619/328/442
514/984/922 580/472/510	

⑥ I-15 NB RAMPS / CENTRAL AVE	
	484/279/410 1268/706/937
73/109/92 698/1374/1164	475/429/479 14/4/2 499/548/610

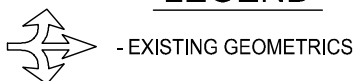


LEGEND

- XX/XX/XX ↗ - AM/PM/SAT TOTAL PROJECT TRIPS
- ① - STUDY INTERSECTIONS
- ⊥ - STOP CONTROLLED INTERSECTION
- 🚦 - SIGNAL CONTROLLED INTERSECTION



LEGEND



4 PROJECT TRAFFIC CONDITIONS

The proposed project is anticipated to open in the Year 2019. The Project Conditions scenario evaluates impacts due to the project plus ambient growth in traffic within the study area up to the Project Buildout Year of 2019. Typically, ambient growth in traffic ranges from 1% to 2% annually—the ambient growth in traffic in this report uses a 2% annual rate of growth applied to the traffic volumes projected under the Existing Plus Project scenario.

Project Traffic Analysis

The intersection capacity analysis of Project Conditions utilized the existing and currently under construction intersection geometrics described in Section 3 for the Existing Plus Project scenario and the section on planned, committed and funded transportation improvements, as well as the projected AM and PM peak hour traffic volumes shown in *Figure 9*. The results of the analysis are shown in Table 4-1 and provided in APPENDIX B of this report.

Table 4-1: Intersection Capacity Analysis – Project Conditions

	Intersection	Weekday AM Peak Hour		Weekday PM Peak Hour		Saturday Peak Hour	
		Delay (1)	LOS (2)	Delay (1)	LOS (2)	Delay (1)	LOS (2)
1	Collier Avenue at Central Avenue	30.8	C	47.7	D	54.0	D
2	Collier Avenue at Crane Street/ Project Driveway (4)	38.6	E	79.8	F	24.1	C
	With Committed Intersection Improvements (3)	8.9	A	12.0	B	12.9	B
3	Collier Avenue at Project Driveway “A” (4)	11.7	B	10.7	B	10.5	B
5	I-15 SB Ramps at Central Avenue	45.0	D	25.5	C	18.5	B
6	I-15 NB Ramps at Central Avenue	21.5	C	17.3	B	18.3	B

(1) Delay in seconds per vehicle.

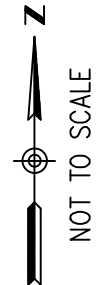
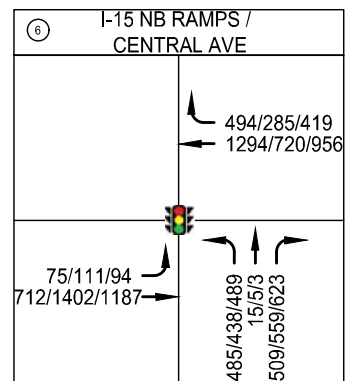
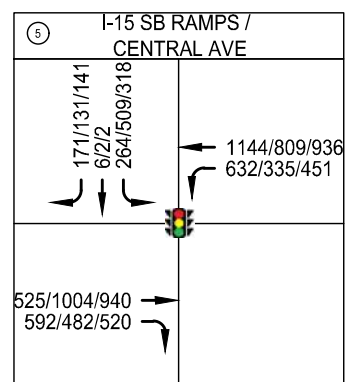
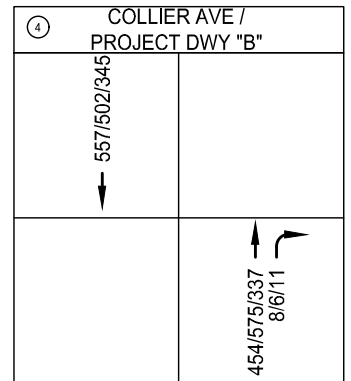
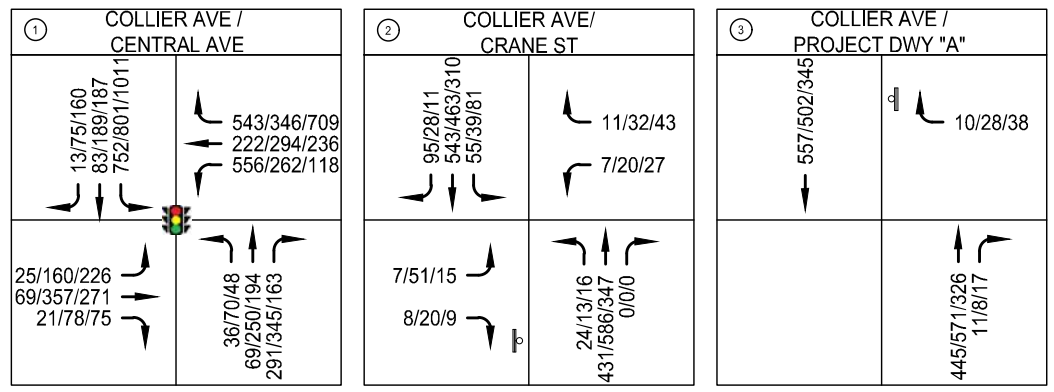
(2) LOS = Level of Service.

(3) See Section 3 discussion on planned, committed and funded transportation improvements.

(4) Unsignalized intersection.

Source: David Evans and Associates, Inc.

As shown in Table 4-1, the study intersections would continue to operate acceptably with the existing geometrics and currently under construction traffic control and intersection modifications. See Section 3 for a description of the improvements relevant to this scenario.



LEGEND

- XX/XX/XX ↗ - AM/PM/SAT TOTAL PROJECT TRIPS
- ① - STUDY INTERSECTIONS
- ⊥ - STOP CONTROLLED INTERSECTION
- 🚦 - SIGNAL CONTROLLED INTERSECTION



HONDA DEALERSHIP
LAKE ELSINORE, CA
FIGURE 9: OPENING YEAR WITH
PROJECT TRAFFIC VOLUMES

5 CUMULATIVE CONDITIONS

The Cumulative Conditions scenario evaluates potential project impacts cumulatively with ambient traffic growth, and growth in traffic from development that has been approved but not yet constructed. Traffic estimated from cumulative development is added to the traffic projections developed for the Project Conditions scenario described in Section 4.

Cumulative Development

The estimated AM and PM peak period trip generation for cumulative development is from the Central Plaza Traffic Impact Study (4). *Figure 10* shows the location of the cumulative development and the estimated trips distributed and assigned to the study intersections. Relevant excerpts from Central Plaza Traffic Impact Study are provided in the *APPENDIX C*.

Table 5-1: Estimated Trip Generation for Cumulative Development

	Project Name	Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
1	Spyglass Ranch	12,165	197	409	606	647	503	1,150
2	South Shore I & II	8,768	173	518	691	580	341	921
3	La Strada	1,276	25	75	100	84	50	134
4	TAG Property	1,615	72	24	96	52	79	131
5	City Center Condos	837	11	53	64	50	25	75
6	Diamond Specific Plan	29,554	956	504	1,460	1,204	1,584	2,788
7	The Colony, TAG Property, John Laing Homes (Phase 2)	44,690	778	2,429	3,207	2,763	1,669	4,301
8	Summerly	1,352	27	80	107	89	53	142
9	Beazer, KB Homes, McMillin Homes, Richmond American	3759	75	223	298	249	146	395
10	LE Sports Complex	17,756	710	366	1,076	705	734	1,439
11	Greenwald	4,460	62	38	100	186	202	388
12	Ramsgate	13,130	254	779	1,033	865	604	1,369
13	Canyon Hills Estates	2,875	57	170	227	190	112	302
14	Canyon Hills	45,727	855	2,726	3,581	2,968	1,712	4,680
15	Marina Village Condos	546	7	34	41	33	16	49
16	Lakeshore Town Center	10,137	141	87	228	423	458	881
17	Lake Elsinore Walmart	11,723	339	256	595	412	417	829
18	Alberhill Ridge	48,829	1,569	1,110	2,679	2,185	2,616	4,801
19	Alberhill Ranch	18,907	372	1,117	1,489	1,251	735	1,986
20	Terracina	3,475	68	205	273	230	135	365
21	Alberhill Villages	158,189	4,875	5,258	10,133	7,850	7,665	15,515
22	Wakerider	2,201	73	60	133	88	71	159
23	Village at Lakeshore	947	12	60	72	57	28	85
24	Circle K	1,834	72	70	142	85	81	166
25	Golden Corral	992	46	38	84	46	31	77
26	La Quinta Inn	523	20	14	34	20	19	39
27	Ness Industrial Garage	84	10	1	11	1	10	11
28	Fairway Business Park	1,952	227	31	258	33	239	272
29	Trieste	714	14	42	56	47	28	75
30	Central Plaza	7,590	255	203	458	243	236	479
	Total Trip Generation	456,607	12,352	16,980	29,332	23,636	20,599	44,004

① COLLIER AVE / CENTRAL AVE	
50/38 221/318	221/277 5/8 391/234
7/8	53/71 72/309

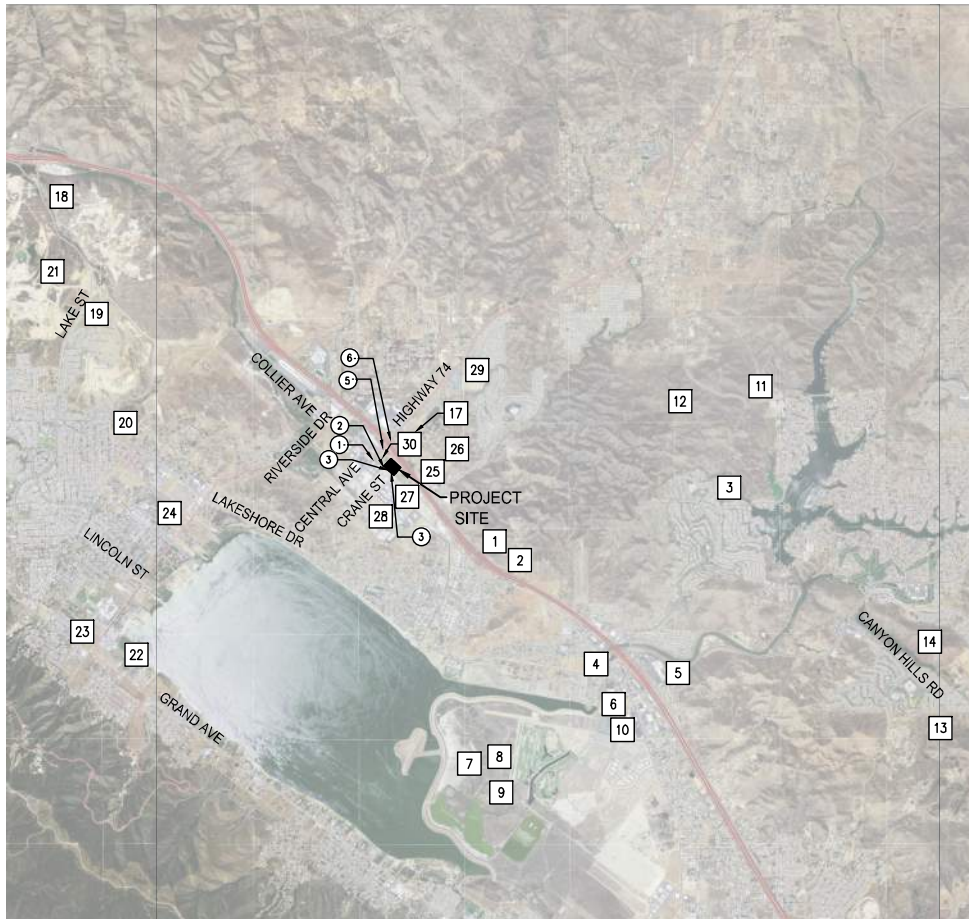
② COLLIER AVE/ CRANE ST	
55/39/81	11/32/43 7/20/27
	11/32/43

③ COLLIER AVE / PROJECT DWY "A"	
250/90	10/12 30/35
	91/334

④ COLLIER AVE / PROJECT DWY "B"	
280/125	
	91/334

⑤ I-15 SB RAMPS / CENTRAL AVE	
114/56 129/239	459/408 182/208
258/534 78/142	

⑥ I-15 NB RAMPS / CENTRAL AVE	
	172/191 504/525
50/115 338/658	137/91 142/255



LEGEND

- XX/XX/XX ↗ - AM/PM/SAT TOTAL PROJECT TRIPS
- ① - STUDY INTERSECTIONS
- # - OTHER AREA PROJECTS
- ⊥ - STOP CONTROLLED INTERSECTION
- 🚦 - SIGNAL CONTROLLED INTERSECTION

Cumulative Traffic Analysis

The intersection capacity analysis of Cumulative Conditions utilized the projected AM and PM peak hour traffic volumes shown in *Figure 11*, and the intersection geometrics described in Section 3 for the Existing Plus Project scenario and the section on planned, committed and funded transportation improvements and shown in *Figure 12*. The results of the analysis are shown in *Table 5-2* and provided in APPENDIX B of this report.

Table 5-2: Intersection Capacity Analysis – Cumulative Conditions

Intersection		Weekday AM Peak Hour		Weekday PM Peak Hour		Saturday Peak Hour	
		Delay (1)	LOS (2)	Delay (1)	LOS (2)	Delay (1)	LOS (2)
1	Collier Avenue at Central Avenue With Committed Intersection Improvements (3)	79.0 44.5	E D	104.2 41.8	F D	55.6 27.6	D C
2	Collier Avenue at Crane Street/ Project Driveway (4) With Committed Intersection Improvements (3)	63.3 16.5	F B	243.1 14.5	F B	23.7 12.4	C B
3	Collier Avenue at Project Driveway "A" (4)	12.0	B	12.1	B	10.5	B
5	I-15 SB Ramps at Central Avenue With Committed Intersection Improvements (3)	53.5 44.8	D D	59.7 39.0	E D	19.2 21.8	B C
6	I-15 NB Ramps at Central Avenue	43.2	D	53.8	D	18.5	B

(1) Delay in seconds per vehicle.

(2) LOS = Level of Service.

(3) See Section 3 discussion on planned, committed and funded transportation improvements.

(4) Unsignalized intersection.

Source: David Evans and Associates, Inc.

As presented in *Table 5-2*, the study intersections would operate acceptably with either existing geometrics, or with implementation of committed intersection improvements.

① COLLIER AVE / CENTRAL AVE	
13/75/160 133/227/187 973/1119/1011	764/623/709 227/302/236 947/496/118
25/160/226 76/365/271 21/78/75	36/70/48 122/321/194 363/654/163

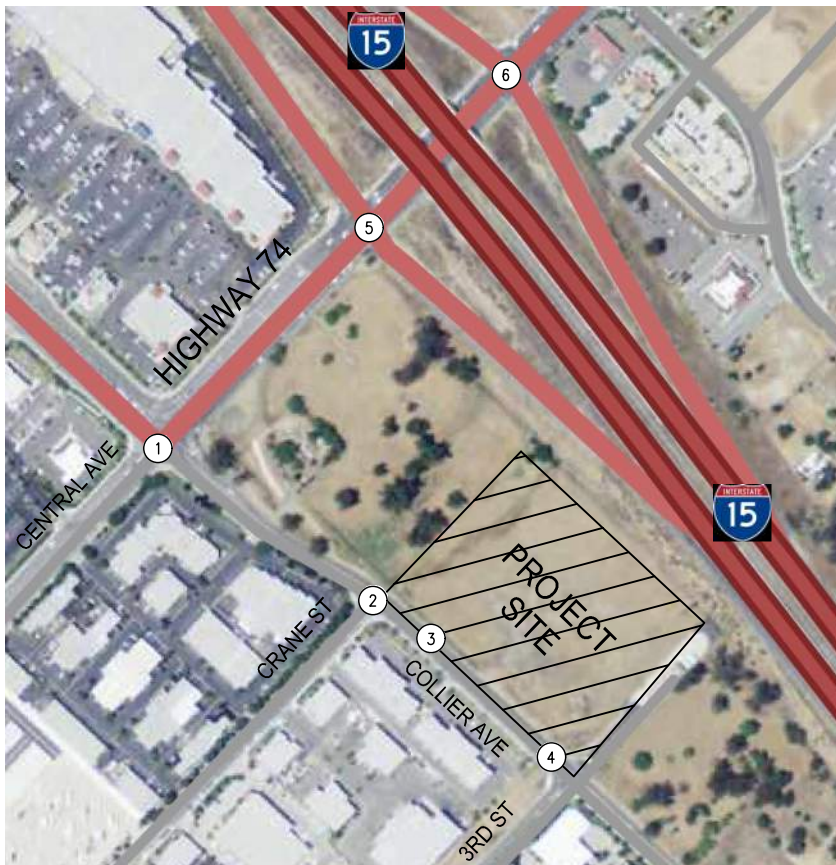
② COLLIER AVE/ CRANE ST	
95/28/11 793/553/310 55/39/81	21/44/43 37/55/27
7/51/15 8/20/9	24/13/16 522/920/347 0/0/0

③ COLLIER AVE / PROJECT DWY "A"	
837/627/345	10/28/38
	536/905/326 11/8/17

④ COLLIER AVE / PROJECT DWY "B"	
837/627/345	
	545/909/337 8/6/11

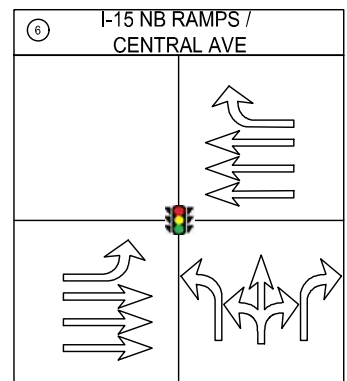
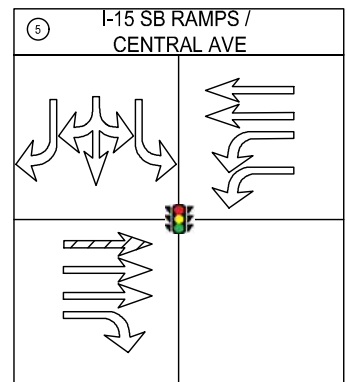
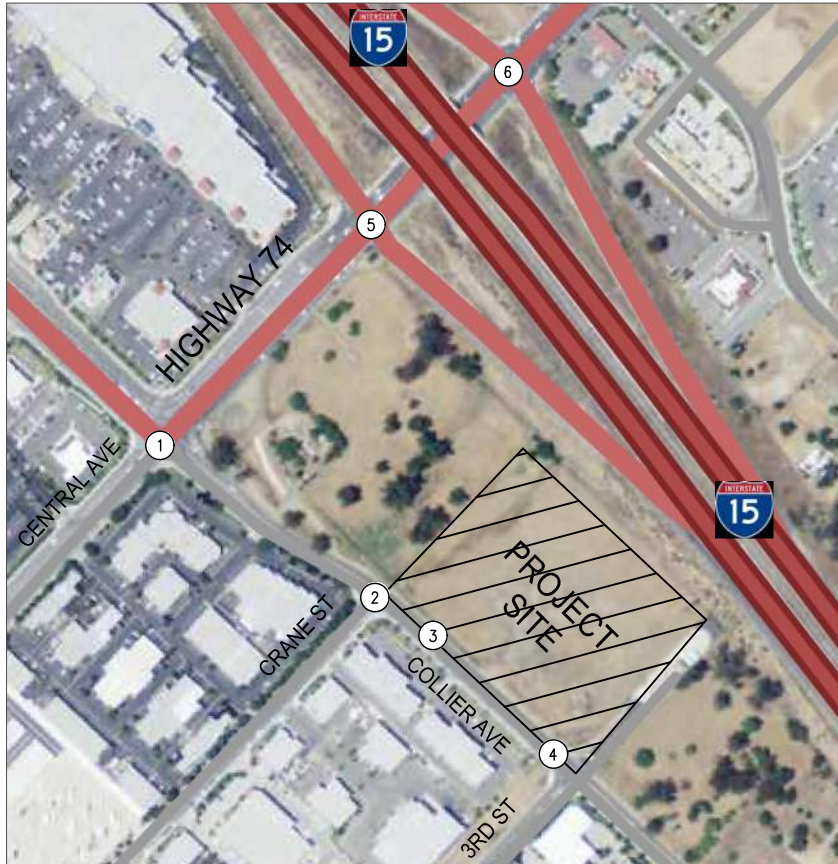
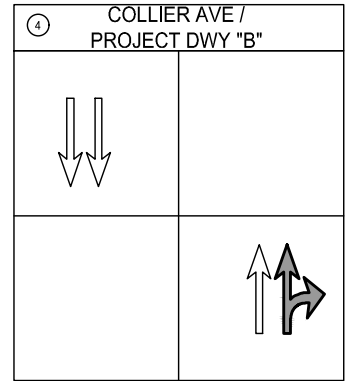
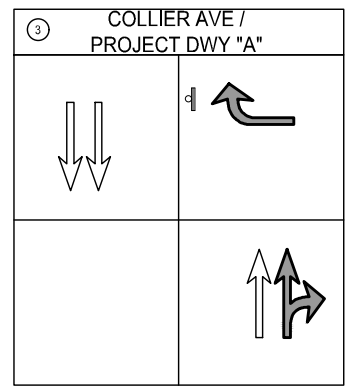
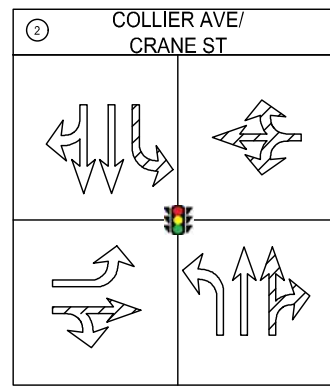
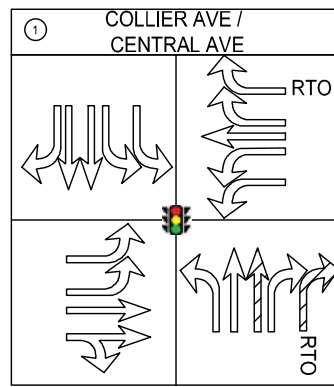
⑤ I-15 SB RAMP / CENTRAL AVE	
285/187/141 6/2/2 393/748/318	1603/1217/936 814/543/451
783/1538/940 670/624/520	

⑥ I-15 NB RAMP / CENTRAL AVE	
	666/476/419 1798/1245/956
125/226/94 1050/2060/1187	622/529/489 15/5/3 651/814/623

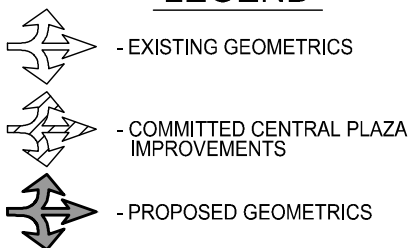


LEGEND

- XX/XX/XX ↗ - AM/PM/SAT TOTAL PROJECT TRIPS
- ① - STUDY INTERSECTIONS
- ⊥ - STOP CONTROLLED INTERSECTION
- 🚦 - SIGNAL CONTROLLED INTERSECTION



LEGEND



- RTO - RIGHT TURN OVERLAP
- ① - STUDY INTERSECTIONS
- ⓪ - STOP CONTROLLED INTERSECTION
- 🚦 - SIGNAL CONTROLLED INTERSECTION

6 PROJECT MITIGATION AND SUMMARY

In summary, the project will have impact on one study intersection under Existing Plus Project and Opening Year Plus Project Conditions. The study intersections would operate acceptably with either existing geometrics or after implementation of committed intersection improvements. Therefore, there are no required off-site mitigation measures.

Project Specific Improvements

Specific improvements to accommodate traffic and site access are shown in *Figure 13* and described below:

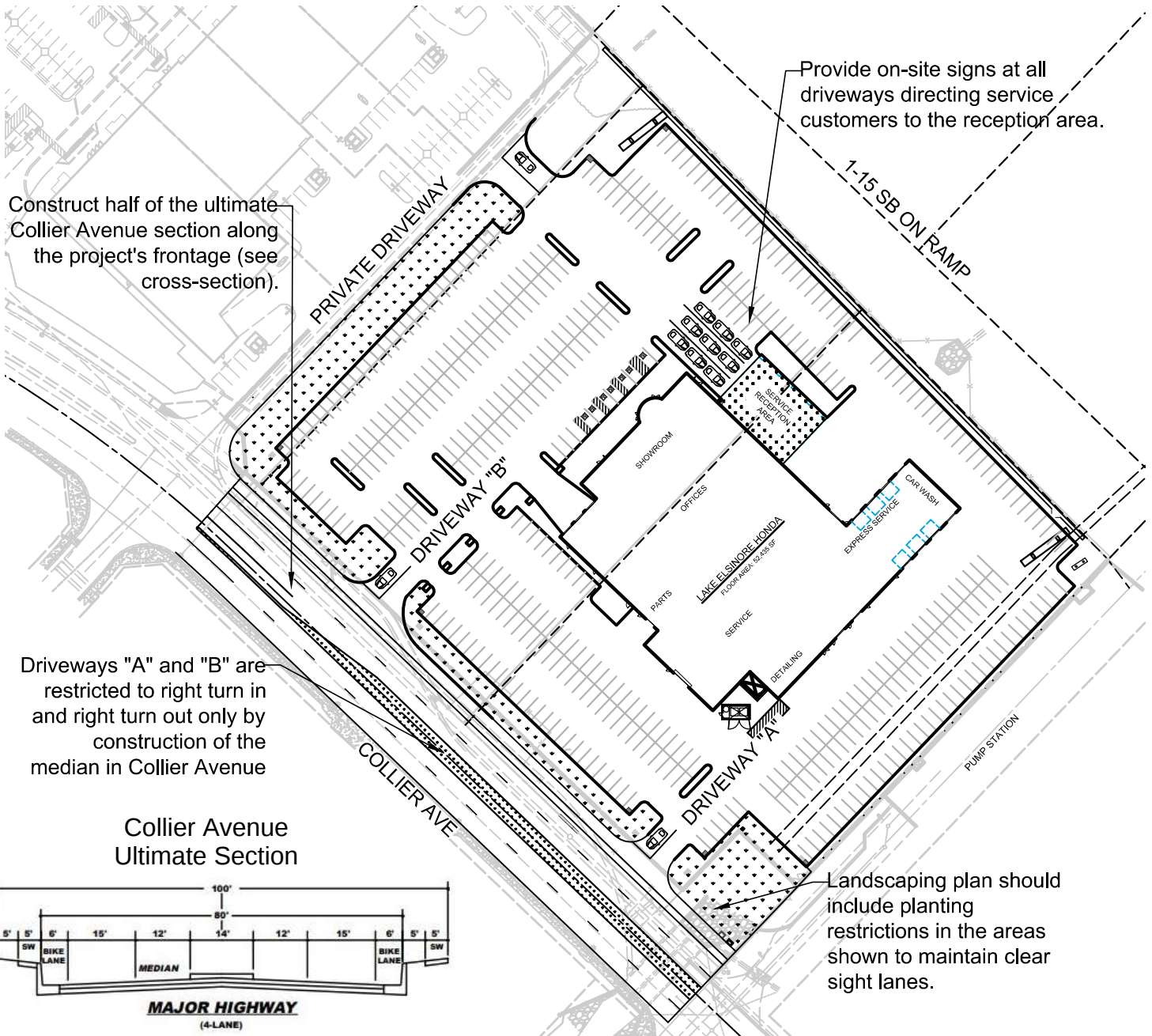
1. Construct half of the ultimate Collier Avenue section along the project's frontage (See cross-section in *Figure 13*).
 - a. Driveways "A" and "B" are restricted to right turn in and right turn out only by construction of the median in Collier Avenue.
 - b. Driveways accessing Collier Avenue and Crane Street/Private Driveway require standard pavement markings and signage conforming to the standards in the California Manual on Uniform Traffic Control Devices.
2. Provide driveway access to Private Driveway. The ultimate width of Private Driveway is being constructed by the adjacent commercial development.
3. The landscaping plan should include planting restrictions in the areas shown to maintain clear sight lanes. See recommended clear sight distances in *Figure 13*.
4. Provide on-site signs at driveway entries directing service customers to the service reception area shown in *Figure 13*.
5. Pay required Transportation Uniform Mitigation Fee (TUMF).

Fair-Share Project Improvements

The installation of a traffic signal at the intersection of Collier Avenue / Crane Street / Private Driveway is a conditioned improvement required of the Central Plaza development currently under construction. As such, the traffic signal is considered a quasi-funded and committed improvement and is anticipated to be completed before opening day of the Central Plaza development. *APPENDIX D* provides the current project status for the Central Plaza development obtained from the Engineer of record for the project

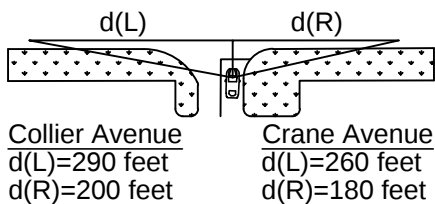
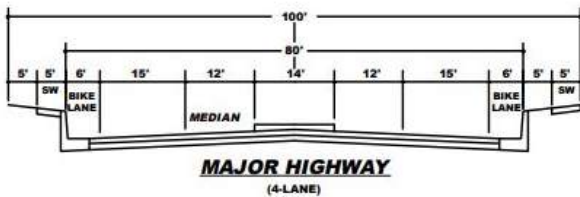
A traffic signal is required at the intersection of Collier Avenue / Crane Street / Private Driveway for the project to have no impact under Existing + Project, Project Opening Day and Cumulative scenarios. Therefore, in the event the Central Plaza development does not implement the traffic signal at the Collier Avenue / Crane Street / Private Driveway prior to the project's opening day, the project may be required to implement the traffic signal and be reimbursed through a fair-share agreement with the Central Plaza development. The fair-share responsibility of the project and the Central Plaza development is based on the proportion of weekday PM peak hour trips using the intersection by each development as shown in the calculation below.

Project Fair Share Percent of Collier / Crane / Driveway Traffic Signal	=	$\frac{\text{Project PM Peak Hour Traffic}}{(\text{Central Plaza} + \text{Project PM Peak Hour Traffic})}$	=	$\frac{123}{(80+123)}$	=	61%
--	---	--	---	------------------------	---	-----



Driveways "A" and "B" are restricted to right turn in and right turn out only by construction of the median in Collier Avenue

Collier Avenue Ultimate Section



Clear sight Lines at Driveways

The corridor defined by the limits of clear sight is a restricted planting area. Drivers of vehicle on the intersecting driveway and vehicles on the major roadway must be able to see each other clearly throughout the limits of d(L) and d(R). Plants within the restricted area should be limited to ground covers that do not exceed a height of 18 inches when mature and trees with a mature trunk diameter of 4 inches measured 6 inches from the ground and canopy foliage 8 to 9 feet above the ground, and spaced no closer than 20 feet.

7 APPENDICES

APPENDIX A: APPROVED SCOPE AGREEMENT

APPENDIX B: INTERSECTION CAPACITY ANALYSIS CALCULATIONS

APPENDIX C: OTHER AREA PROJECTS

APPENDIX D: CENTRAL PLAZA DEVELOPMENT PROJECT STATUS MEMO



APPENDIX B: INTERSECTION CAPACITY ANALYSIS CALCULATIONS



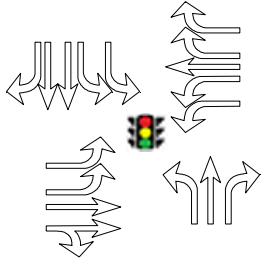
DAVID EVANS
AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET	OF
TURN MOVEMENTS	MMI	3-Apr-18	DLRCSRZY-0001	1	OF 2

E/W STREET : CENTRAL AVE
N/S STREET : COLLIER AVE
CONDITION : AM PEAK HOUR

INTERSECTION : 1
PROJECTED GROWTH : 2%
PER YEAR :

CONDITION DIAGRAMS



EXISTING GEOMETRICS

TURN MOVEMENTS

Condition	Existing Condition Traffic	Project Trips	Existing + Project Condition Traffic	Ambient Growth	Project Condition Traffic	Related Projects	Cumulative Condition Traffic
Scenario #	1		4		7		10

CENTRAL AVE

EB LEFT	24	0	24	1	25	0	25
EB THRU	67	0	67	2	69	7	76
EB RIGHT	20	0	20	1	21	0	21
WB LEFT	508	37	545	11	556	391	947
WB THRU	217	0	217	5	222	5	227
WB RIGHT	532	0	532	11	543	221	764

COLLIER AVE

NB LEFT	35	0	35	1	36	0	36
NB THRU	60	7	67	2	69	53	122
NB RIGHT	271	14	285	6	291	72	363
SB LEFT	737	0	737	15	752	221	973
SB THRU	62	19	81	2	83	50	133
SB RIGHT	12	0	12	1	13	0	13
TOTALS	2545	77	2622	58	2680	1020	3700

Los Angeles: 213.785.7887 ~ Ontario: 909.481.5750 ~ San Diego: 619.400.0600 ~ Santa Clarita: 661.284.7400 ~

Temecula: 951.294.9300 ~ Tustin: 714.665.4500 ~ Victorville: 760.524.9100



DAVID EVANS
AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN VOLUME SUMMARY	TM	3-Apr-18	DLRCSRZY-0001	2 OF 2

E/W STREET : CENTRAL AVE
CONDITION : AM PEAK HOUR

N/S STREET : COLLIER AVE
PHF : 0.91

NORTH LEG								
LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	3	1	0	0	0	0	3
0	1	0	0	0	0	0	0	0
2	0	0	0	0	1	0	0	2
0	0	3	0	0	1	1	0	2

SOUTH LEG								
LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	1	1	0
2	2	0	2	0	0	0	1	0
1	1	0	0	0	0	1	0	0
3	1	0	2	0	0	1	1	0

EAST LEG								
LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	3	0	1
2	0	5	2	0	0	2	0	0
3	1	2	1	0	0	1	1	0
5	2	3	2	1	0	2	1	1

WEST LEG								
LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	1	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	2	0	0	0	0	0	0	0
0	0	0	0	0	0	1	1	0

NORTH LEG			SOUTH LEG			EAST LEG			WEST LEG		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
1	12	162	60	10	6	131	31	112	2	12	6
4	16	186	79	4	11	124	70	166	3	16	3
0	18	221	61	8	9	117	50	117	6	11	7
3	15	153	58	31	9	137	60	101	8	24	8

TRUCK TOTAL	AUTO VOLUMES	TOTALS	TRUCK PERCENTAGE
-------------	--------------	--------	------------------

CENTRAL AVE

EB LEFT	0	24	24	1%
EB THRU	4	63	67	6%
EB RIGHT	1	19	20	5%
WB LEFT	12	496	508	1%
WB THRU	6	211	217	3%
WB RIGHT	23	509	532	4%

COLLIER AVE

NB LEFT	0	35	35	1%
NB THRU	7	53	60	12%
NB RIGHT	13	258	271	5%
SB LEFT	15	722	737	1%
SB THRU	1	61	62	1%
SB RIGHT	4	8	12	33%

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: COLLIER AVE
 EAST-WEST STREET: CENTRAL
 JURISDICTION: LAKE ELSINORE

DATE: 02-22-18

PEAK HOUR: 07:00AM

NORTH LEG

TOTAL: 811

12	62	737
2	12	168
4	17	186
2	18	224
4	15	159

Total

1st

2nd

3rd

4th

Rt Thru Lt

EAST LEG TOTAL: 1,257

Rt	134	130	122	146	532
Thru	31	70	52	64	217
Lt	113	171	119	105	508

Total 1st 2nd 3rd 4th

24	6	3	7	8
67	13	16	13	25
20	2	3	6	9

Lt

Thru

Rt

1st 2nd 3rd 4th Total

WEST LEG TOTAL: 111

PEAK HOUR FACTORS

NORTH LEG = 0.83

SOUTH LEG = 0.86

EAST LEG = 0.85

WEST LEG = 0.66

ALL LEGS = 0.91

Lt Thru Rt

1st	6	11	61
2nd	11	7	83
3rd	9	9	63
4th	9	33	64
Total	35	60	271

TOTAL: 366

SOUTH LEG

HOURLY TOTAL: 2,545

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY

NORTH-SOUTH STREET : COLLIER AVE

LAKE ELSINORE

EAST-WEST STREET : CENTRAL

02-22-18

BEGINNING TIME : 07:00AM

AUTOS			LARGE 2 AXLE			3 AXLE			4 (+) AXLE			TOTALS
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	
NORTH LEG												
1	12	162	0	0	3	1	0	0	0	0	3	182
4	16	186	0	1	0	0	0	0	0	0	0	207
0	18	221	2	0	0	0	0	1	0	0	2	244
3	15	153	0	0	3	0	0	1	1	0	2	178
4	23	107	2	0	3	0	0	2	1	0	3	145
6	13	133	0	0	0	0	0	0	0	0	3	155
4	14	93	2	2	3	2	0	1	2	0	4	127
7	52	87	0	0	0	0	0	0	0	0	0	146
29	163	1142	6	3	12	3	0	5	4	0	17	1384
SOUTH LEG												
60	10	6	0	0	0	0	0	0	1	1	0	78
79	4	11	2	2	0	2	0	0	0	1	0	101
61	8	9	1	1	0	0	0	0	1	0	0	81
58	31	9	3	1	0	2	0	0	1	1	0	106
74	43	0	3	0	2	2	0	1	2	0	2	129
30	26	5	2	1	1	1	0	1	1	1	0	69
31	33	6	3	1	2	2	1	0	2	0	2	83
63	33	6	3	2	0	0	0	0	1	2	1	111
456	188	52	17	8	5	9	1	2	9	6	5	758
EAST LEG												
131	31	112	0	0	0	0	0	0	3	0	1	278
124	70	166	2	0	5	2	0	0	2	0	0	371
117	50	117	3	1	2	1	0	0	1	1	0	293
137	60	101	5	2	3	2	1	0	2	1	1	315
90	4	129	2	3	3	1	1	2	3	0	0	238
113	28	102	3	0	1	2	0	0	1	0	2	252
56	35	52	5	4	5	1	0	1	2	1	2	164
2	44	51	0	0	0	0	1	0	0	0	0	98
770	322	830	20	10	19	9	3	3	14	3	6	2009
WEST LEG												
2	12	6	0	1	0	0	0	0	0	0	0	21
3	16	3	0	0	0	0	0	0	0	0	0	22
6	11	7	0	2	0	0	0	0	0	0	0	26
8	24	8	0	0	0	0	0	0	1	1	0	42
0	4	2	1	1	0	0	2	0	1	1	0	12
2	27	9	1	1	0	0	0	0	0	1	0	41
9	24	2	1	2	0	0	0	0	0	1	0	39
4	12	6	1	0	0	0	0	0	0	0	0	23
34	130	43	4	7	0	0	2	0	2	4	0	226

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: COLLIER AVE

EAST-WEST STREET: CENTRAL

TIME: 07:00AM-08:00AM

DATE: 02-22-18

NORTH LEG

12	62	737	Total
2	12	168	1st
4	17	186	2nd
2	18	224	3rd
4	15	159	4th
Rt	Thru	Lt	

Rt	134	130	122	146	532
Thru	31	70	52	64	217
Lt	113	171	119	105	508
	1st	2nd	3rd	4th	Total

Total 1st 2nd 3rd 4th

24	6	3	7	8	Lt
67	13	16	13	25	Thru
20	2	3	6	9	Rt

	Lt	Thru	Rt
1st	6	11	61
2nd	11	7	83
3rd	9	9	63
4th	9	33	64
Total	35	60	271

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: COLLIER AVE

EAST-WEST STREET: CENTRAL

TIME: 08:00AM-09:00AM

DATE: 02-22-18

NORTH LEG

30	104	439	Total
7	23	115	1st
6	13	136	2nd
10	16	101	3rd
7	52	87	4th
Rt	Thru	Lt	

Rt	96	119	64	2	281
Thru	8	28	40	45	121
Lt	134	105	60	51	350
	1st	2nd	3rd	4th	Total

Total 1st 2nd 3rd 4th

19	2	9	2	6	Lt
76	8	29	27	12	Thru
20	2	3	10	5	Rt

	Lt	Thru	Rt
1st	5	43	81
2nd	7	28	34
3rd	10	35	38
4th	7	37	67
Total	29	143	220

HCM 2010 Signalized Intersection Summary

1: Collier Ave & Central Ave

03/27/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	67	20	508	217	532	35	60	271	737	62	12
Future Volume (veh/h)	24	67	20	508	217	532	35	60	271	737	62	12
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1796	1900	1881	1845	1827	1881	1696	1810	1881	1881	1429
Adj Flow Rate, veh/h	26	74	22	552	238	585	38	66	298	810	68	13
Adj No. of Lanes	2	2	0	2	1	2	1	1	1	2	2	1
Peak Hour Factor	0.91	0.91	0.92	0.92	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	6	6	1	3	4	1	12	5	1	1	33
Cap, veh/h	129	531	152	825	724	1757	48	185	533	869	1187	403
Arrive On Green	0.04	0.20	0.20	0.40	0.66	0.66	0.03	0.11	0.11	0.25	0.33	0.33
Sat Flow, veh/h	3476	2622	749	3476	1845	2733	1792	1696	1538	3476	3574	1214
Grp Volume(v), veh/h	26	47	49	552	238	585	38	66	298	810	68	13
Grp Sat Flow(s),veh/h/ln	1738	1707	1664	1738	1845	1367	1792	1696	1538	1738	1787	1214
Q Serve(g_s), s	0.8	2.5	2.7	14.4	6.2	3.4	2.3	4.0	8.0	25.1	1.4	0.6
Cycle Q Clear(g_c), s	0.8	2.5	2.7	14.4	6.2	3.4	2.3	4.0	8.0	25.1	1.4	0.6
Prop In Lane	1.00		0.45	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	129	346	337	825	724	1757	48	185	533	869	1187	403
V/C Ratio(X)	0.20	0.14	0.14	0.67	0.33	0.33	0.79	0.36	0.56	0.93	0.06	0.03
Avail Cap(c_a), veh/h	136	346	337	825	724	1757	101	188	535	891	1187	403
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.85	0.85	0.85	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.4	36.0	36.0	29.7	12.6	1.3	53.2	45.4	10.4	40.3	25.0	15.3
Incr Delay (d2), s/veh	0.8	0.8	0.9	1.8	1.0	0.4	23.6	1.2	1.3	16.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.3	1.3	7.1	3.3	1.2	1.5	1.9	3.5	14.0	0.7	0.2
LnGrp Delay(d),s/veh	52.1	36.8	36.9	31.5	13.6	1.7	76.8	46.6	11.7	56.3	25.1	15.5
LnGrp LOS	D	D	D	C	B	A	E	D	B	E	C	B
Approach Vol, veh/h	122				1375		402				891	
Approach Delay, s/veh	40.1				15.7		23.6				53.4	
Approach LOS	D				B		C				D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.9	27.0	8.8	42.3	9.9	49.0	33.3	17.8				
Change Period (Y+Rc), s	* 5.8	4.7	5.8	5.8	5.8	* 5.8	5.8	5.8				
Max Green Setting (Gmax), s	* 25	22.3	6.2	34.2	4.3	* 43	28.2	12.2				
Max Q Clear Time (g_c+I1), s	16.4	4.7	4.3	3.4	2.8	8.2	27.1	10.0				
Green Ext Time (p_c), s	1.4	0.4	0.0	0.4	0.0	3.9	0.4	0.3				
Intersection Summary												
HCM 2010 Ctrl Delay	29.9											
HCM 2010 LOS	C											
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary

1: Collier Ave & Central Ave

03/27/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	67	20	545	217	532	35	67	285	737	81	12
Future Volume (veh/h)	24	67	20	545	217	532	35	67	285	737	81	12
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1796	1900	1881	1845	1827	1881	1696	1810	1881	1881	1429
Adj Flow Rate, veh/h	26	74	22	599	238	585	38	74	313	810	89	13
Adj No. of Lanes	2	2	0	2	1	2	1	1	1	2	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	6	6	1	3	4	1	12	5	1	1	33
Cap, veh/h	129	531	152	825	724	1757	48	185	533	869	1187	403
Arrive On Green	0.04	0.20	0.20	0.40	0.66	0.66	0.03	0.11	0.11	0.25	0.33	0.33
Sat Flow, veh/h	3476	2622	749	3476	1845	2733	1792	1696	1538	3476	3574	1214
Grp Volume(v), veh/h	26	47	49	599	238	585	38	74	313	810	89	13
Grp Sat Flow(s),veh/h/ln	1738	1707	1664	1738	1845	1367	1792	1696	1538	1738	1787	1214
Q Serve(g_s), s	0.8	2.5	2.7	16.1	6.2	3.4	2.3	4.5	8.5	25.1	1.9	0.6
Cycle Q Clear(g_c), s	0.8	2.5	2.7	16.1	6.2	3.4	2.3	4.5	8.5	25.1	1.9	0.6
Prop In Lane	1.00		0.45	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	129	346	337	825	724	1757	48	185	533	869	1187	403
V/C Ratio(X)	0.20	0.14	0.14	0.73	0.33	0.33	0.79	0.40	0.59	0.93	0.07	0.03
Avail Cap(c_a), veh/h	136	346	337	825	724	1757	101	188	535	891	1187	403
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.84	0.84	0.84	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.4	36.0	36.0	30.2	12.6	1.3	53.2	45.6	10.5	40.3	25.2	15.3
Incr Delay (d2), s/veh	0.8	0.8	0.9	2.7	1.0	0.4	23.6	1.4	1.7	16.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.3	1.3	7.9	3.3	1.2	1.5	2.2	3.8	14.0	0.9	0.2
LnGrp Delay(d),s/veh	52.1	36.8	36.9	32.9	13.6	1.7	76.8	47.0	12.2	56.3	25.3	15.5
LnGrp LOS	D	D	D	C	B	A	E	D	B	E	C	B
Approach Vol, veh/h		122			1422			425			912	
Approach Delay, s/veh		40.1			16.8			24.0			52.7	
Approach LOS		D			B			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.9	27.0	8.8	42.3	9.9	49.0	33.3	17.8				
Change Period (Y+Rc), s	* 5.8	4.7	5.8	5.8	5.8	* 5.8	5.8	5.8				
Max Green Setting (Gmax), s	* 25	22.3	6.2	34.2	4.3	* 43	28.2	12.2				
Max Q Clear Time (g_c+I1), s	18.1	4.7	4.3	3.9	2.8	8.2	27.1	10.5				
Green Ext Time (p_c), s	1.4	0.4	0.0	0.5	0.0	3.9	0.4	0.3				
Intersection Summary												
HCM 2010 Ctrl Delay				30.2								
HCM 2010 LOS				C								
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary

1: Collier Ave & Central Ave

03/27/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	69	21	556	222	543	36	69	291	752	83	13
Future Volume (veh/h)	25	69	21	556	222	543	36	69	291	752	83	13
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1796	1900	1881	1845	1827	1881	1696	1810	1881	1881	1429
Adj Flow Rate, veh/h	27	76	23	611	244	597	40	76	320	826	91	14
Adj No. of Lanes	2	2	0	2	1	2	1	1	1	2	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	6	6	1	3	4	1	12	5	1	1	33
Cap, veh/h	119	529	154	814	724	1765	51	185	528	880	1193	405
Arrive On Green	0.03	0.20	0.20	0.39	0.66	0.66	0.03	0.11	0.11	0.25	0.33	0.33
Sat Flow, veh/h	3476	2610	759	3476	1845	2733	1792	1696	1538	3476	3574	1214
Grp Volume(v), veh/h	27	49	50	611	244	597	40	76	320	826	91	14
Grp Sat Flow(s),veh/h/ln	1738	1707	1662	1738	1845	1367	1792	1696	1538	1738	1787	1214
Q Serve(g_s), s	0.8	2.6	2.7	16.7	6.4	3.5	2.4	4.6	8.8	25.6	1.9	0.7
Cycle Q Clear(g_c), s	0.8	2.6	2.7	16.7	6.4	3.5	2.4	4.6	8.8	25.6	1.9	0.7
Prop In Lane	1.00		0.46	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	119	346	337	814	724	1765	51	185	528	880	1193	405
V/C Ratio(X)	0.23	0.14	0.15	0.75	0.34	0.34	0.78	0.41	0.61	0.94	0.08	0.03
Avail Cap(c_a), veh/h	136	346	337	814	724	1765	101	188	531	891	1193	405
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.84	0.84	0.84	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.7	36.0	36.1	30.7	12.6	1.2	53.1	45.7	10.7	40.2	25.1	15.4
Incr Delay (d2), s/veh	1.0	0.8	0.9	3.3	1.1	0.4	22.3	1.5	2.0	17.1	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.3	1.3	8.3	3.4	1.2	1.5	2.2	4.0	14.4	1.0	0.2
LnGrp Delay(d),s/veh	52.7	36.8	37.0	34.0	13.7	1.7	75.4	47.2	12.6	57.4	25.2	15.6
LnGrp LOS	D	D	D	C	B	A	E	D	B	E	C	B
Approach Vol, veh/h		126			1452			436			931	
Approach Delay, s/veh		40.3			17.3			24.4			53.6	
Approach LOS		D			B			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.6	27.0	8.9	42.5	9.6	49.0	33.6	17.8				
Change Period (Y+Rc), s	* 5.8	4.7	5.8	5.8	5.8	* 5.8	5.8	5.8				
Max Green Setting (Gmax), s	* 25	22.3	6.2	34.2	4.3	* 43	28.2	12.2				
Max Q Clear Time (g_c+I1), s	18.7	4.7	4.4	3.9	2.8	8.4	27.6	10.8				
Green Ext Time (p_c), s	1.3	0.4	0.0	0.5	0.0	4.0	0.2	0.2				
Intersection Summary												
HCM 2010 Ctrl Delay				30.8								
HCM 2010 LOS				C								
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary

1: Collier Ave & Central Ave

Synchro 10 Report
06/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	76	21	947	227	764	36	122	363	973	133	13
Future Volume (veh/h)	25	76	21	947	227	764	36	122	363	973	133	13
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1796	1900	1881	1845	1827	1881	1696	1810	1881	1881	1429
Adj Flow Rate, veh/h	26	80	22	997	239	804	38	128	382	1024	140	14
Adj No. of Lanes	2	2	0	2	1	2	1	1	1	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	6	6	1	3	4	1	12	5	1	1	33
Cap, veh/h	101	541	144	796	724	1774	48	188	523	891	1216	413
Arrive On Green	0.03	0.20	0.20	0.38	0.66	0.66	0.03	0.11	0.11	0.26	0.34	0.34
Sat Flow, veh/h	3476	2670	708	3476	1845	2733	1792	1696	1538	3476	3574	1214
Grp Volume(v), veh/h	26	50	52	997	239	804	38	128	382	1024	140	14
Grp Sat Flow(s),veh/h/ln	1738	1706	1671	1738	1845	1367	1792	1696	1538	1738	1787	1214
Q Serve(g_s), s	0.8	2.7	2.8	25.2	6.3	5.9	2.3	8.0	11.2	28.2	3.0	0.7
Cycle Q Clear(g_c), s	0.8	2.7	2.8	25.2	6.3	5.9	2.3	8.0	11.2	28.2	3.0	0.7
Prop In Lane	1.00		0.42	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	101	346	339	796	724	1774	48	188	523	891	1216	413
V/C Ratio(X)	0.26	0.14	0.15	1.25	0.33	0.45	0.79	0.68	0.73	1.15	0.12	0.03
Avail Cap(c_a), veh/h	136	346	339	796	724	1774	101	188	523	891	1216	413
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.64	0.64	0.64	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.2	36.0	36.1	34.0	12.6	1.4	53.2	47.0	11.4	40.9	24.9	15.3
Incr Delay (d2), s/veh	1.3	0.9	1.0	120.2	0.8	0.5	23.6	9.5	5.2	80.2	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.3	1.4	25.3	3.2	2.0	1.5	4.2	5.4	23.4	1.5	0.2
LnGrp Delay(d),s/veh	53.6	36.9	37.0	154.2	13.4	1.9	76.8	56.5	16.6	121.1	25.1	15.5
LnGrp LOS	D	D	D	F	B	A	E	E	B	F	C	B
Approach Vol, veh/h		128			2040			548			1178	
Approach Delay, s/veh		40.3			77.7			30.1			108.4	
Approach LOS		D			E			C			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.0	27.0	8.8	43.2	9.0	49.0	34.0	18.0				
Change Period (Y+Rc), s	* 5.8	4.7	5.8	5.8	5.8	* 5.8	5.8	5.8				
Max Green Setting (Gmax), s	* 25	22.3	6.2	34.2	4.3	* 43	28.2	12.2				
Max Q Clear Time (g_c+I1), s	27.2	4.8	4.3	5.0	2.8	8.3	30.2	13.2				
Green Ext Time (p_c), s	0.0	0.4	0.0	0.8	0.0	5.2	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				79.0								
HCM 2010 LOS				E								
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary

1: Collier Ave & Central Ave

Synchro 10 Report
06/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	76	21	947	227	764	36	122	363	973	133	13
Future Volume (veh/h)	25	76	21	947	227	764	36	122	363	973	133	13
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1796	1900	1881	1845	1827	1881	1696	1810	1881	1881	1429
Adj Flow Rate, veh/h	26	80	22	997	239	804	38	128	382	1024	140	14
Adj No. of Lanes	2	2	0	2	1	2	1	2	2	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	6	6	1	3	4	1	12	5	1	1	33
Cap, veh/h	138	284	75	1049	679	1848	49	322	1087	1070	1361	462
Arrive On Green	0.04	0.11	0.11	0.10	0.12	0.12	0.01	0.03	0.03	0.31	0.38	0.38
Sat Flow, veh/h	3476	2670	708	3476	1845	2733	1792	3223	2707	3476	3574	1214
Grp Volume(v), veh/h	26	50	52	997	239	804	38	128	382	1024	140	14
Grp Sat Flow(s),veh/h/ln	1738	1706	1671	1738	1845	1367	1792	1612	1354	1738	1787	1214
Q Serve(g_s), s	0.9	3.2	3.4	34.2	14.3	0.0	2.5	4.7	2.8	34.7	3.0	0.7
Cycle Q Clear(g_c), s	0.9	3.2	3.4	34.2	14.3	0.0	2.5	4.7	2.8	34.7	3.0	0.7
Prop In Lane	1.00		0.42	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	138	181	178	1049	679	1848	49	322	1087	1070	1361	462
V/C Ratio(X)	0.19	0.28	0.29	0.95	0.35	0.44	0.78	0.40	0.35	0.96	0.10	0.03
Avail Cap(c_a), veh/h	138	181	178	1049	679	1848	93	328	1092	1077	1361	462
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.71	0.71	0.71	0.92	0.92	0.92	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.8	49.4	49.5	53.1	39.6	14.8	59.1	54.5	11.2	40.7	24.0	14.7
Incr Delay (d2), s/veh	0.7	3.7	4.1	13.5	1.0	0.5	21.4	0.7	0.2	17.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.7	1.8	18.4	7.5	10.1	1.6	2.1	2.9	19.3	1.5	0.2
LnGrp Delay(d),s/veh	56.4	53.1	53.6	66.6	40.6	15.3	80.5	55.2	11.4	58.6	24.0	14.7
LnGrp LOS	E	D	D	E	D	B	F	E	B	E	C	B
Approach Vol, veh/h	128			2040			548			1178		
Approach Delay, s/veh	54.0			43.3			26.4			54.0		
Approach LOS	D			D			C			D		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	42.0	17.5	9.1	51.5	9.5	50.0	42.7	17.8				
Change Period (Y+Rc), s	5.8	* 4.7	5.8	5.8	4.7	* 5.8	5.8	5.8				
Max Green Setting (Gmax), s	36.2	* 12	6.2	43.2	4.3	* 44	37.2	12.2				
Max Q Clear Time (g_c+I1), s	36.2	5.4	4.5	5.0	2.9	16.3	36.7	6.7				
Green Ext Time (p_c), s	0.0	0.2	0.0	0.8	0.0	5.0	0.3	1.1				
Intersection Summary												
HCM 2010 Ctrl Delay	44.5											
HCM 2010 LOS	D											
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



DAVID EVANS
AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	MMI	3-Apr-18	DLRCSRZY-0001	1 OF 2

E/W STREET : CENTRAL AVE
N/S STREET : COLLIER AVE
CONDITION : PM PEAK HOUR

INTERSECTION : 1
PROJECTED GROWTH : 2%
PER YEAR :

TURN MOVEMENTS

	Existing Condition Traffic	Project Trips	Existing + Project Condition Traffic	Ambient Growth	Project Condition Traffic	Related Projects	Cumulative Condition Traffic
Condition							
Scenario #	2		5		8		11

CENTRAL AVE

EB LEFT	156	0	156	4	160	0	160
EB THRU	350	0	350	7	357	8	365
EB RIGHT	76	0	76	2	78	0	78
WB LEFT	231	26	257	5	262	234	496
WB THRU	288	0	288	6	294	8	302
WB RIGHT	339	0	339	7	346	277	623

COLLIER AVE

NB LEFT	68	0	68	2	70	0	70
NB THRU	225	20	245	5	250	71	321
NB RIGHT	300	39	339	6	345	309	654
SB LEFT	785	0	785	16	801	318	1119
SB THRU	172	13	185	4	189	38	227
SB RIGHT	73	0	73	2	75	0	75
TOTALS	3063	98	3161	66	3227	1263	4490



DAVID EVANS
AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN VOLUME SUMMARY	MMI	3-Apr-18	DLRCSRZY-0001	2 OF 2

E/W STREET : CENTRAL AVE
CONDITION : PM PEAK HOUR

N/S STREET : COLLIER AVE
PHF : 0.98

NORTH LEG								
LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	0	0

SOUTH LEG								
LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
1	1	0	0	0	0	2	0	0
4	0	0	1	0	0	0	1	0
0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	1	0	0

EAST LEG								
LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	2	0	1	0	0	0	1
0	0	1	1	0	0	0	0	0
2	2	1	0	1	0	1	1	2
0	0	2	0	0	1	0	0	0

WEST LEG								
LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
1	0	1	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	1	0	0	2	0	0	0

NORTH LEG			SOUTH LEG			EAST LEG			WEST LEG		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
14	52	197	74	45	27	65	53	84	12	51	56
20	29	179	73	70	17	126	56	91	19	75	9
26	47	219	51	57	12	31	104	27	26	114	42
11	44	190	92	51	12	113	70	19	18	110	45

TRUCK TOTAL	AUTO VOLUMES	TOTALS	TRUCK PERCENTAGE
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CENTRAL AVE

EB LEFT	4	152	156	3%
EB THRU	0	350	350	1%
EB RIGHT	1	75	76	1%
WB LEFT	10	221	231	4%
WB THRU	5	283	288	1%
WB RIGHT	4	335	339	1%

COLLIER AVE

NB LEFT	0	68	68	1%
NB THRU	2	223	225	1%
NB RIGHT	10	290	300	3%
SB LEFT	0	785	785	1%
SB THRU	0	172	172	1%
SB RIGHT	2	71	73	3%

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: COLLIER AVE
 EAST-WEST STREET: CENTRAL
 JURISDICTION: LAKE ELSINORE

DATE: 02-22-18

PEAK HOUR: 04:15PM

NORTH LEG

TOTAL: 1,030

73	172	785	Total
14	52	197	1st
21	29	179	2nd
26	47	219	3rd
12	44	190	4th

Rt Thru Lt

EAST LEG TOTAL: 858

Rt	65	127	34	113	339
Thru	54	56	108	70	288
Lt	87	92	30	22	231

1st 2nd 3rd 4th Total

Total 1st 2nd 3rd 4th

156	57	9	42	48	Lt
350	51	75	114	110	Thru
76	13	19	26	18	Rt

WEST LEG TOTAL: 582

PEAK HOUR FACTORS

NORTH LEG = 0.88
 SOUTH LEG = 0.89
 EAST LEG = 0.78
 WEST LEG = 0.80

ALL LEGS = 0.98

	Lt	Thru	Rt
1st	27	46	77
2nd	17	71	78
3rd	12	57	51
4th	12	51	94
Total	68	225	300

TOTAL: 593

SOUTH LEG

HOURLY TOTAL: 3,063

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY

NORTH-SOUTH STREET : COLLIER AVE

LAKE ELSINORE

EAST-WEST STREET : CENTRAL

02-22-18

BEGINNING TIME : 04:00PM

AUTOS			LARGE 2 AXLE			3 AXLE			4 (+) AXLE			TOTALS
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	
NORTH LEG												
0	27	218	1	0	0	0	0	0	0	1	0	247
14	52	197	0	0	0	0	0	0	0	0	0	263
20	29	179	1	0	0	0	0	0	0	0	0	229
26	47	219	0	0	0	0	0	0	0	0	0	292
11	44	190	0	0	0	1	0	0	0	0	0	246
14	30	177	2	0	0	0	0	0	0	0	0	223
10	35	117	0	0	0	0	0	0	2	0	0	164
13	37	163	1	0	0	0	0	0	0	0	0	214
108	301	1460	5	0	0	1	0	0	2	1	0	1878
SOUTH LEG												
78	41	12	2	1	0	1	0	0	2	0	0	137
74	45	27	1	1	0	0	0	0	2	0	0	150
73	70	17	4	0	0	1	0	0	0	1	0	166
51	57	12	0	0	0	0	0	0	0	0	0	120
92	51	12	1	0	0	0	0	0	1	0	0	157
46	33	14	1	0	0	0	0	0	0	0	0	94
34	40	17	1	0	0	0	0	0	1	1	0	94
38	47	3	2	1	0	1	0	0	0	0	0	92
486	384	114	12	3	0	3	0	0	6	2	0	1010
EAST LEG												
160	25	59	0	1	0	0	0	2	2	2	0	251
65	53	84	0	0	2	0	1	0	0	0	1	206
126	56	91	0	0	1	1	0	0	0	0	0	275
31	104	27	2	2	1	0	1	0	1	1	2	172
113	70	19	0	0	2	0	0	1	0	0	0	205
77	24	19	3	0	0	2	0	0	0	0	0	125
61	33	55	0	0	1	0	0	0	0	0	1	151
86	33	59	0	0	0	0	0	0	0	0	1	179
719	398	413	5	3	7	3	2	3	3	3	5	1564
WEST LEG												
6	69	30	0	0	0	0	0	1	0	0	0	106
12	51	56	1	0	1	0	0	0	0	0	0	121
19	75	9	0	0	0	0	0	0	0	0	0	103
26	114	42	0	0	0	0	0	0	0	0	0	182
18	110	45	0	0	1	0	0	2	0	0	0	176
2	48	17	0	0	0	0	0	0	0	0	0	67
7	28	8	0	0	0	0	0	0	1	0	0	44
12	21	8	1	0	1	0	0	0	0	0	0	43
102	516	215	2	0	3	0	0	3	1	0	0	842

Prepared by Newport Traffic Studies

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: COLLIER AVE

EAST-WEST STREET: CENTRAL

TIME: 04:00PM-05:00PM

DATE: 02-22-18

NORTH LEG

62	156	813	Total
1	28	218	1st
14	52	197	2nd
21	29	179	3rd
26	47	219	4th
Rt	Thru	Lt	

Rt	162	65	127	34	388
Thru	28	54	56	108	246
Lt	61	87	92	30	270
	1st	2nd	3rd	4th	Total

Total 1st 2nd 3rd 4th

139	31	57	9	42	Lt
309	69	51	75	114	Thru
64	6	13	19	26	Rt

	Lt	Thru	Rt
1st	12	42	83
2nd	27	46	77
3rd	17	71	78
4th	12	57	51
Total	68	216	289

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: COLLIER AVE

EAST-WEST STREET: CENTRAL

TIME: 05:00PM-06:00PM

DATE: 02-22-18

NORTH LEG

54	146	647	Total
12	44	190	1st
16	30	177	2nd
12	35	117	3rd
14	37	163	4th
Rt	Thru	Lt	

Total 1st 2nd 3rd 4th

82	48	17	8	9	Lt
207	110	48	28	21	Thru
41	18	2	8	13	Rt

Rt	113	82	61	86	342
Thru	70	24	33	33	160
Lt	22	19	57	60	158
	1st	2nd	3rd	4th	Total

	Lt	Thru	Rt
1st	12	51	94
2nd	14	33	47
3rd	17	41	36
4th	3	48	41
Total	46	173	218

Prepared by NEWPORT TRAFFIC STUDIES

HCM 2010 Signalized Intersection Summary

1: Collier Ave & Central Ave

03/27/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	156	350	76	231	288	339	68	225	300	785	172	73
Future Volume (veh/h)	156	350	76	231	288	339	68	225	300	785	172	73
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1881	1900	1827	1881	1881	1881	1881	1845	1881	1881	1845
Adj Flow Rate, veh/h	159	357	78	236	294	346	69	230	306	801	176	74
Adj No. of Lanes	2	2	0	2	1	2	1	1	1	2	2	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	3	1	1	4	1	1	1	1	3	1	1	3
Cap, veh/h	1289	806	174	1737	756	1776	89	226	995	796	1071	470
Arrive On Green	0.38	0.28	0.28	0.51	0.40	0.40	0.05	0.12	0.12	0.23	0.30	0.30
Sat Flow, veh/h	3408	2925	632	3375	1881	2814	1792	1881	1568	3476	3574	1568
Grp Volume(v), veh/h	159	217	218	236	294	346	69	230	306	801	176	74
Grp Sat Flow(s),veh/h/ln	1704	1787	1770	1688	1881	1407	1792	1881	1568	1738	1787	1568
Q Serve(g_s), s	3.3	11.0	11.2	4.0	12.2	2.7	4.2	13.2	7.5	25.2	4.0	3.0
Cycle Q Clear(g_c), s	3.3	11.0	11.2	4.0	12.2	2.7	4.2	13.2	7.5	25.2	4.0	3.0
Prop In Lane	1.00		0.36	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1289	492	487	1737	756	1776	89	226	995	796	1071	470
V/C Ratio(X)	0.12	0.44	0.45	0.14	0.39	0.19	0.78	1.02	0.31	1.01	0.16	0.16
Avail Cap(c_a), veh/h	1289	492	487	1737	756	1776	101	226	995	796	1071	470
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.3	32.9	32.9	13.9	23.3	13.5	51.7	48.4	12.3	42.4	28.4	17.9
Incr Delay (d2), s/veh	0.0	2.8	3.0	0.0	1.4	0.2	28.1	64.9	0.2	33.4	0.3	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	5.8	5.9	1.9	6.6	2.6	2.8	10.9	3.6	15.7	2.0	1.4
LnGrp Delay(d),s/veh	22.3	35.7	35.9	14.0	24.7	13.7	79.8	113.4	12.5	75.8	28.7	18.6
LnGrp LOS	C	D	D	B	C	B	E	F	B	F	C	B
Approach Vol, veh/h		594			876			605			1051	
Approach Delay, s/veh		32.2			17.5			58.5			63.9	
Approach LOS		C			B			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	63.5	35.0	11.2	38.8	48.5	50.0	31.0	19.0				
Change Period (Y+Rc), s	* 5.8	4.7	5.8	5.8	5.8	* 5.8	5.8	5.8				
Max Green Setting (Gmax), s	* 19	30.3	6.2	32.2	5.3	* 44	25.2	13.2				
Max Q Clear Time (g_c+I1), s	6.0	13.2	6.2	6.0	5.3	14.2	27.2	15.2				
Green Ext Time (p_c), s	0.6	2.1	0.0	1.2	0.0	3.0	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				43.8								
HCM 2010 LOS				D								
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary

1: Collier Ave & Central Ave

03/27/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	156	350	76	257	288	339	68	245	339	785	185	73
Future Volume (veh/h)	156	350	76	257	288	339	68	245	339	785	185	73
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1881	1900	1827	1881	1881	1881	1881	1845	1881	1881	1845
Adj Flow Rate, veh/h	159	357	78	262	294	346	69	250	346	801	189	74
Adj No. of Lanes	2	2	0	2	1	2	1	1	1	2	2	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	3	1	1	4	1	1	1	1	3	1	1	3
Cap, veh/h	1289	806	174	1737	756	1776	89	226	995	796	1071	470
Arrive On Green	0.38	0.28	0.28	0.51	0.40	0.40	0.05	0.12	0.12	0.23	0.30	0.30
Sat Flow, veh/h	3408	2925	632	3375	1881	2814	1792	1881	1568	3476	3574	1568
Grp Volume(v), veh/h	159	217	218	262	294	346	69	250	346	801	189	74
Grp Sat Flow(s),veh/h/ln	1704	1787	1770	1688	1881	1407	1792	1881	1568	1738	1787	1568
Q Serve(g_s), s	3.3	11.0	11.2	4.5	12.2	2.7	4.2	13.2	8.8	25.2	4.3	3.0
Cycle Q Clear(g_c), s	3.3	11.0	11.2	4.5	12.2	2.7	4.2	13.2	8.8	25.2	4.3	3.0
Prop In Lane	1.00		0.36	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1289	492	487	1737	756	1776	89	226	995	796	1071	470
V/C Ratio(X)	0.12	0.44	0.45	0.15	0.39	0.19	0.78	1.11	0.35	1.01	0.18	0.16
Avail Cap(c_a), veh/h	1289	492	487	1737	756	1776	101	226	995	796	1071	470
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.3	32.9	32.9	14.1	23.3	13.5	51.7	48.4	12.7	42.4	28.5	17.9
Incr Delay (d2), s/veh	0.0	2.8	3.0	0.0	1.4	0.2	28.1	91.7	0.2	33.4	0.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	5.8	5.9	2.1	6.6	2.6	2.8	12.6	4.2	15.7	2.2	1.4
LnGrp Delay(d),s/veh	22.3	35.7	35.9	14.1	24.7	13.7	79.8	140.1	13.0	75.8	28.8	18.6
LnGrp LOS	C	D	D	B	C	B	E	F	B	F	C	B
Approach Vol, veh/h		594			902			665			1064	
Approach Delay, s/veh		32.2			17.4			67.7			63.5	
Approach LOS		C			B			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	63.5	35.0	11.2	38.8	48.5	50.0	31.0	19.0				
Change Period (Y+Rc), s	* 5.8	4.7	5.8	5.8	5.8	* 5.8	5.8	5.8				
Max Green Setting (Gmax), s	* 19	30.3	6.2	32.2	5.3	* 44	25.2	13.2				
Max Q Clear Time (g_c+I1), s	6.5	13.2	6.2	6.3	5.3	14.2	27.2	15.2				
Green Ext Time (p_c), s	0.7	2.4	0.0	1.3	0.0	3.0	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				45.7								
HCM 2010 LOS				D								
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary

1: Collier Ave & Central Ave

03/27/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	357	78	262	294	346	70	250	345	801	189	75
Future Volume (veh/h)	160	357	78	262	294	346	70	250	345	801	189	75
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1881	1900	1827	1881	1881	1881	1881	1845	1881	1881	1845
Adj Flow Rate, veh/h	163	364	80	267	300	353	71	255	352	817	193	77
Adj No. of Lanes	2	2	0	2	1	2	1	1	1	2	2	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	3	1	1	4	1	1	1	1	3	1	1	3
Cap, veh/h	1289	805	175	1737	756	1776	91	226	995	796	1066	468
Arrive On Green	0.38	0.28	0.28	0.51	0.40	0.40	0.05	0.12	0.12	0.23	0.30	0.30
Sat Flow, veh/h	3408	2921	635	3375	1881	2814	1792	1881	1568	3476	3574	1568
Grp Volume(v), veh/h	163	221	223	267	300	353	71	255	352	817	193	77
Grp Sat Flow(s),veh/h/ln	1704	1787	1769	1688	1881	1407	1792	1881	1568	1738	1787	1568
Q Serve(g_s), s	3.4	11.3	11.5	4.6	12.5	2.7	4.3	13.2	9.0	25.2	4.4	3.2
Cycle Q Clear(g_c), s	3.4	11.3	11.5	4.6	12.5	2.7	4.3	13.2	9.0	25.2	4.4	3.2
Prop In Lane	1.00		0.36	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1289	492	487	1737	756	1776	91	226	995	796	1066	468
V/C Ratio(X)	0.13	0.45	0.46	0.15	0.40	0.20	0.78	1.13	0.35	1.03	0.18	0.16
Avail Cap(c_a), veh/h	1289	492	487	1737	756	1776	101	226	995	796	1066	468
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.3	33.0	33.0	14.1	23.4	13.6	51.6	48.4	12.8	42.4	28.6	18.0
Incr Delay (d2), s/veh	0.0	2.9	3.1	0.0	1.4	0.2	29.0	99.2	0.2	38.7	0.4	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	5.9	6.0	2.2	6.8	2.7	2.9	13.1	4.4	16.3	2.2	1.5
LnGrp Delay(d),s/veh	22.4	35.9	36.1	14.1	24.8	13.8	80.6	147.6	13.0	81.1	29.0	18.8
LnGrp LOS	C	D	D	B	C	B	F	F	B	F	C	B
Approach Vol, veh/h		607			920			678			1087	
Approach Delay, s/veh		32.3			17.5			70.7			67.4	
Approach LOS		C			B			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	63.5	35.0	11.4	38.6	48.5	50.0	31.0	19.0				
Change Period (Y+Rc), s	* 5.8	4.7	5.8	5.8	5.8	* 5.8	5.8	5.8				
Max Green Setting (Gmax), s	* 19	30.3	6.2	32.2	5.3	* 44	25.2	13.2				
Max Q Clear Time (g_c+I1), s	6.6	13.5	6.3	6.4	5.4	14.5	27.2	15.2				
Green Ext Time (p_c), s	0.7	2.4	0.0	1.3	0.0	3.1	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				47.7								
HCM 2010 LOS				D								
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary

1: Collier Ave & Central Ave

Synchro 10 Report
06/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	365	78	496	302	623	70	321	654	1119	227	75
Future Volume (veh/h)	160	365	78	496	302	623	70	321	654	1119	227	75
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1881	1900	1827	1881	1881	1881	1881	1845	1881	1881	1845
Adj Flow Rate, veh/h	168	384	82	522	318	656	74	338	688	1178	239	79
Adj No. of Lanes	2	2	0	2	1	2	1	1	1	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	1	1	4	1	1	1	1	3	1	1	3
Cap, veh/h	1289	809	171	1737	756	1776	95	226	995	796	1059	465
Arrive On Green	0.38	0.28	0.28	0.51	0.40	0.40	0.05	0.12	0.12	0.23	0.30	0.30
Sat Flow, veh/h	3408	2937	621	3375	1881	2814	1792	1881	1568	3476	3574	1568
Grp Volume(v), veh/h	168	232	234	522	318	656	74	338	688	1178	239	79
Grp Sat Flow(s),veh/h/ln	1704	1787	1772	1688	1881	1407	1792	1881	1568	1738	1787	1568
Q Serve(g_s), s	3.5	11.9	12.1	9.8	13.4	5.8	4.5	13.2	13.2	25.2	5.5	3.3
Cycle Q Clear(g_c), s	3.5	11.9	12.1	9.8	13.4	5.8	4.5	13.2	13.2	25.2	5.5	3.3
Prop In Lane	1.00		0.35	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1289	492	488	1737	756	1776	95	226	995	796	1059	465
V/C Ratio(X)	0.13	0.47	0.48	0.30	0.42	0.37	0.78	1.50	0.69	1.48	0.23	0.17
Avail Cap(c_a), veh/h	1289	492	488	1737	756	1776	101	226	995	796	1059	465
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.81	0.81	0.81	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.4	33.2	33.3	15.3	23.7	15.5	51.5	48.4	25.7	42.4	29.2	18.2
Incr Delay (d2), s/veh	0.0	3.2	3.3	0.1	1.4	0.5	30.2	245.6	2.1	222.5	0.5	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	6.3	6.4	4.6	7.2	5.6	3.0	22.2	22.7	36.7	2.8	1.5
LnGrp Delay(d),s/veh	22.4	36.4	36.6	15.4	25.1	15.9	81.7	294.0	27.8	264.9	29.7	19.0
LnGrp LOS	C	D	D	B	C	B	F	F	C	F	C	B
Approach Vol, veh/h		634			1496			1100			1496	
Approach Delay, s/veh		32.8			17.7			113.2			214.3	
Approach LOS		C			B			F			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	63.5	35.0	11.6	38.4	48.5	50.0	31.0	19.0				
Change Period (Y+Rc), s	* 5.8	4.7	5.8	5.8	5.8	* 5.8	5.8	5.8				
Max Green Setting (Gmax), s	* 19	30.3	6.2	32.2	5.3	* 44	25.2	13.2				
Max Q Clear Time (g_c+I1), s	11.8	14.1	6.5	7.5	5.5	15.4	27.2	15.2				
Green Ext Time (p_c), s	1.2	2.5	0.0	1.6	0.0	4.8	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				104.2								
HCM 2010 LOS				F								
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary

1: Collier Ave & Central Ave

Synchro 10 Report
06/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	365	78	496	302	623	70	321	654	1119	227	75
Future Volume (veh/h)	160	365	78	496	302	623	70	321	654	1119	227	75
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1881	1900	1827	1881	1881	1881	1881	1845	1881	1881	1845
Adj Flow Rate, veh/h	168	384	82	522	318	656	74	338	688	1178	239	79
Adj No. of Lanes	2	2	0	2	1	2	1	2	2	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	1	1	4	1	1	1	1	3	1	1	3
Cap, veh/h	411	474	100	605	413	1585	95	400	804	1194	1438	631
Arrive On Green	0.12	0.16	0.16	0.18	0.22	0.22	0.05	0.11	0.11	0.34	0.40	0.40
Sat Flow, veh/h	3408	2937	621	3375	1881	2814	1792	3574	2760	3476	3574	1568
Grp Volume(v), veh/h	168	232	234	522	318	656	74	338	688	1178	239	79
Grp Sat Flow(s),veh/h/ln	1704	1787	1772	1688	1881	1407	1792	1787	1380	1738	1787	1568
Q Serve(g_s), s	4.9	13.6	13.8	16.3	17.2	0.0	4.4	10.0	7.4	36.5	4.6	2.2
Cycle Q Clear(g_c), s	4.9	13.6	13.8	16.3	17.2	0.0	4.4	10.0	7.4	36.5	4.6	2.2
Prop In Lane	1.00		0.35	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	411	288	286	605	413	1585	95	400	804	1194	1438	631
V/C Ratio(X)	0.41	0.81	0.82	0.86	0.77	0.41	0.78	0.84	0.86	0.99	0.17	0.13
Avail Cap(c_a), veh/h	411	384	381	785	750	2089	169	403	805	1194	1438	631
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.0	43.8	43.9	43.2	39.7	13.5	50.6	47.2	14.4	35.3	20.7	8.2
Incr Delay (d2), s/veh	0.7	8.9	10.0	7.9	3.0	0.2	12.6	15.0	9.0	22.8	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	7.4	7.5	8.2	9.3	5.6	2.5	5.8	6.4	21.3	2.3	1.5
LnGrp Delay(d),s/veh	44.7	52.7	53.9	51.1	42.7	13.6	63.2	62.2	23.4	58.1	21.0	8.6
LnGrp LOS	D	D	D	D	D	B	E	E	C	E	C	A
Approach Vol, veh/h		634			1496			1100			1496	
Approach Delay, s/veh		51.0			32.9			38.0			49.5	
Approach LOS		D			C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.2	22.2	11.6	49.4	17.8	29.6	43.0	17.9				
Change Period (Y+Rc), s	5.8	* 4.7	5.8	5.8	4.7	* 5.8	5.8	5.8				
Max Green Setting (Gmax), s	25.2	* 23	10.2	39.2	5.3	* 43	37.2	12.2				
Max Q Clear Time (g_c+I1), s	18.3	15.8	6.4	6.6	6.9	19.2	38.5	12.0				
Green Ext Time (p_c), s	1.1	1.7	0.0	1.7	0.0	4.6	0.0	0.1				
Intersection Summary												
HCM 2010 Ctrl Delay			41.8									
HCM 2010 LOS			D									
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	MMI	3-Apr-18	DLRCSRZY-0001	1 OF 2

E/W STREET : CENTRAL AVE
N/S STREET : COLLIER AVE
CONDITION : SAT PEAK HOUR

INTERSECTION : 1
PROJECTED GROWTH : 2%
PER YEAR :

TURN MOVEMENTS

	Existing Condition Traffic	Project Trips	Existing + Project Condition Traffic	Ambient Growth	Project Condition Traffic	Related Projects	Cumulative Condition Traffic
Scenario #	3		6		9		12

CENTRAL AVE

EB LEFT	221	0	221	5	226	0	226
EB THRU	265	0	265	6	271	0	271
EB RIGHT	73	0	73	2	75	0	75
WB LEFT	73	43	116	2	118	0	118
WB THRU	231	0	231	5	236	0	236
WB RIGHT	695	0	695	14	709	0	709

COLLIER AVE

NB LEFT	47	0	47	1	48	0	48
NB THRU	157	33	190	4	194	0	194
NB RIGHT	117	43	160	3	163	0	163
SB LEFT	991	0	991	20	1011	0	1011
SB THRU	146	38	184	3	187	0	187
SB RIGHT	156	0	156	4	160	0	160
TOTALS	3172	157	3329	69	3398	0	3398

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN VOLUME SUMMARY	TM	3-Apr-18	DLRCSRZY-0001	2 OF 2

E/W STREET : CENTRAL AVE
 CONDITION : SAT PEAK HOUR

N/S STREET : COLLIER AVE
 PHF : 0.96

NORTH LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	1	1	0	1	0	0	0	0
0	0	0	0	0	0	0	1	1
0	1	0	0	1	1	0	0	0
0	0	0	0	0	1	0	0	3

SOUTH LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	1	0	0	1	1
0	1	1	0	0	1	0	0	0
0	0	0	0	1	0	0	0	0
0	0	0	0	0	0	0	0	0

EAST LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	2	0	0	0	0	0	1
0	0	1	0	0	1	1	0	0
0	0	1	0	0	0	1	0	0
1	0	0	0	0	0	0	0	0

WEST LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1	0

NORTH LEG			SOUTH LEG			EAST LEG			WEST LEG		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
42	36	289	31	53	19	159	53	14	17	49	54
37	36	250	27	36	7	165	49	19	16	66	57
44	25	259	34	30	6	178	63	14	19	75	49
33	44	186	25	34	12	190	66	20	21	74	61

TRUCK TOTAL	AUTO VOLUMES	TOTALS	TRUCK PERCENTAGE
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CENTRAL AVE

EB LEFT	0	221	221	1%
EB THRU	1	264	265	1%
EB RIGHT	0	73	73	1%
WB LEFT	6	67	73	8%
WB THRU	0	231	231	1%
WB RIGHT	3	692	695	1%

COLLIER AVE

NB LEFT	3	44	47	6%
NB THRU	4	153	157	3%
NB RIGHT	0	117	117	1%
SB LEFT	7	984	991	1%
SB THRU	5	141	146	3%
SB RIGHT	0	156	156	1%

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: COLLIER AVE
 EAST-WEST STREET: CENTRAL
 JURISDICTION: LAKE ELSINORE

DATE: 02-24-18

PEAK HOUR: 01:45PM

NORTH LEG

TOTAL: 1,293

	156	146	991	Total
1st	42	38	290	1st
2nd	37	37	251	2nd
3rd	44	27	260	3rd
4th	33	44	190	4th
	Rt	Thru	Lt	

EAST LEG TOTAL: 999

Rt	159	166	179	191	695
Thru	53	49	63	66	231
Lt	17	21	15	20	73

Total 1st 2nd 3rd 4th

221	54	57	49	61	Lt
265	49	66	75	75	Thru
73	17	16	19	21	Rt

1st 2nd 3rd 4th Total

WEST LEG TOTAL: 559

PEAK HOUR FACTORS

NORTH LEG = 0.87
 SOUTH LEG = 0.76
 EAST LEG = 0.90
 WEST LEG = 0.89
 ALL LEGS = 0.96

	Lt	Thru	Rt
1st	20	55	31
2nd	9	37	27
3rd	6	31	34
4th	12	34	25
Total	47	157	117

TOTAL: 321

SOUTH LEG

HOURLY TOTAL: 3,172

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY
 NORTH-SOUTH STREET : COLLIER AVE LAKE ELSINORE
 EAST-WEST STREET : CENTRAL
 BEGINNING TIME : 01:00PM

AUTOS			LARGE 2 AXLE			3 AXLE			4 (+) AXLE			TOTALS
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	
NORTH LEG												
24	39	177	0	0	0	0	0	0	0	0	0	240
37	41	198	0	1	0	0	0	1	0	0	1	279
33	47	219	0	0	1	0	0	1	0	0	0	301
42	36	289	0	1	1	0	1	0	0	0	0	370
37	36	250	0	0	0	0	0	0	0	1	1	325
44	25	259	0	1	0	0	1	1	0	0	0	331
33	44	186	0	0	0	0	0	1	0	0	3	267
30	44	239	0	0	2	0	0	0	0	0	0	315
280	312	1817	0	3	4	0	2	4	0	1	5	2428
SOUTH LEG												
35	29	4	0	0	1	0	1	0	0	0	1	71
33	37	5	0	0	2	0	0	1	0	0	1	79
38	39	4	0	0	2	0	0	1	0	1	1	86
31	53	19	0	0	0	0	1	0	0	1	1	106
27	36	7	0	1	1	0	0	1	0	0	0	73
34	30	6	0	0	0	0	1	0	0	0	0	71
25	34	12	0	0	0	0	0	0	0	0	0	71
21	43	5	1	0	1	0	1	1	0	0	1	74
244	301	62	1	1	7	0	4	4	0	2	5	631
EAST LEG												
158	55	11	2	0	1	0	0	2	1	0	0	230
164	56	21	0	0	1	3	0	1	2	0	0	248
215	47	13	0	0	1	2	0	1	0	0	1	280
159	53	14	0	0	2	0	0	0	0	0	1	229
165	49	19	0	0	1	0	0	1	1	0	0	236
178	63	14	0	0	1	0	0	0	1	0	0	257
190	66	20	1	0	0	0	0	0	0	0	0	277
215	53	18	0	0	0	0	0	0	0	0	1	287
1444	442	130	3	0	7	5	0	5	5	0	3	2044
WEST LEG												
16	47	27	0	0	0	0	0	0	0	0	0	90
21	44	29	0	0	0	0	0	0	0	0	0	94
15	39	47	0	0	0	0	0	0	0	0	0	101
17	49	54	0	0	0	0	0	0	0	0	0	120
16	66	57	0	0	0	0	0	0	0	0	0	139
19	75	49	0	0	0	0	0	0	0	0	0	143
21	74	61	0	0	0	0	0	0	0	1	0	157
16	64	43	0	1	0	0	1	0	0	2	0	127
141	458	367	0	1	0	0	1	0	0	3	0	971

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: COLLIER AVE

EAST-WEST STREET: CENTRAL

TIME: 01:00PM-02:00PM

DATE: 02-24-18

NORTH LEG

136	166	888	Total
24	39	177	1st
37	42	200	2nd
33	47	221	3rd
42	38	290	4th
Rt	Thru	Lt	

Rt	161	169	217	159	706
Thru	55	56	47	53	211
Lt	14	23	16	17	70
	1st	2nd	3rd	4th	Total

Total 1st 2nd 3rd 4th

157	27	29	47	54	Lt
179	47	44	39	49	Thru
69	16	21	15	17	Rt

	Lt	Thru	Rt
1st	6	30	35
2nd	9	37	33
3rd	8	40	38
4th	20	55	31
Total	43	162	137

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: COLLIER AVE

EAST-WEST STREET: CENTRAL

TIME: 02:00PM-03:00PM

DATE: 02-24-18

NORTH LEG

144	152	942	Total
37	37	251	1st
44	27	260	2nd
33	44	190	3rd
30	44	241	4th
Rt	Thru	Lt	

Rt	166	179	191	215	751
Thru	49	63	66	53	231
Lt	21	15	20	19	75

Total 1st 2nd 3rd 4th

210	57	49	61	43	Lt
284	66	75	75	68	Thru
72	16	19	21	16	Rt

1st 2nd 3rd 4th Total

	Lt	Thru	Rt
1st	9	37	27
2nd	6	31	34
3rd	12	34	25
4th	8	44	22
Total	35	146	108

Prepared by NEWPORT TRAFFIC STUDIES

HCM 2010 Signalized Intersection Summary

1: Collier Ave & Central Ave

03/27/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	221	265	73	73	231	695	47	157	117	991	146	156
Future Volume (veh/h)	221	265	73	73	231	695	47	157	117	991	146	156
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1759	1881	1881	1792	1845	1881	1881	1845	1881
Adj Flow Rate, veh/h	230	276	76	76	241	724	49	164	122	1032	152	162
Adj No. of Lanes	2	2	0	2	1	2	1	1	1	2	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	8	1	1	6	3	1	1	3	1
Cap, veh/h	1175	1051	284	1072	677	1815	62	188	690	991	1227	560
Arrive On Green	0.34	0.38	0.38	0.33	0.36	0.36	0.04	0.10	0.10	0.28	0.35	0.35
Sat Flow, veh/h	3476	2783	752	3250	1881	2814	1707	1845	1599	3476	3505	1599
Grp Volume(v), veh/h	230	175	177	76	241	724	49	164	122	1032	152	162
Grp Sat Flow(s),veh/h/ln	1738	1787	1748	1625	1881	1407	1707	1845	1599	1738	1752	1599
Q Serve(g_s), s	5.6	8.1	8.4	1.9	11.3	6.2	3.4	10.5	3.3	34.2	3.5	6.7
Cycle Q Clear(g_c), s	5.6	8.1	8.4	1.9	11.3	6.2	3.4	10.5	3.3	34.2	3.5	6.7
Prop In Lane	1.00		0.43	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1175	675	660	1072	677	1815	62	188	690	991	1227	560
V/C Ratio(X)	0.20	0.26	0.27	0.07	0.36	0.40	0.79	0.87	0.18	1.04	0.12	0.29
Avail Cap(c_a), veh/h	1175	675	660	1072	677	1815	131	188	690	991	1227	560
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.93	0.93	0.93	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.2	25.8	25.9	27.6	28.2	13.9	57.4	53.1	18.5	42.9	26.5	16.2
Incr Delay (d2), s/veh	0.1	0.9	1.0	0.0	1.4	0.6	19.2	33.7	0.1	40.1	0.2	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	4.2	4.2	0.9	6.1	6.3	2.0	7.1	1.8	21.9	1.7	3.1
LnGrp Delay(d),s/veh	28.2	26.7	26.9	27.6	29.5	14.5	76.6	86.8	18.6	83.0	26.7	17.5
LnGrp LOS	C	C	C	C	C	B	E	F	B	F	C	B
Approach Vol, veh/h		582			1041			335			1346	
Approach Delay, s/veh		27.4			18.9			60.5			68.7	
Approach LOS		C			B			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	45.8	50.0	10.2	47.8	46.8	49.0	40.0	18.0				
Change Period (Y+Rc), s	* 5.8	4.7	5.8	5.8	5.8	* 5.8	5.8	5.8				
Max Green Setting (Gmax), s	* 6.2	45.3	9.2	37.2	8.3	* 43	34.2	12.2				
Max Q Clear Time (g_c+I1), s	3.9	10.4	5.4	8.7	7.6	13.3	36.2	12.5				
Green Ext Time (p_c), s	0.0	2.2	0.0	1.4	0.1	4.6	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			44.9									
HCM 2010 LOS			D									
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary

1: Collier Ave & Central Ave

03/27/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	221	265	73	116	231	695	47	190	160	991	184	156
Future Volume (veh/h)	221	265	73	116	231	695	47	190	160	991	184	156
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1759	1881	1881	1792	1845	1881	1881	1845	1881
Adj Flow Rate, veh/h	230	276	76	121	241	724	49	198	167	1032	192	162
Adj No. of Lanes	2	2	0	2	1	2	1	1	1	2	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	8	1	1	6	3	1	1	3	1
Cap, veh/h	240	1051	284	198	677	1815	62	188	260	991	1265	577
Arrive On Green	0.07	0.38	0.38	0.06	0.36	0.36	0.04	0.10	0.10	0.28	0.36	0.36
Sat Flow, veh/h	3476	2783	752	3250	1881	2814	1707	1845	1599	3476	3505	1599
Grp Volume(v), veh/h	230	175	177	121	241	724	49	198	167	1032	192	162
Grp Sat Flow(s),veh/h/ln	1738	1787	1748	1625	1881	1407	1707	1845	1599	1738	1752	1599
Q Serve(g_s), s	7.9	8.1	8.4	4.4	11.3	6.2	3.4	12.2	4.7	34.2	4.4	6.5
Cycle Q Clear(g_c), s	7.9	8.1	8.4	4.4	11.3	6.2	3.4	12.2	4.7	34.2	4.4	6.5
Prop In Lane	1.00		0.43	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	240	675	660	198	677	1815	62	188	260	991	1265	577
V/C Ratio(X)	0.96	0.26	0.27	0.61	0.36	0.40	0.79	1.06	0.64	1.04	0.15	0.28
Avail Cap(c_a), veh/h	240	675	660	203	677	1815	149	188	260	991	1265	577
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.92	0.92	0.92	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.7	25.8	25.9	55.0	28.2	2.8	57.3	53.9	19.1	42.9	25.9	15.5
Incr Delay (d2), s/veh	45.9	0.9	1.0	4.7	1.3	0.6	19.2	81.2	5.3	40.1	0.3	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	4.2	4.2	2.1	6.1	2.5	2.0	10.4	2.9	21.9	2.2	3.1
LnGrp Delay(d),s/veh	101.6	26.7	26.9	59.7	29.5	3.4	76.5	135.1	24.4	83.0	26.2	16.7
LnGrp LOS	F	C	C	E	C	A	E	F	C	F	C	B
Approach Vol, veh/h		582			1086			414			1386	
Approach Delay, s/veh		56.4			15.5			83.5			67.4	
Approach LOS		E			B			F			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	50.0	8.9	49.1	13.0	49.0	40.0	18.0				
Change Period (Y+Rc), s	* 4.7	* 4.7	4.5	5.8	4.7	* 5.8	5.8	5.8				
Max Green Setting (Gmax), s	* 7.5	* 45	10.5	37.2	8.3	* 43	34.2	12.2				
Max Q Clear Time (g_c+I1), s	6.4	10.4	5.4	8.5	9.9	13.3	36.2	14.2				
Green Ext Time (p_c), s	0.0	2.2	0.0	1.6	0.0	4.6	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				51.2								
HCM 2010 LOS				D								
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary

1: Collier Ave & Central Ave

03/27/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	226	271	75	118	236	709	48	194	163	1011	187	160
Future Volume (veh/h)	226	271	75	118	236	709	48	194	163	1011	187	160
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1759	1881	1881	1792	1845	1881	1881	1845	1881
Adj Flow Rate, veh/h	235	282	78	123	246	739	50	202	170	1053	195	167
Adj No. of Lanes	2	2	0	2	1	2	1	1	1	2	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	8	1	1	6	3	1	1	3	1
Cap, veh/h	240	1049	285	198	677	1815	64	188	260	991	1263	576
Arrive On Green	0.07	0.38	0.38	0.06	0.36	0.36	0.04	0.10	0.10	0.28	0.36	0.36
Sat Flow, veh/h	3476	2780	755	3250	1881	2814	1707	1845	1599	3476	3505	1599
Grp Volume(v), veh/h	235	179	181	123	246	739	50	202	170	1053	195	167
Grp Sat Flow(s),veh/h/ln	1738	1787	1748	1625	1881	1407	1707	1845	1599	1738	1752	1599
Q Serve(g_s), s	8.1	8.3	8.6	4.4	11.6	6.4	3.5	12.2	4.8	34.2	4.5	6.8
Cycle Q Clear(g_c), s	8.1	8.3	8.6	4.4	11.6	6.4	3.5	12.2	4.8	34.2	4.5	6.8
Prop In Lane	1.00		0.43	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	240	675	660	198	677	1815	64	188	260	991	1263	576
V/C Ratio(X)	0.98	0.27	0.27	0.62	0.36	0.41	0.79	1.08	0.65	1.06	0.15	0.29
Avail Cap(c_a), veh/h	240	675	660	203	677	1815	149	188	260	991	1263	576
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.92	0.92	0.92	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.8	25.8	25.9	55.0	28.3	2.8	57.3	53.9	19.1	42.9	26.0	15.6
Incr Delay (d2), s/veh	51.5	1.0	1.0	5.1	1.4	0.6	18.8	87.7	5.8	46.9	0.3	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	4.3	4.4	2.1	6.3	2.6	2.0	10.8	3.0	22.8	2.2	3.2
LnGrp Delay(d),s/veh	107.3	26.8	27.0	60.1	29.7	3.4	76.1	141.6	24.9	89.8	26.3	16.9
LnGrp LOS	F	C	C	E	C	A	E	F	C	F	C	B
Approach Vol, veh/h	595				1108				422			
Approach Delay, s/veh	58.6				15.5				86.8			
Approach LOS	E				B				F			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	50.0	9.0	49.0	13.0	49.0	40.0	18.0				
Change Period (Y+Rc), s	* 4.7	* 4.7	4.5	5.8	4.7	* 5.8	5.8	5.8				
Max Green Setting (Gmax), s	* 7.5	* 45	10.5	37.2	8.3	* 43	34.2	12.2				
Max Q Clear Time (g_c+I1), s	6.4	10.6	5.5	8.8	10.1	13.6	36.2	14.2				
Green Ext Time (p_c), s	0.0	2.3	0.0	1.6	0.0	4.7	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay	54.0											
HCM 2010 LOS	D											
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary

1: Collier Ave & Central Ave

Synchro 10 Report
06/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	226	271	75	118	236	709	48	194	163	1011	187	160
Future Volume (veh/h)	226	271	75	118	236	709	48	194	163	1011	187	160
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1759	1881	1881	1792	1845	1881	1881	1845	1881
Adj Flow Rate, veh/h	238	285	79	124	248	746	51	204	172	1064	197	168
Adj No. of Lanes	2	2	0	2	1	2	1	1	1	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	8	1	1	6	3	1	1	3	1
Cap, veh/h	240	1049	286	198	677	1815	65	188	260	991	1260	575
Arrive On Green	0.07	0.38	0.38	0.06	0.36	0.36	0.04	0.10	0.10	0.28	0.36	0.36
Sat Flow, veh/h	3476	2778	756	3250	1881	2814	1707	1845	1599	3476	3505	1599
Grp Volume(v), veh/h	238	181	183	124	248	746	51	204	172	1064	197	168
Grp Sat Flow(s),veh/h/ln	1738	1787	1748	1625	1881	1407	1707	1845	1599	1738	1752	1599
Q Serve(g_s), s	8.2	8.4	8.7	4.5	11.7	6.5	3.6	12.2	4.8	34.2	4.6	6.8
Cycle Q Clear(g_c), s	8.2	8.4	8.7	4.5	11.7	6.5	3.6	12.2	4.8	34.2	4.6	6.8
Prop In Lane	1.00		0.43	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	240	675	660	198	677	1815	65	188	260	991	1260	575
V/C Ratio(X)	0.99	0.27	0.28	0.63	0.37	0.41	0.79	1.09	0.66	1.07	0.16	0.29
Avail Cap(c_a), veh/h	240	675	660	203	677	1815	149	188	260	991	1260	575
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.8	25.9	26.0	55.0	28.3	2.8	57.2	53.9	19.1	42.9	26.1	15.7
Incr Delay (d2), s/veh	55.1	1.0	1.0	5.3	1.4	0.6	18.4	91.1	6.1	50.7	0.3	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	4.4	4.4	2.2	6.3	2.6	2.0	10.9	3.1	23.3	2.3	3.2
LnGrp Delay(d),s/veh	110.9	26.9	27.0	60.3	29.7	3.4	75.7	145.0	25.3	93.6	26.3	17.0
LnGrp LOS	F	C	C	E	C	A	E	F	C	F	C	B
Approach Vol, veh/h		602			1118			427			1429	
Approach Delay, s/veh		60.1			15.6			88.5			75.3	
Approach LOS		E			B			F			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	50.0	9.1	48.9	13.0	49.0	40.0	18.0				
Change Period (Y+Rc), s	* 4.7	* 4.7	4.5	5.8	4.7	* 5.8	5.8	5.8				
Max Green Setting (Gmax), s	* 7.5	* 45	10.5	37.2	8.3	* 43	34.2	12.2				
Max Q Clear Time (g_c+I1), s	6.5	10.7	5.6	8.8	10.2	13.7	36.2	14.2				
Green Ext Time (p_c), s	0.0	2.3	0.0	1.7	0.0	4.8	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			55.6									
HCM 2010 LOS			E									
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary

1: Collier Ave & Central Ave

Synchro 10 Report
06/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	226	271	75	118	236	709	48	194	163	1011	187	160
Future Volume (veh/h)	226	271	75	118	236	709	48	194	163	1011	187	160
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1759	1881	1881	1792	1845	1881	1881	1845	1881
Adj Flow Rate, veh/h	238	285	79	124	248	746	51	204	172	1064	197	168
Adj No. of Lanes	2	2	0	2	1	2	1	2	2	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	8	1	1	6	3	1	1	3	1
Cap, veh/h	309	408	111	490	370	1507	64	463	797	1177	1569	716
Arrive On Green	0.09	0.15	0.15	0.15	0.20	0.20	0.04	0.13	0.13	0.34	0.45	0.45
Sat Flow, veh/h	3476	2778	756	3250	1881	2814	1707	3505	2814	3476	3505	1599
Grp Volume(v), veh/h	238	181	183	124	248	746	51	204	172	1064	197	168
Grp Sat Flow(s),veh/h/ln	1738	1787	1748	1625	1881	1407	1707	1752	1407	1738	1752	1599
Q Serve(g_s), s	6.1	8.8	9.0	3.1	11.1	6.4	2.7	4.9	2.4	26.5	3.0	3.7
Cycle Q Clear(g_c), s	6.1	8.8	9.0	3.1	11.1	6.4	2.7	4.9	2.4	26.5	3.0	3.7
Prop In Lane	1.00		0.43	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	309	263	257	490	370	1507	64	463	797	1177	1569	716
V/C Ratio(X)	0.77	0.69	0.71	0.25	0.67	0.50	0.80	0.44	0.22	0.90	0.13	0.23
Avail Cap(c_a), veh/h	318	872	853	490	895	2292	160	471	803	1309	1569	716
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.4	36.8	36.9	34.0	33.7	3.6	43.3	36.3	9.7	28.6	14.7	6.1
Incr Delay (d2), s/veh	10.7	3.2	3.6	0.3	2.1	0.3	19.5	0.7	0.1	8.5	0.2	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	4.6	4.6	1.4	5.9	3.0	1.6	2.4	1.1	14.1	1.5	2.4
LnGrp Delay(d),s/veh	51.1	40.0	40.5	34.3	35.8	3.9	62.8	37.0	9.9	37.1	14.8	6.9
LnGrp LOS	D	D	D	C	D	A	E	D	A	D	B	A
Approach Vol, veh/h		602			1118			427			1429	
Approach Delay, s/veh		44.5			14.3			29.1			30.5	
Approach LOS		D			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.4	18.0	7.9	46.4	12.8	23.7	36.5	17.8				
Change Period (Y+Rc), s	* 4.7	* 4.7	4.5	5.8	4.7	* 5.8	5.8	5.8				
Max Green Setting (Gmax), s	* 8.5	* 44	8.5	39.2	8.3	* 43	34.2	12.2				
Max Q Clear Time (g_c+I1), s	5.1	11.0	4.7	5.7	8.1	13.1	28.5	6.9				
Green Ext Time (p_c), s	0.1	2.3	0.0	1.7	0.0	4.8	2.2	0.8				
Intersection Summary												
HCM 2010 Ctrl Delay				27.6								
HCM 2010 LOS				C								
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



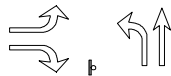
DAVID EVANS
AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET	OF
TURN MOVEMENTS	TM	3-Apr-18	DLRCSRZY-0001	1	OF 2

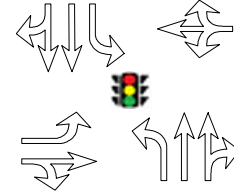
E/W STREET : CRANE ST
N/S STREET : COLLIER AVE
CONDITION : AM PEAK HOUR

INTERSECTION : 2
PROJECTED GROWTH : 2%
PER YEAR :

CONDITION DIAGRAMS



EXISTING GEOMETRICS



CENTRAL PLAZA GEOMETRICS

TURN MOVEMENTS

Condition	Existing Condition Traffic	Project Trips	Existing + Project Condition Traffic	Ambient Growth	Project Condition Traffic	Related Projects	Cumulative Condition Traffic
Scenario #	1		4		7		10

CRANE ST

EB LEFT	6	0	6	1	7	0	7
EB THRU	0	0	0	0	0	0	0
EB RIGHT	7	0	7	1	8	0	8
WB LEFT	0	7	7	0	7	30	37
WB THRU	0	0	0	0	0	0	0
WB RIGHT	0	11	11	0	11	10	21

COLLIER AVE

NB LEFT	23	0	23	1	24	0	24
NB THRU	411	11	422	9	431	91	522
NB RIGHT	0	0	0	0	0	0	0
SB LEFT	0	55	55	0	55	0	55
SB THRU	532	0	532	11	543	250	793
SB RIGHT	93	0	93	2	95	0	95
TOTALS	1072	84	1156	25	1181	381	1562

Los Angeles: 213.785.7887 ~ Ontario: 909.481.5750 ~ San Diego: 619.400.0600 ~ Santa Clarita: 661.284.7400

Temecula: 951.294.9300 ~ Tustin: 714.665.4500 ~ Victorville: 760.524.9100



DAVID EVANS
AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN VOLUME SUMMARY	TM	3-Apr-18	DLRCSRZY-0001	2 OF 2

E/W STREET : CRANE ST

N/S STREET : COLLIER AVE

CONDITION : AM PEAK HOUR

PHF : 0.90

NORTH LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	6	0	0	0	0	0	0	0
0	2	0	0	0	0	0	0	0
0	0	0	0	0	0	0	2	0
0	3	0	0	1	0	0	1	0

SOUTH LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	4	0	0	2	0	0	1	0
0	2	0	0	0	0	0	1	0
0	4	0	0	2	0	0	2	0
0	4	1	0	3	0	0	4	0

EAST LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

WEST LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0

NORTH LEG			SOUTH LEG			EAST LEG			WEST LEG		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
28	158	0	0	93	6	0	0	0	1	0	0
31	112	0	0	77	5	0	0	0	1	0	1
27	102	0	0	97	6	0	0	0	1	0	2
7	145	0	0	115	5	0	0	0	2	0	3

TRUCK TOTAL	AUTO VOLUMES	TOTALS	TRUCK PERCENTAGE
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CRANE ST

EB LEFT	0	6	6	1%
EB THRU	0	0	0	0%
EB RIGHT	2	5	7	29%
WB LEFT	0	0	0	0%
WB THRU	0	0	0	0%
WB RIGHT	0	0	0	0%

COLLIER AVE

NB LEFT	1	22	23	4%
NB THRU	29	382	411	7%
NB RIGHT	0	0	0	0%
SB LEFT	0	0	0	0%
SB THRU	15	517	532	3%
SB RIGHT	0	93	93	1%

Los Angeles: 213.785.7887 ~ Ontario: 909.481.5750 ~ San Diego: 619.400.0600 ~ Santa Clarita: 661.284.7400

Temecula: 951.294.9300 ~ Tustin: 714.665.4500 ~ Victorville: 760.524.9100

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: COLLIER AVE
 EAST-WEST STREET: CRANE ST
 JURISDICTION: LAKE ELSINORE

DATE: 02-22-18

PEAK HOUR: 07:15AM

NORTH LEG

TOTAL: 625

93	532	
28	164	
31	114	
27	104	
7	150	

Total

1st

2nd

3rd

4th

Rt Thru Lt

EAST LEG TOTAL: 0

Rt

Thru

Lt

1st 2nd 3rd 4th Total

Total 1st 2nd 3rd 4th

6	0	1	2	3
7	1	1	2	3

Lt

Thru

Rt

WEST LEG TOTAL: 13

PEAK HOUR FACTORS

NORTH LEG = 0.81

SOUTH LEG = 0.82

EAST LEG =

WEST LEG = 0.54

ALL LEGS = 0.90

Lt Thru Rt

1st

2nd

3rd

4th

Total

6	100	
5	80	
6	105	
6	126	
23	411	

TOTAL: 434

SOUTH LEG

HOOR TOTAL: 1,072

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY

NORTH-SOUTH STREET : COLLIER AVE

LAKE ELSINORE

EAST-WEST STREET : CRANE ST

02-22-18

BEGINNING TIME : 07:00AM

AUTOS			LARGE 2 AXLE			3 AXLE			4(+) AXLE			TOTALS
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	
NORTH LEG												
16	110	0	0	0	0	0	0	0	0	1	0	127
28	158	0	0	6	0	0	0	0	0	0	0	192
31	112	0	0	2	0	0	0	0	0	0	0	145
27	102	0	0	0	0	0	0	0	0	2	0	131
7	145	0	0	3	0	0	1	0	0	1	0	157
2	114	0	1	2	0	1	0	0	0	2	0	122
3	75	0	1	4	0	1	0	0	0	1	0	85
7	102	0	0	1	0	0	0	0	0	1	0	111
121	918	0	2	18	0	2	1	0	0	8	0	1070
SOUTH LEG												
0	77	9	0	0	0	0	0	0	0	2	0	88
0	93	6	0	4	0	0	2	0	0	1	0	106
0	77	5	0	2	0	0	0	0	0	1	0	85
0	97	6	0	4	0	0	2	0	0	2	0	111
0	115	5	0	4	1	0	3	0	0	4	0	132
0	58	3	0	4	0	0	2	0	0	2	0	69
0	73	1	0	4	1	0	3	0	0	4	0	86
0	100	5	0	5	0	0	0	0	0	4	0	114
0	690	40	0	27	2	0	12	0	0	20	0	791
EAST LEG												
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
WEST LEG												
0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	1
1	0	1	0	0	0	0	0	0	0	0	0	2
1	0	2	1	0	0	0	0	0	0	0	0	4
2	0	3	1	0	0	0	0	0	0	0	0	6
0	0	1	2	0	0	0	0	0	0	0	0	3
1	0	0	0	0	0	0	0	0	0	0	0	1
0	0	2	2	0	0	0	0	0	0	0	1	5
6	0	9	6	0	0	0	0	0	0	0	1	22

Prepared by Newport Traffic Studies

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: COLLIER AVE

EAST-WEST STREET: CRANE ST

TIME: 07:00AM-08:00AM

DATE: 02-22-18

NORTH LEG

102	493		Total
16	111		1st
28	164		2nd
31	114		3rd
27	104		4th
Rt	Thru	Lt	

Total 1st 2nd 3rd 4th

3	0	0	1	2	Lt
					Thru
4	0	1	1	2	Rt

Rt					
Thru					
Lt					
	1st	2nd	3rd	4th	Total

	Lt	Thru	Rt
1st	9	79	
2nd	6	100	
3rd	5	80	
4th	6	105	
Total	26	364	

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: COLLIER AVE

EAST-WEST STREET: CRANE ST

TIME: 08:00AM-09:00AM

DATE: 02-22-18

NORTH LEG

23	452		Total
7	150		1st
4	118		2nd
5	80		3rd
7	104		4th
Rt	Thru	Lt	

Total 1st 2nd 3rd 4th

7	3	1	0	3	Lt
					Thru
8	3	2	1	2	Rt

Rt					
Thru					
Lt					
	1st	2nd	3rd	4th	Total

Lt Thru Rt

1st	6	126	
2nd	3	66	
3rd	2	84	
4th	5	109	
Total	16	385	

Prepared by NEWPORT TRAFFIC STUDIES

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	7	23	411	532	93
Future Vol, veh/h	6	7	23	411	532	93
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	90	0	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	29	4	7	3	1
Mvmt Flow	7	8	26	457	591	103
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1152	347	694	0	-	0
Stage 1	643	-	-	-	-	-
Stage 2	509	-	-	-	-	-
Critical Hdwy	6.615	7.335	4.16	-	-	-
Critical Hdwy Stg 1	5.815	-	-	-	-	-
Critical Hdwy Stg 2	5.415	-	-	-	-	-
Follow-up Hdwy	3.5095	3.5755	2.238	-	-	-
Pot Cap-1 Maneuver	206	587	888	-	-	-
Stage 1	489	-	-	-	-	-
Stage 2	605	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	200	587	888	-	-	-
Mov Cap-2 Maneuver	200	-	-	-	-	-
Stage 1	475	-	-	-	-	-
Stage 2	605	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	16.9	0.5	0			
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	888	-	200	587	-	-
HCM Lane V/C Ratio	0.029	-	0.033	0.013	-	-
HCM Control Delay (s)	9.2	-	23.6	11.2	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	0	-	-

HCM 2010 Signalized Intersection Summary

2: Collier Ave & Crane St

05/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	0	7	0	0	0	23	411	0	0	532	93
Future Volume (veh/h)	6	0	7	0	0	0	23	411	0	0	532	93
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1473	1900	1900	1863	1900	1827	1776	1900	1863	1850	1900
Adj Flow Rate, veh/h	7	0	8	0	0	0	26	457	0	0	591	103
Adj No. of Lanes	1	1	0	0	1	0	1	1	0	1	2	0
Peak Hour Factor	0.90	0.92	0.90	0.92	0.92	0.92	0.90	0.90	0.92	0.92	0.90	0.90
Percent Heavy Veh, %	1	2	2	2	2	2	4	7	7	2	3	3
Cap, veh/h	173	0	37	0	55	0	41	1413	0	3	2023	352
Arrive On Green	0.03	0.00	0.03	0.00	0.00	0.00	0.02	0.80	0.00	0.00	0.68	0.68
Sat Flow, veh/h	1792	0	1252	0	1863	0	1740	1776	0	1774	2995	521
Grp Volume(v), veh/h	7	0	8	0	0	0	26	457	0	0	346	348
Grp Sat Flow(s),veh/h/ln	1792	0	1252	0	1863	0	1740	1776	0	1774	1757	1758
Q Serve(g_s), s	0.2	0.0	0.4	0.0	0.0	0.0	0.9	4.3	0.0	0.0	4.8	4.8
Cycle Q Clear(g_c), s	0.2	0.0	0.4	0.0	0.0	0.0	0.9	4.3	0.0	0.0	4.8	4.8
Prop In Lane	1.00		1.00	0.00		0.00	1.00		0.00	1.00		0.30
Lane Grp Cap(c), veh/h	173	0	37	0	55	0	41	1413	0	3	1187	1187
V/C Ratio(X)	0.04	0.00	0.22	0.00	0.00	0.00	0.64	0.32	0.00	0.00	0.29	0.29
Avail Cap(c_a), veh/h	666	0	382	0	568	0	122	1413	0	124	1187	1187
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	0.66	0.66
Uniform Delay (d), s/veh	28.4	0.0	28.4	0.0	0.0	0.0	29.0	1.7	0.0	0.0	3.9	3.9
Incr Delay (d2), s/veh	0.1	0.0	2.9	0.0	0.0	0.0	15.3	0.6	0.0	0.0	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.2	0.0	0.0	0.0	0.6	2.3	0.0	0.0	2.4	2.5
LnGrp Delay(d),s/veh	28.5	0.0	31.3	0.0	0.0	0.0	44.4	2.3	0.0	0.0	4.3	4.4
LnGrp LOS	C		C				D	A			A	A
Approach Vol, veh/h		15			0			483			694	
Approach Delay, s/veh		30.0			0.0			4.6			4.4	
Approach LOS		C						A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	53.5		6.5	7.2	46.3		6.5				
Change Period (Y+Rc), s	5.8	5.8		* 4.7	5.8	5.8		* 4.7				
Max Green Setting (Gmax), s	4.2	21.2		* 18	4.2	21.2		* 18				
Max Q Clear Time (g_c+I1), s	0.0	6.3		2.4	2.9	6.8		0.0				
Green Ext Time (p_c), s	0.0	2.2		0.0	0.0	3.4		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			4.8									
HCM 2010 LOS			A									
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	0	7	7	0	11	23	422	0	55	532	93
Future Vol, veh/h	6	0	7	7	0	11	23	422	0	55	532	93
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	90	-	-	-	-	-	100	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	1	0	29	0	0	0	4	7	0	0	3	1
Mvmt Flow	7	0	8	8	0	12	26	469	0	61	591	103

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1292	1286	347	939	1337	469	694	0	0	469	0	0
Stage 1	765	765	-	521	521	-	-	-	-	-	-	-
Stage 2	527	521	-	418	816	-	-	-	-	-	-	-
Critical Hdwy	7.315	6.5	7.335	7.3	6.5	6.2	4.16	-	-	4.1	-	-
Critical Hdwy Stg 1	6.515	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.115	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5095	4.3	5.755	3.5	4	3.3	2.238	-	-	2.2	-	-
Pot Cap-1 Maneuver	131	166	587	234	155	598	888	-	-	1103	-	-
Stage 1	365	415	-	542	535	-	-	-	-	-	-	-
Stage 2	536	535	-	588	393	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	120	152	587	216	142	598	888	-	-	1103	-	-
Mov Cap-2 Maneuver	120	152	-	216	142	-	-	-	-	-	-	-
Stage 1	354	392	-	526	519	-	-	-	-	-	-	-
Stage 2	510	519	-	548	371	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	23		15.8		0.5		0.7	
HCM LOS	C		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	888	-	-	120	587	354	1103	-	-
HCM Lane V/C Ratio	0.029	-	-	0.056	0.013	0.056	0.055	-	-
HCM Control Delay (s)	9.2	-	-	36.8	11.2	15.8	8.5	-	-
HCM Lane LOS	A	-	-	E	B	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0	0.2	0.2	-	-

HCM 2010 Signalized Intersection Summary

2: Collier Ave & Crane St

03/27/2018

																		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
Lane Configurations																		
Traffic Volume (veh/h)	6	0	7	7	0	11	23	422	0	55	532	93						
Future Volume (veh/h)	6	0	7	7	0	11	23	422	0	55	532	93						
Number	7	4	14	3	8	18	5	2	12	1	6	16						
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
Adj Sat Flow, veh/h/ln	1881	1473	1900	1900	1900	1900	1827	1776	1900	1900	1850	1900						
Adj Flow Rate, veh/h	7	0	8	8	0	12	26	469	0	61	591	103						
Adj No. of Lanes	1	1	0	0	1	0	1	1	0	1	2	0						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90						
Percent Heavy Veh, %	1	0	0	0	0	0	4	7	7	0	3	3						
Cap, veh/h	207	0	74	112	9	56	41	1113	0	77	1935	336						
Arrive On Green	0.06	0.00	0.06	0.06	0.00	0.06	0.02	0.63	0.00	0.04	0.65	0.65						
Sat Flow, veh/h	1410	0	1252	479	151	945	1740	1776	0	1810	2995	521						
Grp Volume(v), veh/h	7	0	8	20	0	0	26	469	0	61	346	348						
Grp Sat Flow(s),veh/h/ln	1410	0	1252	1575	0	0	1740	1776	0	1810	1757	1758						
Q Serve(g_s), s	0.0	0.0	0.4	0.0	0.0	0.0	0.9	8.0	0.0	2.0	5.2	5.2						
Cycle Q Clear(g_c), s	0.2	0.0	0.4	0.7	0.0	0.0	0.9	8.0	0.0	2.0	5.2	5.2						
Prop In Lane	1.00		1.00	0.40		0.60	1.00		0.00	1.00		0.30						
Lane Grp Cap(c), veh/h	207	0	74	177	0	0	41	1113	0	77	1135	1136						
V/C Ratio(X)	0.03	0.00	0.11	0.11	0.00	0.00	0.64	0.42	0.00	0.79	0.30	0.31						
Avail Cap(c_a), veh/h	554	0	382	555	0	0	122	1113	0	127	1135	1136						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.63	0.63	0.63						
Uniform Delay (d), s/veh	26.7	0.0	26.7	26.9	0.0	0.0	29.0	5.7	0.0	28.5	4.7	4.7						
Incr Delay (d2), s/veh	0.1	0.0	0.6	0.3	0.0	0.0	15.3	1.2	0.0	10.7	0.4	0.4						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.1	0.3	0.0	0.0	0.6	4.3	0.0	1.2	2.6	2.6						
LnGrp Delay(d),s/veh	26.7	0.0	27.4	27.2	0.0	0.0	44.4	6.9	0.0	39.2	5.1	5.1						
LnGrp LOS	C		C	C			D	A		D	A	A						
Approach Vol, veh/h	15				20				495									
Approach Delay, s/veh	27.1				27.2				8.8									
Approach LOS	C				C				A									
Timer	1	2	3	4	5	6	7	8										
Assigned Phs	1	2			4	5	6	8										
Phs Duration (G+Y+Rc), s	8.4	43.4			8.2	7.2	44.6	8.2										
Change Period (Y+Rc), s	5.8	5.8			* 4.7	5.8	5.8	* 4.7										
Max Green Setting (Gmax), s	4.2	21.2			* 18	4.2	21.2	* 18										
Max Q Clear Time (g_c+I1), s	4.0	10.0			2.4	2.9	7.2	2.7										
Green Ext Time (p_c), s	0.0	2.0			0.0	0.0	3.3	0.0										
Intersection Summary																		
HCM 2010 Ctrl Delay	8.8																	
HCM 2010 LOS	A																	
Notes																		

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	0	8	7	0	11	24	431	0	55	543	95
Future Vol, veh/h	7	0	8	7	0	11	24	431	0	55	543	95
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	90	-	-	-	-	-	100	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	1	0	29	0	0	0	4	7	0	0	3	1
Mvmt Flow	8	0	9	8	0	12	27	479	0	61	603	106

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1317	1311	355	957	1364	479	709	0	-	479	0	0
Stage 1	778	778	-	533	533	-	-	-	-	-	-	-
Stage 2	539	533	-	424	831	-	-	-	-	-	-	-
Critical Hdwy	7.315	6.5	7.335	7.3	6.5	6.2	4.16	-	-	4.1	-	-
Critical Hdwy Stg 1	6.515	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.115	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5095	4.3	5.755	3.5	4	3.3	2.238	-	-	2.2	-	-
Pot Cap-1 Maneuver	125	160	580	227	149	591	877	-	0	1094	-	-
Stage 1	358	410	-	534	528	-	-	-	0	-	-	-
Stage 2	528	528	-	584	387	-	-	-	0	-	-	-
Platoon blocked, %								-			-	-
Mov Cap-1 Maneuver	115	146	580	209	136	591	877	-	-	1094	-	-
Mov Cap-2 Maneuver	115	146	-	209	136	-	-	-	-	-	-	-
Stage 1	347	387	-	517	512	-	-	-	-	-	-	-
Stage 2	501	512	-	543	365	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	24	16.1	0.5	0.7
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	877	-	115	580	345	1094	-	-
HCM Lane V/C Ratio	0.03	-	0.068	0.015	0.058	0.056	-	-
HCM Control Delay (s)	9.2	-	38.6	11.3	16.1	8.5	-	-
HCM Lane LOS	A	-	E	B	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	0	0.2	0.2	-	-

HCM 2010 Signalized Intersection Summary

2: Collier Ave & Crane St

03/27/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	8	7	0	11	24	431	0	55	543	95
Future Volume (veh/h)	7	0	8	7	0	11	24	431	0	55	543	95
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1473	1900	1900	1900	1900	1827	1776	0	1900	1850	1900
Adj Flow Rate, veh/h	8	0	9	8	0	12	27	479	0	61	603	106
Adj No. of Lanes	1	1	0	0	1	0	1	1	0	1	2	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	1	0	0	0	0	0	4	7	0	0	3	3
Cap, veh/h	211	0	77	113	10	58	42	1109	0	77	1922	337
Arrive On Green	0.06	0.00	0.06	0.06	0.00	0.06	0.02	0.62	0.00	0.04	0.64	0.64
Sat Flow, veh/h	1410	0	1252	465	166	947	1740	1776	0	1810	2990	525
Grp Volume(v), veh/h	8	0	9	20	0	0	27	479	0	61	354	355
Grp Sat Flow(s),veh/h/ln	1410	0	1252	1579	0	0	1740	1776	0	1810	1758	1757
Q Serve(g_s), s	0.0	0.0	0.4	0.0	0.0	0.0	0.9	8.3	0.0	2.0	5.4	5.4
Cycle Q Clear(g_c), s	0.3	0.0	0.4	0.7	0.0	0.0	0.9	8.3	0.0	2.0	5.4	5.4
Prop In Lane	1.00		1.00	0.40		0.60	1.00		0.00	1.00		0.30
Lane Grp Cap(c), veh/h	211	0	77	181	0	0	42	1109	0	77	1130	1130
V/C Ratio(X)	0.04	0.00	0.12	0.11	0.00	0.00	0.64	0.43	0.00	0.79	0.31	0.31
Avail Cap(c_a), veh/h	554	0	382	555	0	0	122	1109	0	127	1130	1130
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.61	0.61	0.61
Uniform Delay (d), s/veh	26.5	0.0	26.6	26.7	0.0	0.0	29.0	5.8	0.0	28.5	4.8	4.8
Incr Delay (d2), s/veh	0.1	0.0	0.7	0.3	0.0	0.0	15.2	1.2	0.0	10.5	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.2	0.3	0.0	0.0	0.6	4.4	0.0	1.2	2.7	2.7
LnGrp Delay(d),s/veh	26.6	0.0	27.3	27.0	0.0	0.0	44.2	7.0	0.0	39.0	5.2	5.2
LnGrp LOS	C		C	C			D	A		D	A	A
Approach Vol, veh/h	17				20				506			
Approach Delay, s/veh	27.0				27.0				9.0			
Approach LOS	C				C				A			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2			4	5	6	8				
Phs Duration (G+Y+Rc), s	8.4	43.3			8.4	7.2	44.4	8.4				
Change Period (Y+Rc), s	5.8	5.8			* 4.7	5.8	5.8	* 4.7				
Max Green Setting (Gmax), s	4.2	21.2			* 18	4.2	21.2	* 18				
Max Q Clear Time (g_c+I1), s	4.0	10.3			2.4	2.9	7.4	2.7				
Green Ext Time (p_c), s	0.0	2.0			0.0	0.0	3.4	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay	8.9											
HCM 2010 LOS	A											
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	0	8	37	0	21	24	522	0	55	793	95
Future Vol, veh/h	7	0	8	37	0	21	24	522	0	55	793	95
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	90	-	-	-	-	-	100	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	1	0	29	0	0	0	4	7	0	0	3	1
Mvmt Flow	7	0	8	39	0	22	25	549	0	58	835	100

Major/Minor	Minor2		Minor1		Major1		Major2	
Conflicting Flow All	1611	1600	468	1133	1650	549	935	0
Stage 1	1001	1001	-	599	599	-	-	-
Stage 2	610	599	-	534	1051	-	-	-
Critical Hdwy	7.315	6.5	7.335	7.3	6.5	6.2	4.16	-
Critical Hdwy Stg 1	6.515	5.5	-	6.1	5.5	-	-	-
Critical Hdwy Stg 2	6.115	5.5	-	6.5	5.5	-	-	-
Follow-up Hdwy	3.5095	4.3	5.755	3.5	4	3.3	2.238	-
Pot Cap-1 Maneuver	77	107	485	171	100	539	720	-
Stage 1	262	323	-	492	494	-	-	-
Stage 2	483	494	-	503	306	-	-	-
Platoon blocked, %								-
Mov Cap-1 Maneuver	69	97	485	157	91	539	720	-
Mov Cap-2 Maneuver	69	97	-	157	91	-	-	-
Stage 1	253	305	-	475	477	-	-	-
Stage 2	447	477	-	466	289	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	36.3	28.9	0.4	0.5
HCM LOS	E	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	720	-	-	69	485	211	1031	-	-
HCM Lane V/C Ratio	0.035	-	-	0.107	0.017	0.289	0.056	-	-
HCM Control Delay (s)	10.2	-	-	63.3	12.6	28.9	8.7	-	-
HCM Lane LOS	B	-	-	F	B	D	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.1	1.2	0.2	-	-

HCM 2010 Signalized Intersection Summary

2: Collier Ave & Crane St

Synchro 10 Report
06/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	8	37	0	21	24	522	0	55	793	95
Future Volume (veh/h)	7	0	8	37	0	21	24	522	0	55	793	95
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1473	1900	1900	1900	1900	1827	1776	1900	1900	1848	1900
Adj Flow Rate, veh/h	7	0	8	39	0	22	25	549	0	58	835	100
Adj No. of Lanes	1	1	0	0	1	0	1	1	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	0	0	0	0	0	4	7	7	0	3	3
Cap, veh/h	155	0	77	102	6	33	292	1054	0	379	2006	240
Arrive On Green	0.06	0.00	0.06	0.06	0.00	0.06	0.17	0.59	0.00	0.21	0.63	0.63
Sat Flow, veh/h	1398	0	1252	860	104	544	1740	1776	0	1810	3159	378
Grp Volume(v), veh/h	7	0	8	61	0	0	25	549	0	58	464	471
Grp Sat Flow(s),veh/h/ln	1398	0	1252	1507	0	0	1740	1776	0	1810	1756	1782
Q Serve(g_s), s	0.0	0.0	0.7	4.0	0.0	0.0	1.5	21.8	0.0	3.1	15.7	15.7
Cycle Q Clear(g_c), s	0.5	0.0	0.7	4.7	0.0	0.0	1.5	21.8	0.0	3.1	15.7	15.7
Prop In Lane	1.00		1.00	0.64		0.36	1.00		0.00	1.00		0.21
Lane Grp Cap(c), veh/h	155	0	77	142	0	0	292	1054	0	379	1115	1131
V/C Ratio(X)	0.05	0.00	0.10	0.43	0.00	0.00	0.09	0.52	0.00	0.15	0.42	0.42
Avail Cap(c_a), veh/h	294	0	201	290	0	0	292	1054	0	379	1115	1131
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.41	0.41	0.41
Uniform Delay (d), s/veh	53.1	0.0	53.2	55.0	0.0	0.0	42.2	14.4	0.0	38.7	10.9	10.9
Incr Delay (d2), s/veh	0.1	0.0	0.6	2.1	0.0	0.0	0.1	1.8	0.0	0.1	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.3	2.1	0.0	0.0	0.7	11.2	0.0	1.6	7.8	7.9
LnGrp Delay(d),s/veh	53.2	0.0	53.8	57.1	0.0	0.0	42.3	16.2	0.0	38.8	11.3	11.3
LnGrp LOS	D		D	E			D	B		D	B	B
Approach Vol, veh/h	15			61			574			993		
Approach Delay, s/veh	53.5			57.1			17.3			12.9		
Approach LOS	D			E			B			B		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	30.9	77.0		12.1	25.9	82.0		12.1				
Change Period (Y+Rc), s	5.8	5.8		* 4.7	5.8	5.8		* 4.7				
Max Green Setting (Gmax), s	13.2	71.2		* 19	8.2	76.2		* 19				
Max Q Clear Time (g_c+I1), s	5.1	23.8		2.7	3.5	17.7		6.7				
Green Ext Time (p_c), s	0.1	3.6		0.0	0.0	6.5		0.2				
Intersection Summary												
HCM 2010 Ctrl Delay	16.5											
HCM 2010 LOS	B											
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



DAVID EVANS
AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TM	3-Apr-18	DLRCSRZY-0001	1 OF 2

E/W STREET : CRANE ST
N/S STREET : COLLIER AVE
CONDITION : PM PEAK HOUR

INTERSECTION : 2
PROJECTED GROWTH : 2%
PER YEAR :

TURN MOVEMENTS

	Existing Condition Traffic	Project Trips	Existing + Project Condition Traffic	Ambient Growth	Project Condition Traffic	Related Projects	Cumulative Condition Traffic
Condition							
Scenario #	2		5		8		11

CRANE ST

EB LEFT	50	0	50	1	51	0	51
EB THRU	0	0	0	0	0	0	0
EB RIGHT	19	0	19	1	20	0	20
WB LEFT	0	20	20	0	20	35	55
WB THRU	0	0	0	0	0	0	0
WB RIGHT	0	32	32	0	32	12	44

COLLIER AVE

NB LEFT	12	0	12	1	13	0	13
NB THRU	543	32	575	11	586	334	920
NB RIGHT	0	0	0	0	0	0	0
SB LEFT	0	39	39	0	39	0	39
SB THRU	453	0	453	10	463	90	553
SB RIGHT	27	0	27	1	28	0	28
TOTALS	1104	123	1227	25	1252	471	1723

Los Angeles: 213.785.7887 ~ Ontario: 909.481.5750 ~ San Diego: 619.400.0600 ~ Santa Clarita: 661.284.7400

Temecula: 951.294.9300 ~ Tustin: 714.665.4500 ~ Victorville: 760.524.9100



DAVID EVANS
AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN VOLUME SUMMARY	TM	3-Apr-18	DLRCSRZY-0001	2 OF 2

E/W STREET : CRANE ST

N/S STREET : COLLIER AVE

CONDITION : PM PEAK HOUR

PHF : 0.87

NORTH LEG								
LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
1	2	0	0	0	0	0	1	0
0	1	0	0	0	0	0	0	0
0	1	0	0	0	0	0	2	0
1	1	0	1	0	0	0	0	0

SOUTH LEG								
LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	2	0	0	0	0	0	2	0
0	4	0	0	1	0	0	1	0
0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	0	1	0

EAST LEG								
LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

WEST LEG								
LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

NORTH LEG			SOUTH LEG			EAST LEG			WEST LEG		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
7	143	0	0	133	2	0	0	0	4	0	12
8	133	0	0	145	3	0	0	0	6	0	16
1	98	0	0	111	4	0	0	0	2	0	8
8	71	0	0	142	3	0	0	0	6	0	14

TRUCK TOTAL	AUTO VOLUMES	TOTALS	TRUCK PERCENTAGE
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CRANE ST

EB LEFT	0	50	50	1%
EB THRU	0	0	0	0%
EB RIGHT	1	18	19	5%
WB LEFT	0	0	0	0%
WB THRU	0	0	0	0%
WB RIGHT	0	0	0	0%

COLLIER AVE

NB LEFT	0	12	12	1%
NB THRU	12	531	543	1%
NB RIGHT	0	0	0	0%
SB LEFT	0	0	0	0%
SB THRU	8	445	453	1%
SB RIGHT	3	24	27	11%

Los Angeles: 213.785.7887 ~ Ontario: 909.481.5750 ~ San Diego: 619.400.0600 ~ Santa Clarita: 661.284.7400

Temecula: 951.294.9300 ~ Tustin: 714.665.4500 ~ Victorville: 760.524.9100

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: COLLIER AVE

EAST-WEST STREET: CRANE ST

JURISDICTION: LAKE ELSINORE

DATE: 02-22-18

PEAK HOUR: 04:15PM

NORTH LEG

TOTAL: 480

27	453	
8	146	
8	134	
1	101	
10	72	

Total

1st

2nd

3rd

4th

Rt Thru Lt

EAST LEG TOTAL: 0

Rt					
Thru					
Lt					

Total 1st 2nd 3rd 4th

50	12	16	8	14
19	4	7	2	6

Lt

Thru

Rt

1st 2nd 3rd 4th Total

WEST LEG TOTAL: 69

PEAK HOUR FACTORS

NORTH LEG = 0.78

SOUTH LEG = 0.90

EAST LEG =

WEST LEG = 0.75

ALL LEGS = 0.87

Lt Thru Rt

1st

2nd

3rd

4th

Total

2	137	
3	151	
4	111	
3	144	
12	543	

TOTAL: 555

SOUTH LEG

HOURLY TOTAL: 1,104

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY
NORTH-SOUTH STREET : COLLIER AVE
EAST-WEST STREET : CRANE ST
BEGINNING TIME : 04:00PM

LAKE ELSINORE
02-22-18

AUTOS			LARGE 2 AXLE			3 AXLE			4 (+) AXLE			TOTALS
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	
NORTH LEG												
2	90	0	0	0	0	0	2	0	0	1	0	95
7	143	0	1	2	0	0	0	0	0	1	0	154
8	133	0	0	1	0	0	0	0	0	0	0	142
1	98	0	0	1	0	0	0	0	0	2	0	102
8	71	0	1	1	0	1	0	0	0	0	0	82
2	49	0	0	0	0	0	0	0	0	0	0	51
4	92	0	1	0	0	0	0	0	1	1	0	99
1	106	0	0	1	0	0	0	0	0	1	0	109
33	782	0	3	6	0	1	2	0	1	6	0	834
SOUTH LEG												
0	126	2	0	3	0	0	1	0	0	2	0	134
0	133	2	0	2	0	0	0	0	0	2	0	139
0	145	3	0	4	0	0	1	0	0	1	0	154
0	111	4	0	0	0	0	0	0	0	0	0	115
0	142	3	0	1	0	0	0	0	0	1	0	147
0	76	2	0	1	0	0	0	0	0	0	0	79
0	85	0	0	1	0	0	0	0	0	2	0	88
0	74	4	0	3	0	0	1	0	0	0	0	82
0	892	20	0	15	0	0	3	0	0	8	0	938
EAST LEG												
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
WEST LEG												
9	0	5	0	0	0	0	0	0	0	0	0	14
4	0	12	0	0	0	0	0	0	0	0	0	16
6	0	16	1	0	0	0	0	0	0	0	0	23
2	0	8	0	0	0	0	0	0	0	0	0	10
6	0	14	0	0	0	0	0	0	0	0	0	20
3	0	16	0	0	0	0	0	0	0	0	0	19
3	0	7	0	0	0	0	0	0	0	0	0	10
6	0	14	0	0	0	0	0	0	0	0	2	22
39	0	92	1	0	0	0	0	0	0	0	2	134

Prepared by Newport Traffic Studies

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: COLLIER AVE

EAST-WEST STREET: CRANE ST

TIME: 04:00PM-05:00PM

DATE: 02-22-18

NORTH LEG

19	474		Total
2	93		1st
8	146		2nd
8	134		3rd
1	101		4th
Rt	Thru	Lt	

Total 1st 2nd 3rd 4th

41	5	12	16	8
22	9	4	7	2

Lt
Thru
Rt

Rt
Thru
Lt

1st 2nd 3rd 4th Total

Lt Thru Rt

1st	2	132	
2nd	2	137	
3rd	3	151	
4th	4	111	
Total	11	531	

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: COLLIER AVE

EAST-WEST STREET: CRANE ST

TIME: 05:00PM-06:00PM

DATE: 02-22-18

NORTH LEG

19	322		Total
10	72		1st
2	49		2nd
6	93		3rd
1	108		4th
Rt	Thru	Lt	

Total 1st 2nd 3rd 4th

53	14	16	7	16	Lt
					Thru
18	6	3	3	6	Rt

Rt					
Thru					
Lt					
	1st	2nd	3rd	4th	Total

	Lt	Thru	Rt
1st	3	144	
2nd	2	77	
3rd	0	88	
4th	4	78	
Total	9	387	

Prepared by NEWPORT TRAFFIC STUDIES

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	50	19	12	543	453	27
Future Vol, veh/h	50	19	12	543	453	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	90	0	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	1	5	1	1	1	11
Mvmt Flow	57	22	14	624	521	31
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1189	276	552	0	-	0
Stage 1	537	-	-	-	-	-
Stage 2	652	-	-	-	-	-
Critical Hdwy	6.615	6.975	4.115	-	-	-
Critical Hdwy Stg 1	5.815	-	-	-	-	-
Critical Hdwy Stg 2	5.415	-	-	-	-	-
Follow-up Hdwy	3.5095	3.3475	2.2095	-	-	-
Pot Cap-1 Maneuver	195	714	1022	-	-	-
Stage 1	553	-	-	-	-	-
Stage 2	520	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	192	714	1022	-	-	-
Mov Cap-2 Maneuver	192	-	-	-	-	-
Stage 1	545	-	-	-	-	-
Stage 2	520	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	25.7	0.2	0			
HCM LOS	D					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1022	-	192	714	-	-
HCM Lane V/C Ratio	0.013	-	0.299	0.031	-	-
HCM Control Delay (s)	8.6	-	31.6	10.2	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0	-	1.2	0.1	-	-

HCM 2010 Signalized Intersection Summary

2: Collier Ave & Crane St

05/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	0	19	0	0	0	12	543	0	0	453	27
Future Volume (veh/h)	50	0	19	0	0	0	12	543	0	0	453	27
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1810	1900	1900	1863	1900	1881	1881	1900	1863	1871	1900
Adj Flow Rate, veh/h	57	0	22	0	0	0	14	624	0	0	521	31
Adj No. of Lanes	1	1	0	0	1	0	1	1	0	1	2	0
Peak Hour Factor	0.87	0.92	0.87	0.92	0.92	0.92	0.87	0.87	0.92	0.92	0.87	0.87
Percent Heavy Veh, %	1	2	2	2	2	2	1	1	1	2	1	1
Cap, veh/h	443	0	192	0	233	0	26	1045	0	5	1244	74
Arrive On Green	0.13	0.00	0.13	0.00	0.00	0.00	0.01	0.56	0.00	0.00	0.36	0.36
Sat Flow, veh/h	1792	0	1538	0	1863	0	1792	1881	0	1774	3410	203
Grp Volume(v), veh/h	57	0	22	0	0	0	14	624	0	0	271	281
Grp Sat Flow(s),veh/h/ln	1792	0	1538	0	1863	0	1792	1881	0	1774	1777	1835
Q Serve(g_s), s	0.9	0.0	0.4	0.0	0.0	0.0	0.3	7.3	0.0	0.0	3.8	3.8
Cycle Q Clear(g_c), s	0.9	0.0	0.4	0.0	0.0	0.0	0.3	7.3	0.0	0.0	3.8	3.8
Prop In Lane	1.00		1.00	0.00		0.00	1.00		0.00	1.00		0.11
Lane Grp Cap(c), veh/h	443	0	192	0	233	0	26	1045	0	5	648	669
V/C Ratio(X)	0.13	0.00	0.11	0.00	0.00	0.00	0.54	0.60	0.00	0.00	0.42	0.42
Avail Cap(c_a), veh/h	1216	0	856	0	1036	0	229	1212	0	227	1145	1183
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	13.0	0.0	12.8	0.0	0.0	0.0	16.1	4.9	0.0	0.0	7.8	7.8
Incr Delay (d2), s/veh	0.1	0.0	0.3	0.0	0.0	0.0	15.9	0.6	0.0	0.0	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.2	0.0	0.0	0.0	0.2	3.8	0.0	0.0	1.9	2.0
LnGrp Delay(d),s/veh	13.1	0.0	13.0	0.0	0.0	0.0	32.0	5.5	0.0	0.0	8.3	8.3
LnGrp LOS	B		B				C	A			A	A
Approach Vol, veh/h		79			0			638			552	
Approach Delay, s/veh		13.1			0.0			6.0			8.3	
Approach LOS		B						A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	24.1		8.8	6.3	17.8		8.8				
Change Period (Y+Rc), s	5.8	5.8		* 4.7	5.8	5.8		* 4.7				
Max Green Setting (Gmax), s	4.2	21.2		* 18	4.2	21.2		* 18				
Max Q Clear Time (g_c+I1), s	0.0	9.3		2.9	2.3	5.8		0.0				
Green Ext Time (p_c), s	0.0	3.0		0.2	0.0	2.6		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			7.4									
HCM 2010 LOS			A									
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection												
Int Delay, s/veh	4.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	0	19	20	0	32	12	575	0	39	453	27
Future Vol, veh/h	50	0	19	20	0	32	12	575	0	39	453	27
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	90	-	-	-	-	-	100	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	1	0	5	0	0	0	1	1	0	0	1	11
Mvmt Flow	57	0	22	23	0	37	14	661	0	45	521	31

Major/Minor	Minor2		Minor1		Major1		Major2	
Conflicting Flow All	1335	1316	276	1040	1331	661	552	0
Stage 1	627	627	-	689	689	-	-	-
Stage 2	708	689	-	351	642	-	-	-
Critical Hdwy	7.315	6.5	6.975	7.3	6.5	6.2	4.115	-
Critical Hdwy Stg 1	6.515	5.5	-	6.1	5.5	-	-	-
Critical Hdwy Stg 2	6.115	5.5	-	6.5	5.5	-	-	-
Follow-up Hdwy	3.5095	4.3	3.475	3.5	4	3.3	2.2095	-
Pot Cap-1 Maneuver	122	159	714	198	156	466	1022	-
Stage 1	441	479	-	439	450	-	-	-
Stage 2	427	450	-	644	472	-	-	-
Platoon blocked, %								-
Mov Cap-1 Maneuver	107	149	714	183	146	466	1022	-
Mov Cap-2 Maneuver	107	149	-	183	146	-	-	-
Stage 1	435	456	-	433	444	-	-	-
Stage 2	388	444	-	594	449	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	55.2	20.5	0.2	0.7
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1022	-	-	107	714	292	937	-	-
HCM Lane V/C Ratio	0.013	-	-	0.537	0.031	0.205	0.048	-	-
HCM Control Delay (s)	8.6	-	-	72.3	10.2	20.5	9	-	-
HCM Lane LOS	A	-	-	F	B	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	2.5	0.1	0.8	0.2	-	-

HCM 2010 Signalized Intersection Summary

2: Collier Ave & Crane St

03/27/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	0	19	20	0	32	12	575	0	39	453	27
Future Volume (veh/h)	50	0	19	20	0	32	12	575	0	39	453	27
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1810	1900	1900	1900	1900	1881	1881	1900	1900	1871	1900
Adj Flow Rate, veh/h	57	0	22	23	0	37	14	661	0	45	521	31
Adj No. of Lanes	1	1	0	0	1	0	1	1	0	1	2	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	1	0	0	0	0	0	1	1	1	0	1	1
Cap, veh/h	299	0	185	129	27	118	25	1078	0	64	2026	120
Arrive On Green	0.12	0.00	0.12	0.12	0.00	0.12	0.01	0.57	0.00	0.04	0.59	0.59
Sat Flow, veh/h	1379	0	1538	383	228	983	1792	1881	0	1810	3410	203
Grp Volume(v), veh/h	57	0	22	60	0	0	14	661	0	45	271	281
Grp Sat Flow(s),veh/h/ln	1379	0	1538	1594	0	0	1792	1881	0	1810	1777	1835
Q Serve(g_s), s	0.0	0.0	0.8	0.0	0.0	0.0	0.5	13.9	0.0	1.5	4.4	4.4
Cycle Q Clear(g_c), s	1.7	0.0	0.8	1.9	0.0	0.0	0.5	13.9	0.0	1.5	4.4	4.4
Prop In Lane	1.00		1.00	0.38		0.62	1.00		0.00	1.00		0.11
Lane Grp Cap(c), veh/h	299	0	185	275	0	0	25	1078	0	64	1056	1091
V/C Ratio(X)	0.19	0.00	0.12	0.22	0.00	0.00	0.56	0.61	0.00	0.71	0.26	0.26
Avail Cap(c_a), veh/h	554	0	469	557	0	0	125	1078	0	127	1056	1091
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.95	0.95	0.95
Uniform Delay (d), s/veh	24.0	0.0	23.6	24.1	0.0	0.0	29.4	8.4	0.0	28.6	5.8	5.8
Incr Delay (d2), s/veh	0.3	0.0	0.3	0.4	0.0	0.0	18.4	2.6	0.0	12.8	0.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.3	0.9	0.0	0.0	0.4	7.9	0.0	1.0	2.3	2.4
LnGrp Delay(d),s/veh	24.3	0.0	23.8	24.5	0.0	0.0	47.8	11.0	0.0	41.4	6.4	6.4
LnGrp LOS	C		C	C			D	B		D	A	A
Approach Vol, veh/h	79				60				675			
Approach Delay, s/veh	24.2				24.5				11.8			
Approach LOS	C				C				B			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.9	40.2		11.9	6.6	41.5		11.9				
Change Period (Y+Rc), s	5.8	5.8		* 4.7	5.8	5.8		* 4.7				
Max Green Setting (Gmax), s	4.2	21.2		* 18	4.2	21.2		* 18				
Max Q Clear Time (g_c+I1), s	3.5	15.9		3.7	2.5	6.4		3.9				
Green Ext Time (p_c), s	0.0	1.9		0.2	0.0	2.6		0.2				
Intersection Summary												
HCM 2010 Ctrl Delay	11.9											
HCM 2010 LOS	B											
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 TWSC
2: Collier Ave & Crane St

03/27/2018

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	51	0	20	20	0	32	13	586	0	39	463	28
Future Vol, veh/h	51	0	20	20	0	32	13	586	0	39	463	28
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	90	-	-	-	-	-	100	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	1	0	5	0	0	0	1	1	0	0	1	11
Mvmt Flow	59	0	23	23	0	37	15	674	0	45	532	32

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1361	1342	282	1060	1358	674	564	0	0	674	0	0
Stage 1	638	638	-	704	704	-	-	-	-	-	-	-
Stage 2	723	704	-	356	654	-	-	-	-	-	-	-
Critical Hdwy	7.315	6.5	6.975	7.3	6.5	6.2	4.115	-	-	4.1	-	-
Critical Hdwy Stg 1	6.515	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.115	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5095	4.3	3.475	3.5	4	3.3	2.2095	-	-	2.2	-	-
Pot Cap-1 Maneuver	117	154	708	192	150	458	1012	-	-	927	-	-
Stage 1	434	474	-	431	443	-	-	-	-	-	-	-
Stage 2	419	443	-	640	466	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	102	144	708	177	141	458	1012	-	-	927	-	-
Mov Cap-2 Maneuver	102	144	-	177	141	-	-	-	-	-	-	-
Stage 1	427	451	-	425	436	-	-	-	-	-	-	-
Stage 2	380	436	-	589	443	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	60.2		21		0.2		0.7	
HCM LOS	F		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1012	-	-	102	708	284	927	-	-
HCM Lane V/C Ratio	0.015	-	-	0.575	0.032	0.21	0.048	-	-
HCM Control Delay (s)	8.6	-	-	79.8	10.3	21	9.1	-	-
HCM Lane LOS	A	-	-	F	B	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	2.7	0.1	0.8	0.2	-	-

HCM 2010 Signalized Intersection Summary

2: Collier Ave & Crane St

03/27/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	0	20	20	0	32	13	586	0	39	463	28
Future Volume (veh/h)	51	0	20	20	0	32	13	586	0	39	463	28
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1810	1900	1900	1900	1900	1881	1881	1900	1900	1871	1900
Adj Flow Rate, veh/h	59	0	23	23	0	37	15	674	0	45	532	32
Adj No. of Lanes	1	1	0	0	1	0	1	1	0	1	2	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	1	0	0	0	0	0	1	1	1	0	1	1
Cap, veh/h	300	0	186	129	28	119	26	1077	0	64	2020	121
Arrive On Green	0.12	0.00	0.12	0.12	0.00	0.12	0.01	0.57	0.00	0.04	0.59	0.59
Sat Flow, veh/h	1379	0	1538	382	229	983	1792	1881	0	1810	3407	205
Grp Volume(v), veh/h	59	0	23	60	0	0	15	674	0	45	277	287
Grp Sat Flow(s),veh/h/ln	1379	0	1538	1594	0	0	1792	1881	0	1810	1777	1835
Q Serve(g_s), s	0.0	0.0	0.8	0.0	0.0	0.0	0.5	14.3	0.0	1.5	4.5	4.5
Cycle Q Clear(g_c), s	1.8	0.0	0.8	1.9	0.0	0.0	0.5	14.3	0.0	1.5	4.5	4.5
Prop In Lane	1.00		1.00	0.38		0.62	1.00		0.00	1.00		0.11
Lane Grp Cap(c), veh/h	300	0	186	276	0	0	26	1077	0	64	1053	1087
V/C Ratio(X)	0.20	0.00	0.12	0.22	0.00	0.00	0.57	0.63	0.00	0.71	0.26	0.26
Avail Cap(c_a), veh/h	554	0	469	557	0	0	125	1077	0	127	1053	1087
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.95	0.95	0.95
Uniform Delay (d), s/veh	24.0	0.0	23.5	24.0	0.0	0.0	29.4	8.6	0.0	28.6	5.9	5.9
Incr Delay (d2), s/veh	0.3	0.0	0.3	0.4	0.0	0.0	17.7	2.8	0.0	12.8	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.4	0.9	0.0	0.0	0.4	8.1	0.0	1.0	2.3	2.4
LnGrp Delay(d),s/veh	24.3	0.0	23.8	24.4	0.0	0.0	47.1	11.3	0.0	41.4	6.5	6.5
LnGrp LOS	C		C	C			D	B		D	A	A
Approach Vol, veh/h	82				60				689			
Approach Delay, s/veh	24.2				24.4				12.1			
Approach LOS	C				C				B			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.9	40.1		11.9	6.7	41.4		11.9				
Change Period (Y+Rc), s	5.8	5.8		* 4.7	5.8	5.8		* 4.7				
Max Green Setting (Gmax), s	4.2	21.2		* 18	4.2	21.2		* 18				
Max Q Clear Time (g_c+I1), s	3.5	16.3		3.8	2.5	6.5		3.9				
Green Ext Time (p_c), s	0.0	1.8		0.2	0.0	2.6		0.2				
Intersection Summary												
HCM 2010 Ctrl Delay			12.0									
HCM 2010 LOS			B									
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection												
Int Delay, s/veh	11.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	51	0	20	55	0	44	13	920	0	39	553	28
Future Vol, veh/h	51	0	20	55	0	44	13	920	0	39	553	28
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	90	-	-	-	-	-	100	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	1	0	5	0	0	0	1	1	0	0	1	11
Mvmt Flow	54	0	21	58	0	46	14	968	0	41	582	29

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1698	1675	306	1369	1689	968	611	0	0	968	0	0
Stage 1	679	679	-	996	996	-	-	-	-	-	-	-
Stage 2	1019	996	-	373	693	-	-	-	-	-	-	-
Critical Hdwy	7.315	6.5	6.975	7.3	6.5	6.2	4.115	-	-	4.1	-	-
Critical Hdwy Stg 1	6.515	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.115	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5095	4.3	3.475	3.5	4	3.3	2.2095	-	-	2.2	-	-
Pot Cap-1 Maneuver	67	96	683	116	94	311	972	-	-	720	-	-
Stage 1	410	454	-	297	325	-	-	-	-	-	-	-
Stage 2	287	325	-	625	448	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	54	89	683	106	87	311	972	-	-	720	-	-
Mov Cap-2 Maneuver	54	89	-	106	87	-	-	-	-	-	-	-
Stage 1	404	428	-	293	320	-	-	-	-	-	-	-
Stage 2	241	320	-	571	422	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	177.6		70.9		0.1		0.6	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	972	-	-	54	683	150	720	-	-
HCM Lane V/C Ratio	0.014	-	-	0.994	0.031	0.695	0.057	-	-
HCM Control Delay (s)	8.8	-	-	243.1	10.4	70.9	10.3	-	-
HCM Lane LOS	A	-	-	F	B	F	B	-	-
HCM 95th %tile Q(veh)	0	-	-	4.5	0.1	4	0.2	-	-

HCM 2010 Signalized Intersection Summary

2: Collier Ave & Crane St

Synchro 10 Report
06/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	0	20	55	0	44	13	920	0	39	553	28
Future Volume (veh/h)	51	0	20	55	0	44	13	920	0	39	553	28
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1810	1900	1900	1900	1900	1881	1881	1900	1900	1872	1900
Adj Flow Rate, veh/h	54	0	21	58	0	46	14	968	0	41	582	29
Adj No. of Lanes	1	1	0	0	1	0	1	1	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	0	0	0	0	0	1	1	1	0	1	1
Cap, veh/h	241	0	155	146	12	68	24	1240	0	55	2331	116
Arrive On Green	0.10	0.00	0.10	0.10	0.00	0.10	0.01	0.66	0.00	0.03	0.68	0.68
Sat Flow, veh/h	1368	0	1538	731	114	670	1792	1881	0	1810	3449	172
Grp Volume(v), veh/h	54	0	21	104	0	0	14	968	0	41	300	311
Grp Sat Flow(s),veh/h/ln	1368	0	1538	1516	0	0	1792	1881	0	1810	1779	1842
Q Serve(g_s), s	0.0	0.0	1.0	4.1	0.0	0.0	0.6	28.1	0.0	1.7	5.1	5.1
Cycle Q Clear(g_c), s	2.6	0.0	1.0	5.1	0.0	0.0	0.6	28.1	0.0	1.7	5.1	5.1
Prop In Lane	1.00		1.00	0.56		0.44	1.00		0.00	1.00		0.09
Lane Grp Cap(c), veh/h	241	0	155	225	0	0	24	1240	0	55	1202	1245
V/C Ratio(X)	0.22	0.00	0.14	0.46	0.00	0.00	0.58	0.78	0.00	0.75	0.25	0.25
Avail Cap(c_a), veh/h	426	0	362	427	0	0	97	1240	0	98	1202	1245
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.6	0.0	31.8	33.7	0.0	0.0	38.1	9.3	0.0	37.4	4.9	4.9
Incr Delay (d2), s/veh	0.5	0.0	0.4	1.5	0.0	0.0	20.3	4.9	0.0	18.3	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.4	2.2	0.0	0.0	0.4	15.9	0.0	1.1	2.7	2.8
LnGrp Delay(d),s/veh	33.0	0.0	32.2	35.1	0.0	0.0	58.4	14.2	0.0	55.7	5.4	5.4
LnGrp LOS	C		C	D			E	B		E	A	A
Approach Vol, veh/h	75				104			982			652	
Approach Delay, s/veh	32.8				35.1			14.9			8.6	
Approach LOS	C				D			B			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	8.1	57.0	12.5		6.8	58.3	12.5					
Change Period (Y+Rc), s	5.8	5.8	* 4.7		5.8	5.8	* 4.7					
Max Green Setting (Gmax), s	4.2	51.2	* 18		4.2	51.2	* 18					
Max Q Clear Time (g_c+I1), s	3.7	30.1	4.6		2.6	7.1	7.1					
Green Ext Time (p_c), s	0.0	7.2	0.2		0.0	3.6	0.3					
Intersection Summary												
HCM 2010 Ctrl Delay	14.5											
HCM 2010 LOS	B											
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TM	13-Jun-18	DLRCSRZY-0001	1 OF 2

E/W STREET : CRANE ST
N/S STREET : COLLIER AVE
CONDITION : SAT PEAK HOUR

INTERSECTION : 1
PROJECTED GROWTH : 2%
PER YEAR :

TURN MOVEMENTS

	Existing Condition Traffic	Project Trips	Existing + Project Condition Traffic	Ambient Growth	Project Condition Traffic	Related Projects	Cumulative Condition Traffic
Condition							
Scenario #	3		6		9		12

CRANE ST

EB LEFT	14	0	14	1	15	0	15
EB THRU	0	0	0	0	0	0	0
EB RIGHT	8	0	8	1	9	0	9
WB LEFT	0	27	27	0	27	0	27
WB THRU	0	0	0	0	0	0	0
WB RIGHT	0	43	43	0	43	0	43

COLLIER AVE

NB LEFT	15	0	15	1	16	0	16
NB THRU	298	43	341	6	347	0	347
NB RIGHT	0	0	0	0	0	0	0
SB LEFT	0	81	81	0	81	0	81
SB THRU	303	0	303	7	310	0	310
SB RIGHT	10	0	10	1	11	0	11
TOTALS	648	194	842	17	859	0	859

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN VOLUME SUMMARY	TM	3-Apr-18	DLRCSRZY-0001	2 OF 2

E/W STREET : CRANE ST
CONDITION : SAT PEAK HOUR

N/S STREET : COLLIER AVE
PHF : 0.94

NORTH LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	2	0	0	1	0	0	1	0
0	1	0	0	1	0	0	1	0
0	2	0	0	1	0	0	0	0
0	0	0	0	0	0	0	0	0

SOUTH LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	1	0	0	1	0	0	2	0
0	2	0	0	1	0	0	0	0
0	0	0	0	1	0	0	0	0
0	0	0	0	0	0	0	0	0

EAST LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

WEST LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

NORTH LEG			SOUTH LEG			EAST LEG			WEST LEG		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
2	73	0	0	69	5	0	0	0	1	0	4
3	64	0	0	64	3	0	0	0	2	0	5
3	78	0	0	74	5	0	0	0	5	0	3
2	78	0	0	83	2	0	0	0	0	0	2

TRUCK TOTAL	AUTO VOLUMES	TOTALS	TRUCK PERCENTAGE
-------------	--------------	--------	------------------

CRANE ST

EB LEFT	0	14	14	1%
EB THRU	0	0	0	0%
EB RIGHT	0	8	8	1%
WB LEFT	0	0	0	0%
WB THRU	0	0	0	0%
WB RIGHT	0	0	0	0%

COLLIER AVE

NB LEFT	0	15	15	1%
NB THRU	8	290	298	3%
NB RIGHT	0	0	0	0%
SB LEFT	0	0	0	0%
SB THRU	10	293	303	3%
SB RIGHT	0	10	10	1%

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: COLLIER AVE
 EAST-WEST STREET: CRANE ST
 JURISDICTION: LAKE ELSINORE

DATE: 02-24-18

PEAK HOUR: 01:45PM

NORTH LEG

TOTAL: 313

10	303	
2	77	
3	67	
3	81	
2	78	

Total

1st

2nd

3rd

4th

Rt Thru Lt

EAST LEG TOTAL:

0

Rt
Thru
Lt

Total 1st 2nd 3rd 4th

14	4	5	3	2
8	1	2	5	0

Lt

Thru

Rt

1st 2nd 3rd 4th Total

WEST LEG TOTAL: 22

PEAK HOUR FACTORS

NORTH LEG = 0.93

SOUTH LEG = 0.92

EAST LEG =

WEST LEG = 0.69

ALL LEGS = 0.94

Lt Thru Rt

1st

2nd

3rd

4th

Total

5	73	
3	67	
5	75	
2	83	
15	298	

TOTAL: 313

SOUTH LEG

HOURLY TOTAL: 648

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY

NORTH-SOUTH STREET : COLLIER AVE

LAKE ELSINORE

EAST-WEST STREET : CRANE ST

02-24-18

BEGINNING TIME : 01:00PM

AUTOS			LARGE 2 AXLE			3 AXLE			4 (+) AXLE			TOTALS
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	
NORTH LEG												
2	68	0	0	1	0	0	2	0	0	0	0	73
4	52	0	0	2	0	0	1	0	0	0	0	59
4	79	0	1	1	0	0	1	0	0	1	0	87
2	73	0	0	2	0	0	1	0	0	1	0	79
3	64	0	0	1	0	0	1	0	0	1	0	70
3	78	0	0	2	0	0	1	0	0	0	0	84
2	78	0	0	0	0	0	0	0	0	0	0	80
3	67	0	0	0	0	0	0	0	0	1	0	71
23	559	0	1	9	0	0	7	0	0	4	0	603
SOUTH LEG												
0	67	1	0	1	0	0	1	0	0	1	0	71
0	65	1	0	1	0	0	1	0	0	1	0	69
0	62	1	0	2	0	0	1	0	0	2	0	68
0	69	5	0	1	0	0	1	0	0	2	0	78
0	64	3	0	2	0	0	1	0	0	0	0	70
0	74	5	0	0	0	0	1	0	0	0	0	80
0	83	2	0	0	0	0	0	0	0	0	0	85
0	59	4	0	2	0	0	2	0	0	1	0	68
0	543	22	0	9	0	0	8	0	0	7	0	589
EAST LEG												
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
WEST LEG												
0	0	2	1	0	0	0	0	0	0	0	0	3
1	0	2	0	0	0	0	0	0	0	0	0	3
0	0	3	0	0	0	0	0	0	0	0	0	3
1	0	4	0	0	0	0	0	0	0	0	0	5
2	0	5	0	0	0	0	0	0	0	0	0	7
5	0	3	0	0	0	0	0	0	0	0	0	8
0	0	2	0	0	0	0	0	0	0	0	0	2
2	0	4	0	0	0	0	0	0	0	0	0	6
11	0	25	1	0	0	0	0	0	0	0	0	37

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: COLLIER AVE

EAST-WEST STREET: CRANE ST

TIME: 01:00PM-02:00PM

DATE: 02-24-18

NORTH LEG

13	285		Total
2	71		1st
4	55		2nd
5	82		3rd
2	77		4th
Rt	Thru	Lt	

Total 1st 2nd 3rd 4th

11	2	2	3	4	Lt
					Thru
3	1	1	0	1	Rt

Rt					
Thru					
Lt					
	1st	2nd	3rd	4th	Total

Lt Thru Rt

1st	1	70	
2nd	1	68	
3rd	1	67	
4th	5	73	
Total	8	278	

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INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: COLLIER AVE

EAST-WEST STREET: CRANE ST

TIME: 02:00PM-03:00PM

DATE: 02-24-18

NORTH LEG

11	294		Total
3	67		1st
3	81		2nd
2	78		3rd
3	68		4th
Rt	Thru	Lt	

Total 1st 2nd 3rd 4th

14	5	3	2	4	Lt
					Thru
9	2	5	0	2	Rt

Rt
Thru
Lt

1st 2nd 3rd 4th Total

Lt Thru Rt

1st	3	67	
2nd	5	75	
3rd	2	83	
4th	4	64	
Total	14	289	

Prepared by NEWPORT TRAFFIC STUDIES

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	8	15	298	303	10
Future Vol, veh/h	14	8	15	298	303	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	90	0	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	1	1	1	3	3	1
Mvmt Flow	15	9	16	317	322	11
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	677	167	333	0	-	0
Stage 1	328	-	-	-	-	-
Stage 2	349	-	-	-	-	-
Critical Hdwy	6.615	6.915	4.115	-	-	-
Critical Hdwy Stg 1	5.815	-	-	-	-	-
Critical Hdwy Stg 2	5.415	-	-	-	-	-
Follow-up Hdwy	3.5095	3.3095	2.2095	-	-	-
Pot Cap-1 Maneuver	404	851	1231	-	-	-
Stage 1	706	-	-	-	-	-
Stage 2	716	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	399	851	1231	-	-	-
Mov Cap-2 Maneuver	399	-	-	-	-	-
Stage 1	697	-	-	-	-	-
Stage 2	716	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	12.5	0.4		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1231	-	399	851	-	-
HCM Lane V/C Ratio	0.013	-	0.037	0.01	-	-
HCM Control Delay (s)	8	-	14.4	9.3	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	0	-	-

HCM 2010 Signalized Intersection Summary

2: Collier Ave & Crane St

05/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	0	8	0	0	0	15	298	0	0	303	10
Future Volume (veh/h)	14	0	8	0	0	0	15	298	0	0	303	10
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1900	1863	1900	1881	1845	1900	1863	1846	1900
Adj Flow Rate, veh/h	15	0	9	0	0	0	16	317	0	0	322	11
Adj No. of Lanes	1	1	0	0	1	0	1	1	0	1	2	0
Peak Hour Factor	0.94	0.92	0.94	0.92	0.92	0.92	0.94	0.94	0.92	0.92	0.94	0.94
Percent Heavy Veh, %	1	2	2	2	2	2	1	3	3	2	3	3
Cap, veh/h	199	0	70	0	82	0	28	1441	0	3	2314	79
Arrive On Green	0.04	0.00	0.04	0.00	0.00	0.00	0.02	0.78	0.00	0.00	0.67	0.67
Sat Flow, veh/h	1792	0	1599	0	1863	0	1792	1845	0	1774	3461	118
Grp Volume(v), veh/h	15	0	9	0	0	0	16	317	0	0	163	170
Grp Sat Flow(s),veh/h/ln	1792	0	1599	0	1863	0	1792	1845	0	1774	1754	1825
Q Serve(g_s), s	0.5	0.0	0.3	0.0	0.0	0.0	0.5	2.7	0.0	0.0	2.0	2.0
Cycle Q Clear(g_c), s	0.5	0.0	0.3	0.0	0.0	0.0	0.5	2.7	0.0	0.0	2.0	2.0
Prop In Lane	1.00		1.00	0.00		0.00	1.00		0.00	1.00		0.06
Lane Grp Cap(c), veh/h	199	0	70	0	82	0	28	1441	0	3	1173	1221
V/C Ratio(X)	0.08	0.00	0.13	0.00	0.00	0.00	0.57	0.22	0.00	0.00	0.14	0.14
Avail Cap(c_a), veh/h	666	0	488	0	568	0	125	1441	0	177	1173	1221
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	0.98	0.98
Uniform Delay (d), s/veh	27.7	0.0	27.6	0.0	0.0	0.0	29.3	1.7	0.0	0.0	3.6	3.6
Incr Delay (d2), s/veh	0.2	0.0	0.8	0.0	0.0	0.0	17.1	0.4	0.0	0.0	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.2	0.0	0.0	0.0	0.4	1.5	0.0	0.0	1.0	1.1
LnGrp Delay(d),s/veh	27.8	0.0	28.4	0.0	0.0	0.0	46.4	2.1	0.0	0.0	3.9	3.9
LnGrp LOS	C		C				D	A			A	A
Approach Vol, veh/h		24			0			333			333	
Approach Delay, s/veh		28.0			0.0			4.2			3.9	
Approach LOS		C						A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	52.7		7.3	6.7	45.9		7.3				
Change Period (Y+Rc), s	5.0	5.8		* 4.7	5.8	5.8		* 4.7				
Max Green Setting (Gmax), s	6.0	20.2		* 18	4.2	21.2		* 18				
Max Q Clear Time (g_c+I1), s	0.0	4.7		2.5	2.5	4.0		0.0				
Green Ext Time (p_c), s	0.0	1.4		0.0	0.0	1.5		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			4.9									
HCM 2010 LOS			A									
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	0	8	27	0	43	15	341	0	81	303	10
Future Vol, veh/h	14	0	8	27	0	43	15	341	0	81	303	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	90	-	-	-	-	-	100	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	1	0	1	0	0	0	1	3	0	0	3	1
Mvmt Flow	15	0	9	29	0	46	16	363	0	86	322	11
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	918	895	167	728	900	363	333	0	0	363	0	0
Stage 1	500	500	-	395	395	-	-	-	-	-	-	-
Stage 2	418	395	-	333	505	-	-	-	-	-	-	-
Critical Hdwy	7.315	6.5	6.915	7.3	6.5	6.2	4.115	-	-	4.1	-	-
Critical Hdwy Stg 1	6.515	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.115	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5095	4.3	3.095	3.5	4	3.3	2.2095	-	-	2.2	-	-
Pot Cap-1 Maneuver	240	282	851	328	280	686	1231	-	-	1207	-	-
Stage 1	524	546	-	634	608	-	-	-	-	-	-	-
Stage 2	614	608	-	660	544	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	210	259	851	304	257	686	1231	-	-	1207	-	-
Mov Cap-2 Maneuver	210	259	-	304	257	-	-	-	-	-	-	-
Stage 1	517	507	-	626	600	-	-	-	-	-	-	-
Stage 2	566	600	-	607	505	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	18.3			14.3			0.3			1.7		
HCM LOS	C			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR			
Capacity (veh/h)	1231	-	-	210	851	462	1207	-	-			
HCM Lane V/C Ratio	0.013	-	-	0.071	0.01	0.161	0.071	-	-			
HCM Control Delay (s)	8	-	-	23.4	9.3	14.3	8.2	-	-			
HCM Lane LOS	A	-	-	C	A	B	A	-	-			
HCM 95th %tile Q(veh)	0	-	-	0.2	0	0.6	0.2	-	-			

HCM 2010 Signalized Intersection Summary

2: Collier Ave & Crane St

03/27/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	0	8	27	0	43	15	341	0	81	303	10
Future Volume (veh/h)	14	0	8	27	0	43	15	341	0	81	303	10
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1900	1900	1900	1881	1845	1900	1900	1846	1900
Adj Flow Rate, veh/h	15	0	9	29	0	46	16	363	0	86	322	11
Adj No. of Lanes	1	1	0	0	1	0	1	1	0	1	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	0	0	0	0	0	1	3	3	0	3	3
Cap, veh/h	285	0	172	130	19	105	28	1032	0	111	2094	71
Arrive On Green	0.11	0.00	0.11	0.11	0.00	0.11	0.02	0.56	0.00	0.06	0.61	0.61
Sat Flow, veh/h	1368	0	1599	433	180	972	1792	1845	0	1810	3461	118
Grp Volume(v), veh/h	15	0	9	75	0	0	16	363	0	86	163	170
Grp Sat Flow(s),veh/h/ln	1368	0	1599	1585	0	0	1792	1845	0	1810	1754	1825
Q Serve(g_s), s	0.0	0.0	0.3	0.8	0.0	0.0	0.5	6.5	0.0	2.8	2.4	2.4
Cycle Q Clear(g_c), s	0.5	0.0	0.3	2.5	0.0	0.0	0.5	6.5	0.0	2.8	2.4	2.4
Prop In Lane	1.00		1.00	0.39		0.61	1.00		0.00	1.00		0.06
Lane Grp Cap(c), veh/h	285	0	172	254	0	0	28	1032	0	111	1061	1104
V/C Ratio(X)	0.05	0.00	0.05	0.30	0.00	0.00	0.57	0.35	0.00	0.78	0.15	0.15
Avail Cap(c_a), veh/h	555	0	488	557	0	0	125	1032	0	157	1061	1104
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.95	0.95	0.95
Uniform Delay (d), s/veh	24.1	0.0	24.0	25.0	0.0	0.0	29.3	7.2	0.0	27.8	5.2	5.2
Incr Delay (d2), s/veh	0.1	0.0	0.1	0.6	0.0	0.0	17.1	0.9	0.0	13.9	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.1	1.2	0.0	0.0	0.4	3.5	0.0	1.8	1.3	1.3
LnGrp Delay(d),s/veh	24.2	0.0	24.1	25.6	0.0	0.0	46.4	8.2	0.0	41.7	5.5	5.4
LnGrp LOS	C		C	C			D	A		D	A	A
Approach Vol, veh/h	24			75			379			419		
Approach Delay, s/veh	24.2			25.6			9.8			12.9		
Approach LOS	C			C			A			B		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	9.5	39.4	11.2		6.7	42.1	11.2					
Change Period (Y+Rc), s	5.8	5.8	* 4.7		5.8	5.8	* 4.7					
Max Green Setting (Gmax), s	5.2	20.2	* 18		4.2	21.2	* 18					
Max Q Clear Time (g_c+I1), s	4.8	8.5	2.5		2.5	4.4	4.5					
Green Ext Time (p_c), s	0.0	1.5	0.0		0.0	1.5	0.2					
Intersection Summary												
HCM 2010 Ctrl Delay			12.9									
HCM 2010 LOS			B									
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	0	9	27	0	43	16	347	0	81	310	11
Future Vol, veh/h	15	0	9	27	0	43	16	347	0	81	310	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	90	-	-	-	-	-	100	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	1	0	1	0	0	0	1	3	0	0	3	1
Mvmt Flow	16	0	10	29	0	46	17	369	0	86	330	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	934	911	171	740	917	369	342	0	0	369	0	0
Stage 1	508	508	-	403	403	-	-	-	-	-	-	-
Stage 2	426	403	-	337	514	-	-	-	-	-	-	-
Critical Hdwy	7.315	6.5	6.915	7.3	6.5	6.2	4.115	-	-	4.1	-	-
Critical Hdwy Stg 1	6.515	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.115	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5095	4.3	3.095	3.5	4	3.3	2.2095	-	-	2.2	-	-
Pot Cap-1 Maneuver	234	276	846	322	274	681	1222	-	-	1201	-	-
Stage 1	519	542	-	628	603	-	-	-	-	-	-	-
Stage 2	608	603	-	656	539	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	204	253	846	298	251	681	1222	-	-	1201	-	-
Mov Cap-2 Maneuver	204	253	-	298	251	-	-	-	-	-	-	-
Stage 1	512	503	-	619	595	-	-	-	-	-	-	-
Stage 2	559	595	-	602	500	-	-	-	-	-	-	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	18.6			14.5			0.4			1.7		
HCM LOS	C			B								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1222	-	-	204	846	455	1201	-	-
HCM Lane V/C Ratio	0.014	-	-	0.078	0.011	0.164	0.072	-	-
HCM Control Delay (s)	8	-	-	24.1	9.3	14.5	8.2	-	-
HCM Lane LOS	A	-	-	C	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0	0.6	0.2	-	-

HCM 2010 Signalized Intersection Summary

2: Collier Ave & Crane St

03/27/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	0	9	27	0	43	16	347	0	81	310	11
Future Volume (veh/h)	15	0	9	27	0	43	16	347	0	81	310	11
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1900	1900	1900	1881	1845	1900	1900	1846	1900
Adj Flow Rate, veh/h	16	0	10	29	0	46	17	369	0	86	330	12
Adj No. of Lanes	1	1	0	0	1	0	1	1	0	1	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	0	0	0	0	0	1	3	3	0	3	3
Cap, veh/h	286	0	174	130	20	106	29	1030	0	111	2083	76
Arrive On Green	0.11	0.00	0.11	0.11	0.00	0.11	0.02	0.56	0.00	0.06	0.60	0.60
Sat Flow, veh/h	1368	0	1599	432	181	972	1792	1845	0	1810	3452	125
Grp Volume(v), veh/h	16	0	10	75	0	0	17	369	0	86	167	175
Grp Sat Flow(s),veh/h/ln	1368	0	1599	1585	0	0	1792	1845	0	1810	1754	1824
Q Serve(g_s), s	0.0	0.0	0.3	0.7	0.0	0.0	0.6	6.6	0.0	2.8	2.5	2.5
Cycle Q Clear(g_c), s	0.5	0.0	0.3	2.5	0.0	0.0	0.6	6.6	0.0	2.8	2.5	2.5
Prop In Lane	1.00		1.00	0.39		0.61	1.00		0.00	1.00		0.07
Lane Grp Cap(c), veh/h	286	0	174	255	0	0	29	1030	0	111	1058	1100
V/C Ratio(X)	0.06	0.00	0.06	0.29	0.00	0.00	0.58	0.36	0.00	0.78	0.16	0.16
Avail Cap(c_a), veh/h	555	0	488	557	0	0	125	1030	0	157	1058	1100
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.95	0.95	0.95
Uniform Delay (d), s/veh	24.1	0.0	24.0	24.9	0.0	0.0	29.3	7.3	0.0	27.8	5.2	5.2
Incr Delay (d2), s/veh	0.1	0.0	0.1	0.6	0.0	0.0	16.6	1.0	0.0	13.9	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.2	1.2	0.0	0.0	0.4	3.6	0.0	1.8	1.3	1.4
LnGrp Delay(d),s/veh	24.1	0.0	24.1	25.6	0.0	0.0	45.9	8.3	0.0	41.6	5.5	5.5
LnGrp LOS	C		C	C			D	A		D	A	A
Approach Vol, veh/h	26			75			386			428		
Approach Delay, s/veh	24.1			25.6			9.9			12.8		
Approach LOS	C			C			A			B		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	9.5	39.3	11.2		6.8	42.0	11.2					
Change Period (Y+Rc), s	5.8	5.8	* 4.7		5.8	5.8	* 4.7					
Max Green Setting (Gmax), s	5.2	20.2	* 18		4.2	21.2	* 18					
Max Q Clear Time (g_c+I1), s	4.8	8.6	2.5		2.6	4.5	4.5					
Green Ext Time (p_c), s	0.0	1.5	0.0		0.0	1.5	0.2					
Intersection Summary												
HCM 2010 Ctrl Delay			12.9									
HCM 2010 LOS			B									
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	0	9	27	0	43	16	347	0	81	310	11
Future Vol, veh/h	15	0	9	27	0	43	16	347	0	81	310	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	90	-	-	-	-	-	100	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	1	0	1	0	0	0	1	3	0	0	3	1
Mvmt Flow	16	0	9	28	0	45	17	365	0	85	326	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	924	901	169	732	907	365	338	0	0	365	0	0
Stage 1	502	502	-	399	399	-	-	-	-	-	-	-
Stage 2	422	399	-	333	508	-	-	-	-	-	-	-
Critical Hdwy	7.315	6.5	6.915	7.3	6.5	6.2	4.115	-	-	4.1	-	-
Critical Hdwy Stg 1	6.515	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.115	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5095	4.3	3.095	3.5	4	3.3	2.2095	-	-	2.2	-	-
Pot Cap-1 Maneuver	238	280	849	326	278	685	1226	-	-	1205	-	-
Stage 1	523	545	-	631	606	-	-	-	-	-	-	-
Stage 2	611	606	-	660	542	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	208	256	849	302	255	685	1226	-	-	1205	-	-
Mov Cap-2 Maneuver	208	256	-	302	255	-	-	-	-	-	-	-
Stage 1	516	506	-	622	598	-	-	-	-	-	-	-
Stage 2	563	598	-	607	504	-	-	-	-	-	-	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	18.3			14.3			0.4			1.7		
HCM LOS	C			B								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1226	-	-	208	849	460	1205	-	-
HCM Lane V/C Ratio	0.014	-	-	0.076	0.011	0.16	0.071	-	-
HCM Control Delay (s)	8	-	-	23.7	9.3	14.3	8.2	-	-
HCM Lane LOS	A	-	-	C	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0	0.6	0.2	-	-

HCM 2010 Signalized Intersection Summary

2: Collier Ave & Crane St

Synchro 10 Report
06/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	0	9	27	0	43	16	347	0	81	310	11
Future Volume (veh/h)	15	0	9	27	0	43	16	347	0	81	310	11
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1900	1900	1900	1881	1845	1900	1900	1846	1900
Adj Flow Rate, veh/h	16	0	9	28	0	45	17	365	0	85	326	12
Adj No. of Lanes	1	1	0	0	1	0	1	1	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	0	0	0	0	0	1	3	3	0	3	3
Cap, veh/h	349	0	201	164	24	123	31	832	0	108	1702	63
Arrive On Green	0.13	0.00	0.13	0.13	0.00	0.13	0.02	0.45	0.00	0.06	0.49	0.49
Sat Flow, veh/h	1369	0	1599	420	189	979	1792	1845	0	1810	3451	127
Grp Volume(v), veh/h	16	0	9	73	0	0	17	365	0	85	165	173
Grp Sat Flow(s),veh/h/ln	1369	0	1599	1588	0	0	1792	1845	0	1810	1754	1824
Q Serve(g_s), s	0.0	0.0	0.2	0.1	0.0	0.0	0.4	6.1	0.0	2.1	2.4	2.4
Cycle Q Clear(g_c), s	0.4	0.0	0.2	1.8	0.0	0.0	0.4	6.1	0.0	2.1	2.4	2.4
Prop In Lane	1.00		1.00	0.38		0.62	1.00		0.00	1.00		0.07
Lane Grp Cap(c), veh/h	349	0	201	311	0	0	31	832	0	108	865	900
V/C Ratio(X)	0.05	0.00	0.04	0.23	0.00	0.00	0.56	0.44	0.00	0.79	0.19	0.19
Avail Cap(c_a), veh/h	736	0	653	746	0	0	168	832	0	210	865	900
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.3	0.0	17.2	17.9	0.0	0.0	21.9	8.4	0.0	20.8	6.3	6.4
Incr Delay (d2), s/veh	0.1	0.0	0.1	0.4	0.0	0.0	14.9	1.7	0.0	11.9	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.1	0.8	0.0	0.0	0.3	3.4	0.0	1.4	1.3	1.3
LnGrp Delay(d),s/veh	17.3	0.0	17.3	18.3	0.0	0.0	36.8	10.1	0.0	32.7	6.8	6.8
LnGrp LOS	B		B	B			D	B		C	A	A
Approach Vol, veh/h	25				73		382				423	
Approach Delay, s/veh	17.3				18.3		11.3				12.0	
Approach LOS	B				B		B				B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	8.5	26.0	10.3		6.6	27.9	10.3					
Change Period (Y+Rc), s	5.8	5.8	* 4.7		5.8	5.8	* 4.7					
Max Green Setting (Gmax), s	5.2	20.2	* 18		4.2	21.2	* 18					
Max Q Clear Time (g_c+I1), s	4.1	8.1	2.4		2.4	4.4	3.8					
Green Ext Time (p_c), s	0.0	1.5	0.0		0.0	1.5	0.2					
Intersection Summary												
HCM 2010 Ctrl Delay			12.4									
HCM 2010 LOS			B									
Notes												



DAVID EVANS
AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET	OF
TURN MOVEMENTS	TM	3-Apr-18	DLRCSRZY-0001	1	OF 2

E/W STREET : PROJECT DWY A

N/S STREET : COLLIER AVE

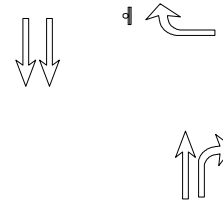
CONDITION : AM PEAK HOUR

INTERSECTION : 3

PROJECTED GROWTH : 2%

PER YEAR :

CONDITION DIAGRAMS



PROJECT GEOMETRICS

TURN MOVEMENTS

	Existing Condition Traffic	Project Trips	Existing + Project Condition Traffic	Ambient Growth	Project Condition Traffic	Related Projects	Cumulative Condition Traffic
Condition							
Scenario #	1		4		7		10

PROJECT DWY A

EB LEFT	0	0	0	0	0	0	0
EB THRU	0	0	0	0	0	0	0
EB RIGHT	0	0	0	0	0	0	0
WB LEFT	0	0	0	0	0	0	0
WB THRU	0	0	0	0	0	0	0
WB RIGHT	0	10	10	0	10	0	10

COLLIER AVE

NB LEFT	0	0	0	0	0	0	0
NB THRU	434	2	436	9	445	91	536
NB RIGHT	0	11	11	0	11	0	11
SB LEFT	0	0	0	0	0	0	0
SB THRU	539	7	546	11	557	280	837
SB RIGHT	0	0	0	0	0	0	0
TOTALS	973	30	1003	20	1023	371	1394

Los Angeles: 213.785.7887 ~ Ontario: 909.481.5750 ~ San Diego: 619.400.0600 ~ Santa Clarita: 661.284.7400

Temecula: 951.294.9300 ~ Tustin: 714.665.4500 ~ Victorville: 760.524.9100

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	10	436	11	0	546
Future Vol, veh/h	0	10	436	11	0	546
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	7	0	0	3
Mvmt Flow	0	12	513	13	0	642
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	-	520	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	560	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	560	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	11.6	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBT		
Capacity (veh/h)	-	560		-		
HCM Lane V/C Ratio	-	0.021		-		
HCM Control Delay (s)	-	11.6		-		
HCM Lane LOS	-	B		-		
HCM 95th %tile Q(veh)	-	0.1		-		

Intersection

Int Delay, s/veh 0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	10	445	11	0	557
Future Vol, veh/h	0	10	445	11	0	557
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	7	0	0	3
Mvmt Flow	0	12	524	13	0	655

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	531	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.2	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.3	-
Pot Cap-1 Maneuver	0	552	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	-	552	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	552
HCM Lane V/C Ratio	-	-	0.021
HCM Control Delay (s)	-	-	11.7
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.1

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	10	536	11	0	837
Future Vol, veh/h	0	10	536	11	0	837
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	7	0	0	3
Mvmt Flow	0	11	564	12	0	881
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	-	570	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	525	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	525	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	12	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBT		
Capacity (veh/h)	-	525		-		
HCM Lane V/C Ratio	-	0.02		-		
HCM Control Delay (s)	-	12		-		
HCM Lane LOS	-	B		-		
HCM 95th %tile Q(veh)	-	0.1		-		



DAVID EVANS
AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TM	3-Apr-18	DLRCSRZY-0001	1 OF 2

E/W STREET : PROJECT DWY A

N/S STREET : COLLIER AVE

CONDITION : PM PEAK HOUR

INTERSECTION : 3

PROJECTED GROWTH : 2%

PER YEAR :

TURN MOVEMENTS

	Existing Condition Traffic	Project Trips	Existing + Project Condition Traffic	Ambient Growth	Project Condition Traffic	Related Projects	Cumulative Condition Traffic
Condition							
Scenario #	2		5		8		11

PROJECT DWY A

EB LEFT	0	0	0	0	0	0	0
EB THRU	0	0	0	0	0	0	0
EB RIGHT	0	0	0	0	0	0	0
WB LEFT	0	0	0	0	0	0	0
WB THRU	0	0	0	0	0	0	0
WB RIGHT	0	28	28	0	28	0	28

COLLIER AVE

NB LEFT	0	0	0	0	0	0	0
NB THRU	555	4	559	12	571	334	905
NB RIGHT	0	8	8	0	8	0	8
SB LEFT	0	0	0	0	0	0	0
SB THRU	472	20	492	10	502	125	627
SB RIGHT	0	0	0	0	0	0	0
TOTALS	1027	60	1087	22	1109	459	1568

Los Angeles: 213.785.7887 ~ Ontario: 909.481.5750 ~ San Diego: 619.400.0600 ~ Santa Clarita: 661.284.7400

Temecula: 951.294.9300 ~ Tustin: 714.665.4500 ~ Victorville: 760.524.9100

Intersection

Int Delay, s/veh 0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	28	559	8	0	492
Future Vol, veh/h	0	28	559	8	0	492
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	0	32	643	9	0	566

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	326	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.9	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.3	-
Pot Cap-1 Maneuver	0	676	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	676	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	676
HCM Lane V/C Ratio	-	-	0.048
HCM Control Delay (s)	-	-	10.6
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.1

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	28	571	8	0	502
Future Vol, veh/h	0	28	571	8	0	502
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	0	32	656	9	0	577
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	-	333	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	669	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	669	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	10.7	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBT		
Capacity (veh/h)	-	669		-		
HCM Lane V/C Ratio	-	0.048		-		
HCM Control Delay (s)	-	10.7		-		
HCM Lane LOS	-	B		-		
HCM 95th %tile Q(veh)	-	0.2		-		

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	28	905	8	0	627
Future Vol, veh/h	0	28	905	8	0	627
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	0	29	953	8	0	660
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	-	481	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	537	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	537	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	12.1	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBT		
Capacity (veh/h)	-	- 537		-		
HCM Lane V/C Ratio	-	- 0.055		-		
HCM Control Delay (s)	-	- 12.1		-		
HCM Lane LOS	-	- B		-		
HCM 95th %tile Q(veh)	-	- 0.2		-		

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TM	3-Apr-18	DLRCSRZY-0001	1 OF 2

E/W STREET : CENTRAL AVE
N/S STREET : COLLIER AVE
CONDITION : SAT PEAK HOUR

INTERSECTION : 3
PROJECTED GROWTH : 2%
PER YEAR :

TURN MOVEMENTS

	Existing Condition Traffic	Project Trips	Existing + Project Condition Traffic	Ambient Growth	Project Condition Traffic	Related Projects	Cumulative Condition Traffic
Condition							
Scenario #	3		6		9		12

CENTRAL AVE

EB LEFT	0	0	0	0	0	0	0
EB THRU	0	0	0	0	0	0	0
EB RIGHT	0	0	0	0	0	0	0
WB LEFT	0	0	0	0	0	0	0
WB THRU	0	0	0	0	0	0	0
WB RIGHT	0	38	38	0	38	0	38

COLLIER AVE

NB LEFT	0	0	0	0	0	0	0
NB THRU	313	6	319	7	326	0	326
NB RIGHT	0	17	17	0	17	0	17
SB LEFT	0	0	0	0	0	0	0
SB THRU	311	27	338	7	345	0	345
SB RIGHT	0	0	0	0	0	0	0
TOTALS	624	88	712	14	726	0	726

Intersection

Int Delay, s/veh 0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	38	319	17	0	338
Future Vol, veh/h	0	38	319	17	0	338
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	3	0	0	3
Mvmt Flow	0	40	339	18	0	360

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	348	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.2	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.3	-
Pot Cap-1 Maneuver	0	700	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	700	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	- 700	-
HCM Lane V/C Ratio	-	- 0.058	-
HCM Control Delay (s)	-	- 10.5	-
HCM Lane LOS	-	- B	-
HCM 95th %tile Q(veh)	-	- 0.2	-

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	38	326	17	0	345
Future Vol, veh/h	0	38	326	17	0	345
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	3	0	0	3
Mvmt Flow	0	40	347	18	0	367
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	-	356	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	693	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	693	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	10.5	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBT		
Capacity (veh/h)	-	693		-		
HCM Lane V/C Ratio	-	0.058		-		
HCM Control Delay (s)	-	10.5		-		
HCM Lane LOS	-	B		-		
HCM 95th %tile Q(veh)	-	0.2		-		

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	38	326	17	0	345
Future Vol, veh/h	0	38	326	17	0	345
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	3	0	0	3
Mvmt Flow	0	40	343	18	0	363

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	352	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.2	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.3	-
Pot Cap-1 Maneuver	0	696	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	-	696	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	696
HCM Lane V/C Ratio	-	-	0.057
HCM Control Delay (s)	-	-	10.5
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.2



DAVID EVANS
AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TM	3-Apr-18	DLRCSRZY-0001	1 OF 2

E/W STREET : PROJECT DWY B

N/S STREET : COLLIER AVE

CONDITION : AM PEAK HOUR

INTERSECTION : 4

PROJECTED GROWTH : 2%

PER YEAR :

CONDITION DIAGRAMS



PROJECT GEOMETRICS

TURN MOVEMENTS

	Existing Condition Traffic	Project Trips	Existing + Project Condition Traffic	Ambient Growth	Project Condition Traffic	Related Projects	Cumulative Condition Traffic
Condition							
Scenario #	1		4		7		10

PROJECT DWY B

EB LEFT	0	0	0	0	0	0	0
EB THRU	0	0	0	0	0	0	0
EB RIGHT	0	0	0	0	0	0	0
WB LEFT	0	0	0	0	0	0	0
WB THRU	0	0	0	0	0	0	0
WB RIGHT	0	0	0	0	0	0	0

COLLIER AVE

NB LEFT	0	0	0	0	0	0	0
NB THRU	434	11	445	9	454	91	545
NB RIGHT	0	8	8	0	8	0	8
SB LEFT	0	0	0	0	0	0	0
SB THRU	539	7	546	11	557	280	837
SB RIGHT	0	0	0	0	0	0	0
TOTALS	973	26	999	20	1019	371	1390

Los Angeles: 213.785.7887 ~ Ontario: 909.481.5750 ~ San Diego: 619.400.0600 ~ Santa Clarita: 661.284.7400

Temecula: 951.294.9300 ~ Tustin: 714.665.4500 ~ Victorville: 760.524.9100



DAVID EVANS
AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TM	3-Apr-18	DLRCSRZY-0001	1 OF 2

E/W STREET : PROJECT DWY B

N/S STREET : COLLIER AVE

CONDITION : PM PEAK HOUR

INTERSECTION : 4

PROJECTED GROWTH : 2%

PER YEAR :

TURN MOVEMENTS

	Existing Condition Traffic	Project Trips	Existing + Project Condition Traffic	Ambient Growth	Project Condition Traffic	Related Projects	Cumulative Condition Traffic
Condition							
Scenario #	2		5		8		11

PROJECT DWY B

EB LEFT	0	0	0	0	0	0	0
EB THRU	0	0	0	0	0	0	0
EB RIGHT	0	0	0	0	0	0	0
WB LEFT	0	0	0	0	0	0	0
WB THRU	0	0	0	0	0	0	0
WB RIGHT	0	0	0	0	0	0	0

COLLIER AVE

NB LEFT	0	0	0	0	0	0	0
NB THRU	555	8	563	12	575	334	909
NB RIGHT	0	6	6	0	6	0	6
SB LEFT	0	0	0	0	0	0	0
SB THRU	472	20	492	10	502	125	627
SB RIGHT	0	0	0	0	0	0	0
TOTALS	1027	34	1061	22	1083	459	1542

Los Angeles: 213.785.7887 ~ Ontario: 909.481.5750 ~ San Diego: 619.400.0600 ~ Santa Clarita: 661.284.7400

Temecula: 951.294.9300 ~ Tustin: 714.665.4500 ~ Victorville: 760.524.9100

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TM	3-Apr-18	DLRCSRZY-0001	1 OF 2

E/W STREET : PROJECT DWY B

N/S STREET : COLLIER AVE

CONDITION : SAT PEAK HOUR

INTERSECTION : 4

PROJECTED GROWTH : 2%

PER YEAR :

TURN MOVEMENTS

	Existing Condition Traffic	Project Trips	Existing + Project Condition Traffic	Ambient Growth	Project Condition Traffic	Related Projects	Cumulative Condition Traffic
Condition							
Scenario #	3		6		9		12

PROJECT DWY B

EB LEFT	0	0	0	0	0	0	0
EB THRU	0	0	0	0	0	0	0
EB RIGHT	0	0	0	0	0	0	0
WB LEFT	0	0	0	0	0	0	0
WB THRU	0	0	0	0	0	0	0
WB RIGHT	0	0	0	0	0	0	0

COLLIER AVE

NB LEFT	0	0	0	0	0	0	0
NB THRU	313	17	330	7	337	0	337
NB RIGHT	0	11	11	0	11	0	11
SB LEFT	0	0	0	0	0	0	0
SB THRU	311	27	338	7	345	0	345
SB RIGHT	0	0	0	0	0	0	0
TOTALS	624	55	679	14	693	0	693



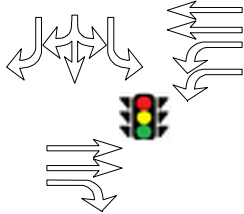
DAVID EVANS
AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TM	3-Apr-18	DLRCSRZY-0001	1 OF 2

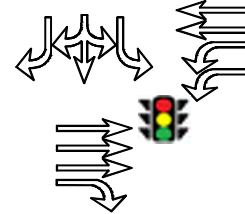
E/W STREET : CENTRAL AVE
N/S STREET : I-15 SOUTHBOUND
CONDITION : AM PEAK HOUR

INTERSECTION : 5
PROJECTED GROWTH : 2%
PER YEAR :

CONDITION DIAGRAMS



EXISTING GEOMETRICS



CUMULATIVE GEOMETRICS

TURN MOVEMENTS

	Existing	Project	Existing +	Ambient	Project	Related	Cumulative
Condition	Condition	Trips	Project	Growth	Condition	Projects	Condition
Scenario #	Traffic		Condition		Traffic		Traffic
	1		4		7		10

CENTRAL AVE

EB LEFT	0	0	0	0	0	0	0
EB THRU	504	10	514	11	525	258	783
EB RIGHT	575	5	580	12	592	78	670
WB LEFT	619	0	619	13	632	182	814
WB THRU	1096	26	1122	22	1144	459	1603
WB RIGHT	0	0	0	0	0	0	0

I-15 SOUTHBOUND

NB LEFT	0	0	0	0	0	0	0
NB THRU	0	0	0	0	0	0	0
NB RIGHT	0	0	0	0	0	0	0
SB LEFT	258	0	258	6	264	129	393
SB THRU	5	0	5	1	6	0	6
SB RIGHT	156	11	167	4	171	114	285
TOTALS	3213	52	3265	69	3334	1220	4554

Los Angeles: 213.785.7887 ~ Ontario: 909.481.5750 ~ San Diego: 619.400.0600 ~ Santa Clarita: 661.284.7400

Temecula: 951.294.9300 ~ Tustin: 714.665.4500 ~ Victorville: 760.524.9100



DAVID EVANS
AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN VOLUME SUMMARY	TM	3-Apr-18	DLRCSRZY-0001	2 OF 2

E/W STREET : CENTRAL AVE
CONDITION : AM PEAK HOUR

N/S STREET : I-15 SOUTHBOUND
PHF : 0.90

NORTH LEG								
LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	3	0	0	0	0	0	1
2	0	3	0	0	0	0	0	0
4	0	0	1	0	0	0	0	0
6	0	2	0	0	1	2	0	1

SOUTH LEG								
LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

EAST LEG								
LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	1	0	0	0	0	3	1
0	5	0	0	1	0	0	2	0
0	2	3	0	0	0	0	2	1
0	4	1	0	3	0	0	2	0

WEST LEG								
LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
2	2	0	0	0	0	2	2	0
0	2	0	1	1	0	0	0	0
2	1	0	0	1	0	1	2	0
3	3	0	2	1	0	2	2	0

NORTH LEG			SOUTH LEG			EAST LEG			WEST LEG		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
31	1	53	0	0	0	0	242	112	107	128	0
46	3	61	0	0	0	0	315	162	160	124	0
23	0	71	0	0	0	0	258	196	175	118	0
41	1	62	0	0	0	0	257	142	118	117	0

TRUCK TOTAL	AUTO VOLUMES	TOTALS	TRUCK PERCENTAGE
-------------	--------------	--------	------------------

CENTRAL AVE

EB LEFT	0	0	0	0%
EB THRU	17	487	504	3%
EB RIGHT	15	560	575	3%
WB LEFT	7	612	619	1%
WB THRU	24	1072	1096	1%
WB RIGHT	0	0	0	0%

I-15 SOUTHBOUND

NB LEFT	0	0	0	0%
NB THRU	0	0	0	0%
NB RIGHT	0	0	0	0%
SB LEFT	11	247	258	4%
SB THRU	0	5	5	1%
SB RIGHT	15	141	156	10%

Los Angeles: 213.785.7887 ~ Ontario: 909.481.5750 ~ San Diego: 619.400.0600 ~ Santa Clarita: 661.284.7400

Temecula: 951.294.9300 ~ Tustin: 714.665.4500 ~ Victorville: 760.524.9100

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: I-15 SB RAMP
 EAST-WEST STREET: CENTRAL
 JURISDICTION: LAKE ELSINORE

DATE: 02-22-18

PEAK HOUR: 07:00AM

NORTH LEG

TOTAL: 419

156	5	258
31	1	57
48	3	64
28	0	71
49	1	66

Total

1st

2nd

3rd

4th

Rt Thru Lt

EAST LEG TOTAL: 1,715

Rt					
Thru	245	323	262	266	1096
Lt	114	162	200	143	619

1st 2nd 3rd 4th Total

Total 1st 2nd 3rd 4th

504	132	127	122	123
575	111	161	178	125

Lt

Thru

Rt

WEST LEG TOTAL: 1,079

PEAK HOUR FACTORS

NORTH LEG = 0.90

SOUTH LEG =

EAST LEG = 0.88

WEST LEG = 0.90

ALL LEGS = 0.90

Lt Thru Rt

1st

2nd

3rd

4th

Total

SOUTH LEG

TOTAL: 0

HOURLY TOTAL: 3,213

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY
 NORTH-SOUTH STREET : I-15 SB RAMPS
 EAST-WEST STREET : CENTRAL
 BEGINNING TIME : 07:00AM

LAKE ELSINORE
 02-22-18

AUTOS			LARGE 2 AXLE			3 AXLE			4 (+) AXLE			TOTALS
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	
NORTH LEG												
31	1	53	0	0	3	0	0	0	0	0	1	89
46	3	61	2	0	3	0	0	0	0	0	0	115
23	0	71	4	0	0	1	0	0	0	0	0	99
41	1	62	6	0	2	0	0	1	2	0	1	116
38	3	44	4	0	2	2	0	1	2	0	2	98
31	1	62	1	0	1	0	0	0	1	0	4	101
26	0	44	7	0	2	0	0	1	3	0	6	89
32	1	63	0	0	1	1	0	2	0	0	0	100
268	10	460	24	0	14	4	0	5	8	0	14	807
SOUTH LEG												
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
EAST LEG												
0	242	112	0	0	1	0	0	0	0	3	1	359
0	315	162	0	5	0	0	1	0	0	2	0	485
0	258	196	0	2	3	0	0	0	0	2	1	462
0	257	142	0	4	1	0	3	0	0	2	0	409
0	184	132	0	4	2	0	2	1	0	1	1	327
0	212	120	0	2	0	0	2	0	0	2	3	341
0	117	114	0	7	3	0	3	1	0	2	1	248
0	68	106	0	0	2	0	0	1	0	0	1	178
0	1653	1084	0	24	12	0	11	3	0	14	8	2809
WEST LEG												
107	128	0	2	2	0	0	0	0	2	2	0	243
160	124	0	0	2	0	1	1	0	0	0	0	288
175	118	0	2	1	0	0	1	0	1	2	0	300
118	117	0	3	3	0	2	1	0	2	2	0	248
68	117	0	5	2	0	4	2	0	5	1	0	204
73	123	0	2	1	0	1	0	0	2	3	0	205
48	107	0	5	3	0	1	2	0	3	4	0	173
49	112	0	2	1	0	0	1	0	0	1	0	166
798	946	0	21	15	0	9	8	0	15	15	0	1827

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: I-15 SB RAMPS

EAST-WEST STREET: CENTRAL

TIME: 07:00AM-08:00AM

DATE: 02-22-18

NORTH LEG

156	5	258	Total
31	1	57	1st
48	3	64	2nd
28	0	71	3rd
49	1	66	4th
Rt	Thru	Lt	

Total 1st 2nd 3rd 4th

					Lt
504	132	127	122	123	Thru
575	111	161	178	125	Rt

Rt					
Thru	245	323	262	266	1096
Lt	114	162	200	143	619
	1st	2nd	3rd	4th	Total

Lt Thru Rt

1st			
2nd			
3rd			
4th			
Total			

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: I-15 SB RAMPS

EAST-WEST STREET: CENTRAL

TIME: 08:00AM-09:00AM

DATE: 02-22-18

NORTH LEG

148	5	235	Total
46	3	49	1st
33	1	67	2nd
36	0	53	3rd
33	1	66	4th
Rt	Thru	Lt	

Total 1st 2nd 3rd 4th

					Lt
480	122	127	116	115	Thru
268	82	78	57	51	Rt

Rt					
Thru	191	218	129	68	606
Lt	136	123	119	110	488
	1st	2nd	3rd	4th	Total

Lt Thru Rt

1st			
2nd			
3rd			
4th			
Total			

Prepared by NEWPORT TRAFFIC STUDIES

HCM 2010 Signalized Intersection Summary

5: I-15 SB & Central Ave

03/27/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑	↑↑	↑
Traffic Volume (veh/h)	0	504	575	619	1096	0	0	0	0	258	5	156
Future Volume (veh/h)	0	504	575	619	1096	0	0	0	0	258	5	156
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1845	1845	1881	1881	0				1827	1811	1727
Adj Flow Rate, veh/h	0	560	639	688	1218	0				343	0	117
Adj No. of Lanes	0	2	1	2	2	0				2	0	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	0	3	3	1	1	0				4	1	10
Cap, veh/h	0	1096	490	854	2372	0				506	0	213
Arrive On Green	0.00	0.31	0.31	0.25	0.66	0.00				0.15	0.00	0.15
Sat Flow, veh/h	0	3597	1568	3476	3668	0				3480	0	1468
Grp Volume(v), veh/h	0	560	639	688	1218	0				343	0	117
Grp Sat Flow(s),veh/h/ln	0	1752	1568	1738	1787	0				1740	0	1468
Q Serve(g_s), s	0.0	7.2	17.2	10.2	9.6	0.0				5.1	0.0	4.1
Cycle Q Clear(g_c), s	0.0	7.2	17.2	10.2	9.6	0.0				5.1	0.0	4.1
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1096	490	854	2372	0				506	0	213
V/C Ratio(X)	0.00	0.51	1.30	0.81	0.51	0.00				0.68	0.00	0.55
Avail Cap(c_a), veh/h	0	1096	490	854	2372	0				525	0	222
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.73	0.73	0.68	0.68	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	15.5	18.9	19.5	4.7	0.0				22.3	0.0	21.8
Incr Delay (d2), s/veh	0.0	1.3	147.2	4.0	0.5	0.0				3.3	0.0	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.6	27.4	5.3	4.7	0.0				2.7	0.0	1.8
LnGrp Delay(d),s/veh	0.0	16.7	166.1	23.5	5.3	0.0				25.6	0.0	24.5
LnGrp LOS		B	F	C	A					C		C
Approach Vol, veh/h		1199			1906						460	
Approach Delay, s/veh		96.3			11.8						25.3	
Approach LOS		F			B						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	19.3	23.0		12.7		42.3						
Change Period (Y+Rc), s	5.8	5.8		* 4.7		5.8						
Max Green Setting (Gmax), s	13.2	17.2		* 8.3		36.2						
Max Q Clear Time (g_c+I1), s	12.2	19.2		7.1		11.6						
Green Ext Time (p_c), s	0.3	0.0		0.2		9.1						
Intersection Summary												
HCM 2010 Ctrl Delay				42.0								
HCM 2010 LOS				D								
Notes												

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary

5: I-15 SB & Central Ave

03/27/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑	↑↑	↑
Traffic Volume (veh/h)	0	514	580	619	1122	0	0	0	0	258	5	167
Future Volume (veh/h)	0	514	580	619	1122	0	0	0	0	258	5	167
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1845	1845	1881	1881	0				1827	1807	1727
Adj Flow Rate, veh/h	0	571	644	688	1247	0				347	0	126
Adj No. of Lanes	0	2	1	2	2	0				2	0	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	0	3	3	1	1	0				4	1	10
Cap, veh/h	0	1096	490	853	2372	0				506	0	213
Arrive On Green	0.00	0.31	0.31	0.25	0.66	0.00				0.15	0.00	0.15
Sat Flow, veh/h	0	3597	1568	3476	3668	0				3480	0	1468
Grp Volume(v), veh/h	0	571	644	688	1247	0				347	0	126
Grp Sat Flow(s),veh/h/ln	0	1752	1568	1738	1787	0				1740	0	1468
Q Serve(g_s), s	0.0	7.4	17.2	10.2	9.9	0.0				5.2	0.0	4.4
Cycle Q Clear(g_c), s	0.0	7.4	17.2	10.2	9.9	0.0				5.2	0.0	4.4
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1096	490	853	2372	0				506	0	213
V/C Ratio(X)	0.00	0.52	1.31	0.81	0.53	0.00				0.69	0.00	0.59
Avail Cap(c_a), veh/h	0	1096	490	853	2372	0				525	0	222
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.73	0.73	0.67	0.67	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	15.5	18.9	19.5	4.8	0.0				22.3	0.0	22.0
Incr Delay (d2), s/veh	0.0	1.3	151.4	3.9	0.6	0.0				3.6	0.0	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.7	28.0	5.3	4.9	0.0				2.8	0.0	2.0
LnGrp Delay(d),s/veh	0.0	16.8	170.3	23.4	5.3	0.0				25.9	0.0	25.8
LnGrp LOS		B	F	C	A					C		C
Approach Vol, veh/h		1215			1935						473	
Approach Delay, s/veh		98.2			11.8						25.9	
Approach LOS		F			B						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	19.3	23.0		12.7		42.3						
Change Period (Y+Rc), s	5.8	5.8		* 4.7		5.8						
Max Green Setting (Gmax), s	13.2	17.2		* 8.3		36.2						
Max Q Clear Time (g_c+I1), s	12.2	19.2		7.2		11.9						
Green Ext Time (p_c), s	0.3	0.0		0.2		9.3						
Intersection Summary												
HCM 2010 Ctrl Delay				42.6								
HCM 2010 LOS				D								
Notes												

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary

5: I-15 SB & Central Ave

03/27/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↖↗	↑↑					↖	↕	↗
Traffic Volume (veh/h)	0	525	592	632	1144	0	0	0	0	264	6	171
Future Volume (veh/h)	0	525	592	632	1144	0	0	0	0	264	6	171
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1845	1845	1881	1881	0				1827	1806	1727
Adj Flow Rate, veh/h	0	583	658	702	1271	0				355	0	129
Adj No. of Lanes	0	2	1	2	2	0				2	0	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	0	3	3	1	1	0				4	1	10
Cap, veh/h	0	1096	490	853	2372	0				506	0	213
Arrive On Green	0.00	0.31	0.31	0.25	0.66	0.00				0.15	0.00	0.15
Sat Flow, veh/h	0	3597	1568	3476	3668	0				3480	0	1468
Grp Volume(v), veh/h	0	583	658	702	1271	0				355	0	129
Grp Sat Flow(s),veh/h/ln	0	1752	1568	1738	1787	0				1740	0	1468
Q Serve(g_s), s	0.0	7.5	17.2	10.5	10.2	0.0				5.3	0.0	4.5
Cycle Q Clear(g_c), s	0.0	7.5	17.2	10.5	10.2	0.0				5.3	0.0	4.5
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1096	490	853	2372	0				506	0	213
V/C Ratio(X)	0.00	0.53	1.34	0.82	0.54	0.00				0.70	0.00	0.60
Avail Cap(c_a), veh/h	0	1096	490	853	2372	0				525	0	222
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.71	0.71	0.65	0.65	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	15.6	18.9	19.6	4.8	0.0				22.4	0.0	22.0
Incr Delay (d2), s/veh	0.0	1.3	163.5	4.4	0.6	0.0				4.0	0.0	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.8	29.6	5.5	5.1	0.0				2.8	0.0	2.1
LnGrp Delay(d),s/veh	0.0	16.9	182.4	24.0	5.4	0.0				26.4	0.0	26.4
LnGrp LOS		B	F	C	A					C		C
Approach Vol, veh/h		1241			1973						484	
Approach Delay, s/veh		104.7			12.0						26.4	
Approach LOS		F			B						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	9.3	23.0		12.7		42.3						
Change Period (Y+Rc), s	5.8	5.8		* 4.7		5.8						
Max Green Setting (Gmax), s	3.2	17.2		* 8.3		36.2						
Max Q Clear Time (g_c+1), s	12.5	19.2		7.3		12.2						
Green Ext Time (p_c), s	0.2	0.0		0.2		9.5						
Intersection Summary												
HCM 2010 Ctrl Delay			45.0									
HCM 2010 LOS			D									
Notes												

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary

5: I-15 SB & Central Ave

Synchro 10 Report

06/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	783	670	814	1603	0	0	0	0	393	6	285
Future Volume (veh/h)	0	783	670	814	1603	0	0	0	0	393	6	285
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1845	1845	1881	1881	0				1827	1798	1727
Adj Flow Rate, veh/h	0	824	705	857	1687	0				510	0	202
Adj No. of Lanes	0	2	1	2	2	0				2	0	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	3	3	1	1	0				4	1	10
Cap, veh/h	0	1096	490	834	2353	0				525	0	222
Arrive On Green	0.00	0.31	0.31	0.24	0.66	0.00				0.15	0.00	0.15
Sat Flow, veh/h	0	3597	1568	3476	3668	0				3480	0	1468
Grp Volume(v), veh/h	0	824	705	857	1687	0				510	0	202
Grp Sat Flow(s),veh/h/ln	0	1752	1568	1738	1787	0				1740	0	1468
Q Serve(g_s), s	0.0	11.6	17.2	13.2	16.8	0.0				8.0	0.0	7.5
Cycle Q Clear(g_c), s	0.0	11.6	17.2	13.2	16.8	0.0				8.0	0.0	7.5
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1096	490	834	2353	0				525	0	222
V/C Ratio(X)	0.00	0.75	1.44	1.03	0.72	0.00				0.97	0.00	0.91
Avail Cap(c_a), veh/h	0	1096	490	834	2353	0				525	0	222
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.26	0.26	0.17	0.17	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	17.0	18.9	20.9	6.1	0.0				23.2	0.0	23.0
Incr Delay (d2), s/veh	0.0	1.3	200.1	20.4	0.3	0.0				31.9	0.0	37.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.8	34.6	8.6	8.1	0.0				6.2	0.0	5.3
LnGrp Delay(d),s/veh	0.0	18.3	219.0	41.3	6.4	0.0				55.1	0.0	60.3
LnGrp LOS		B	F	F	A					E		E
Approach Vol, veh/h		1529			2544						712	
Approach Delay, s/veh		110.8			18.2						56.6	
Approach LOS		F			B						E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	9.0	23.0		13.0		42.0						
Change Period (Y+Rc), s	5.8	5.8		* 4.7		5.8						
Max Green Setting (Gmax), s	3.2	17.2		* 8.3		36.2						
Max Q Clear Time (g_c+11.5), s	3.2	19.2		10.0		18.8						
Green Ext Time (p_c), s	0.0	0.0		0.0		11.1						
Intersection Summary												
HCM 2010 Ctrl Delay			53.5									
HCM 2010 LOS			D									
Notes												

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary

5: I-15 SB & Central Ave

Synchro 10 Report
06/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑					↑	↑	↑
Traffic Volume (veh/h)	0	783	670	814	1603	0	0	0	0	393	6	285
Future Volume (veh/h)	0	783	670	814	1603	0	0	0	0	393	6	285
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1845	1845	1881	1881	0				1827	1798	1727
Adj Flow Rate, veh/h	0	824	705	857	1687	0				510	0	202
Adj No. of Lanes	0	3	1	2	2	0				2	0	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	3	3	1	1	0				4	1	10
Cap, veh/h	0	1855	578	1131	2652	0				593	0	250
Arrive On Green	0.00	0.37	0.37	0.33	0.74	0.00				0.17	0.00	0.17
Sat Flow, veh/h	0	5202	1568	3476	3668	0				3480	0	1468
Grp Volume(v), veh/h	0	824	705	857	1687	0				510	0	202
Grp Sat Flow(s),veh/h/ln	0	1679	1568	1738	1787	0				1740	0	1468
Q Serve(g_s), s	0.0	14.8	44.2	26.5	27.7	0.0				17.1	0.0	15.9
Cycle Q Clear(g_c), s	0.0	14.8	44.2	26.5	27.7	0.0				17.1	0.0	15.9
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1855	578	1131	2652	0				593	0	250
V/C Ratio(X)	0.00	0.44	1.22	0.76	0.64	0.00				0.86	0.00	0.81
Avail Cap(c_a), veh/h	0	1855	578	1131	2652	0				705	0	297
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.58	0.58	0.42	0.42	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	28.6	37.9	36.3	7.6	0.0				48.4	0.0	47.9
Incr Delay (d2), s/veh	0.0	0.5	108.5	1.3	0.5	0.0				9.2	0.0	13.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.9	36.5	12.9	13.5	0.0				9.0	0.0	7.4
LnGrp Delay(d),s/veh	0.0	29.1	146.4	37.5	8.1	0.0				57.6	0.0	60.9
LnGrp LOS		C	F	D	A					E		E
Approach Vol, veh/h		1529			2544						712	
Approach Delay, s/veh		83.2			18.0						58.5	
Approach LOS		F			B						E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	44.8	50.0		25.2		94.8						
Change Period (Y+Rc), s	5.8	5.8		* 4.7		5.8						
Max Green Setting (Gmax), s	35.2	44.2		* 24		85.2						
Max Q Clear Time (g_c+I1), s	28.5	46.2		19.1		29.7						
Green Ext Time (p_c), s	2.0	0.0		1.4		19.8						
Intersection Summary												
HCM 2010 Ctrl Delay				44.8								
HCM 2010 LOS				D								
Notes												

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



DAVID EVANS
AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TM	3-Apr-18	DLRCSRZY-0001	1 OF 2

E/W STREET : CENTRAL AVE
N/S STREET : I-15 SOUTHBOUND
CONDITION : PM PEAK HOUR

INTERSECTION : 5
PROJECTED GROWTH : 2%
PER YEAR :

TURN MOVEMENTS

	Existing Condition Traffic	Project Trips	Existing + Project Condition Traffic	Ambient Growth	Project Condition Traffic	Related Projects	Cumulative Condition Traffic
Condition							
Scenario #	2		5		8		11

CENTRAL AVE

EB LEFT	0	0	0	0	0	0	0
EB THRU	956	28	984	20	1004	534	1538
EB RIGHT	460	12	472	10	482	142	624
WB LEFT	328	0	328	7	335	208	543
WB THRU	774	19	793	16	809	408	1217
WB RIGHT	0	0	0	0	0	0	0

I-15 SOUTHBOUND

NB LEFT	0	0	0	0	0	0	0
NB THRU	0	0	0	0	0	0	0
NB RIGHT	0	0	0	0	0	0	0
SB LEFT	499	0	499	10	509	239	748
SB THRU	1	0	1	1	2	0	2
SB RIGHT	120	8	128	3	131	56	187
TOTALS	3138	67	3205	67	3272	1587	4859

Los Angeles: 213.785.7887 ~ Ontario: 909.481.5750 ~ San Diego: 619.400.0600 ~ Santa Clarita: 661.284.7400

Temecula: 951.294.9300 ~ Tustin: 714.665.4500 ~ Victorville: 760.524.9100



DAVID EVANS
AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN VOLUME SUMMARY	TM	3-Apr-18	DLRCSRZY-0001	2 OF 2

E/W STREET : CENTRAL AVE
CONDITION : PM PEAK HOUR

N/S STREET : I-15 SOUTHBOUND
PHF : 0.79

NORTH LEG								
LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
1	0	0	1	0	0	1	0	0
1	0	0	1	0	0	1	0	0
0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	2	0	0

SOUTH LEG								
LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

EAST LEG								
LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	1	0	0	3	0
0	1	0	0	0	0	0	0	1
0	1	0	0	0	0	0	0	0
0	3	0	0	1	0	0	2	0

WEST LEG								
LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

NORTH LEG			SOUTH LEG			EAST LEG			WEST LEG		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
32	0	128	0	0	0	0	334	122	155	216	0
24	0	123	0	0	0	0	51	16	124	205	0
35	1	133	0	0	0	0	145	70	90	241	0
19	0	115	0	0	0	0	232	119	91	294	0

TRUCK TOTAL	AUTO VOLUMES	TOTALS	TRUCK PERCENTAGE
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CENTRAL AVE

EB LEFT	0	0	0	0%
EB THRU	0	956	956	1%
EB RIGHT	0	460	460	1%
WB LEFT	1	327	328	1%
WB THRU	12	762	774	1%
WB RIGHT	0	0	0	0%

I-15 SOUTHBOUND

NB LEFT	0	0	0	0%
NB THRU	0	0	0	0%
NB RIGHT	0	0	0	0%
SB LEFT	0	499	499	1%
SB THRU	0	1	1	1%
SB RIGHT	10	110	120	8%

Los Angeles: 213.785.7887 ~ Ontario: 909.481.5750 ~ San Diego: 619.400.0600 ~ Santa Clarita: 661.284.7400

Temecula: 951.294.9300 ~ Tustin: 714.665.4500 ~ Victorville: 760.524.9100

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: I-15 SB RAMP
 EAST-WEST STREET: CENTRAL
 JURISDICTION: LAKE ELSINORE

DATE: 02-22-18

PEAK HOUR: 04:00PM

NORTH LEG

TOTAL: 620

120	1	499
35	0	128
27	0	123
35	1	133
23	0	115

Total

1st

2nd

3rd

4th

Rt Thru Lt

EAST LEG TOTAL: 1,102

Rt					
Thru	338	52	146	238	774
Lt	122	17	70	119	328

1st 2nd 3rd 4th Total

Total 1st 2nd 3rd 4th

956	216	205	241	294
460	155	124	90	91

Lt

Thru

Rt

WEST LEG TOTAL: 1,416

PEAK HOUR FACTORS

NORTH LEG = 0.92

SOUTH LEG =

EAST LEG = 0.60

WEST LEG = 0.92

ALL LEGS = 0.79

Lt Thru Rt

1st

2nd

3rd

4th

Total

SOUTH LEG

TOTAL: 0

HOURLY TOTAL: 3,138

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY

NORTH-SOUTH STREET : I-15 SB RAMP

LAKE ELSINORE

EAST-WEST STREET : CENTRAL

02-22-18

BEGINNING TIME : 04:00PM

AUTOS			LARGE 2 AXLE			3 AXLE			4 (+) AXLE			TOTALS
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	
NORTH LEG												
32	0	128	1	0	0	1	0	0	1	0	0	163
24	0	123	1	0	0	1	0	0	1	0	0	150
35	1	133	0	0	0	0	0	0	0	0	0	169
19	0	115	2	0	0	0	0	0	2	0	0	138
66	5	123	0	0	0	0	0	0	0	0	0	194
16	0	112	2	0	0	1	0	0	0	0	0	131
25	1	61	1	0	0	0	0	0	1	0	0	89
23	12	27	0	0	0	0	0	0	1	0	0	63
240	19	822	7	0	0	3	0	0	6	0	0	1097
SOUTH LEG												
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
EAST LEG												
0	334	122	0	0	0	0	1	0	0	3	0	460
0	51	16	0	1	0	0	0	0	0	0	1	69
0	145	70	0	1	0	0	0	0	0	0	0	216
0	232	119	0	3	0	0	1	0	0	2	0	357
0	135	95	0	2	0	0	1	0	0	1	1	235
0	108	90	0	1	0	0	1	0	0	0	1	201
0	129	63	0	0	0	0	0	0	0	0	0	192
0	153	31	0	0	0	0	0	0	0	0	0	184
0	1287	606	0	8	0	0	4	0	0	6	3	1914
WEST LEG												
155	216	0	0	0	0	0	0	0	0	0	0	371
124	205	0	0	0	0	0	0	0	0	0	0	329
90	241	0	0	0	0	0	0	0	0	0	0	331
91	294	0	0	0	0	0	0	0	0	0	0	385
184	210	0	0	0	0	0	0	0	0	0	0	394
97	174	0	0	0	0	0	0	0	0	0	0	271
81	100	0	0	0	0	0	0	0	0	0	0	181
60	163	0	0	0	0	0	0	0	0	0	0	223
882	1603	0	0	0	0	0	0	0	0	0	0	2485

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: I-15 SB RAMPS

EAST-WEST STREET: CENTRAL

TIME: 04:00PM-05:00PM

DATE: 02-22-18

NORTH LEG

120	1	499	Total
35	0	128	1st
27	0	123	2nd
35	1	133	3rd
23	0	115	4th
Rt	Thru	Lt	

Total 1st 2nd 3rd 4th

956	216	205	241	294
460	155	124	90	91

Lt

Thru

Rt

Rt

Thru

Lt

338	52	146	238	774
122	17	70	119	328

1st 2nd 3rd 4th Total

Lt Thru Rt

1st			
2nd			
3rd			
4th			
Total			

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: I-15 SB RAMP

EAST-WEST STREET: CENTRAL

TIME: 05:00PM-06:00PM

DATE: 02-22-18

NORTH LEG

136	18	323	Total
66	5	123	1st
19	0	112	2nd
27	1	61	3rd
24	12	27	4th
Rt	Thru	Lt	

Total 1st 2nd 3rd 4th

647	210	174	100	163
422	184	97	81	60

Lt

Thru

Rt

Rt
Thru
Lt

139	110	129	153	531
96	91	63	31	281

1st 2nd 3rd 4th Total

Lt Thru Rt

1st
2nd
3rd
4th
Total

HCM 2010 Signalized Intersection Summary

5: I-15 SB & Central Ave

03/27/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑	↑↑	↑
Traffic Volume (veh/h)	0	956	460	328	774	0	0	0	0	499	1	120
Future Volume (veh/h)	0	956	460	328	774	0	0	0	0	499	1	120
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1881	1881	1881	0				1881	1875	1759
Adj Flow Rate, veh/h	0	1210	582	415	980	0				680	0	102
Adj No. of Lanes	0	2	1	2	2	0				2	0	1
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79				0.79	0.79	0.79
Percent Heavy Veh, %	0	1	1	1	1	0				1	1	8
Cap, veh/h	0	1440	644	504	2254	0				786	0	328
Arrive On Green	0.00	0.40	0.40	0.14	0.63	0.00				0.22	0.00	0.22
Sat Flow, veh/h	0	3668	1599	3476	3668	0				3583	0	1495
Grp Volume(v), veh/h	0	1210	582	415	980	0				680	0	102
Grp Sat Flow(s),veh/h/ln	0	1787	1599	1738	1787	0				1792	0	1495
Q Serve(g_s), s	0.0	21.4	23.9	8.1	9.8	0.0				12.8	0.0	4.0
Cycle Q Clear(g_c), s	0.0	21.4	23.9	8.1	9.8	0.0				12.8	0.0	4.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1440	644	504	2254	0				786	0	328
V/C Ratio(X)	0.00	0.84	0.90	0.82	0.43	0.00				0.87	0.00	0.31
Avail Cap(c_a), veh/h	0	1440	644	504	2254	0				834	0	348
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.56	0.56	0.86	0.86	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	18.9	19.6	29.1	6.6	0.0				26.3	0.0	22.9
Incr Delay (d2), s/veh	0.0	3.5	11.6	9.3	0.5	0.0				9.1	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	11.1	12.6	4.5	4.9	0.0				7.3	0.0	1.7
LnGrp Delay(d),s/veh	0.0	22.4	31.3	38.3	7.1	0.0				35.4	0.0	23.4
LnGrp LOS		C	C	D	A					D		C
Approach Vol, veh/h		1792			1395						782	
Approach Delay, s/veh		25.3			16.4						33.8	
Approach LOS		C			B						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	15.9	34.0		20.1		49.9						
Change Period (Y+Rc), s	5.8	5.8		* 4.7		5.8						
Max Green Setting (Gmax), s	9.2	28.2		* 16		43.2						
Max Q Clear Time (g_c+I1), s	10.1	25.9		14.8		11.8						
Green Ext Time (p_c), s	0.0	1.8		0.6		7.3						
Intersection Summary												
HCM 2010 Ctrl Delay				23.8								
HCM 2010 LOS				C								
Notes												

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary

5: I-15 SB & Central Ave

03/27/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑	↑↑	↑
Traffic Volume (veh/h)	0	984	472	328	793	0	0	0	0	499	1	128
Future Volume (veh/h)	0	984	472	328	793	0	0	0	0	499	1	128
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1881	1881	1881	0				1881	1875	1759
Adj Flow Rate, veh/h	0	1246	597	415	1004	0				683	0	108
Adj No. of Lanes	0	2	1	2	2	0				2	0	1
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79				0.79	0.79	0.79
Percent Heavy Veh, %	0	1	1	1	1	0				1	1	8
Cap, veh/h	0	1440	644	502	2252	0				788	0	329
Arrive On Green	0.00	0.40	0.40	0.14	0.63	0.00				0.22	0.00	0.22
Sat Flow, veh/h	0	3668	1599	3476	3668	0				3583	0	1495
Grp Volume(v), veh/h	0	1246	597	415	1004	0				683	0	108
Grp Sat Flow(s),veh/h/ln	0	1787	1599	1738	1787	0				1792	0	1495
Q Serve(g_s), s	0.0	22.4	24.9	8.1	10.1	0.0				12.9	0.0	4.3
Cycle Q Clear(g_c), s	0.0	22.4	24.9	8.1	10.1	0.0				12.9	0.0	4.3
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1440	644	502	2252	0				788	0	329
V/C Ratio(X)	0.00	0.87	0.93	0.83	0.45	0.00				0.87	0.00	0.33
Avail Cap(c_a), veh/h	0	1440	644	502	2252	0				834	0	348
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.55	0.55	0.86	0.86	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	19.2	19.9	29.1	6.7	0.0				26.3	0.0	23.0
Incr Delay (d2), s/veh	0.0	4.1	13.7	9.6	0.5	0.0				9.2	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	11.7	13.4	4.5	5.1	0.0				7.4	0.0	1.8
LnGrp Delay(d),s/veh	0.0	23.3	33.6	38.7	7.2	0.0				35.5	0.0	23.5
LnGrp LOS		C	C	D	A					D		C
Approach Vol, veh/h		1843			1419						791	
Approach Delay, s/veh		26.6			16.4						33.9	
Approach LOS		C			B						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	15.9	34.0		20.1		49.9						
Change Period (Y+Rc), s	5.8	5.8		* 4.7		5.8						
Max Green Setting (Gmax), s	9.2	28.2		* 16		43.2						
Max Q Clear Time (g_c+I1), s	10.1	26.9		14.9		12.1						
Green Ext Time (p_c), s	0.0	1.1		0.5		7.5						
Intersection Summary												
HCM 2010 Ctrl Delay				24.5								
HCM 2010 LOS				C								
Notes												

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary

5: I-15 SB & Central Ave

03/27/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑	↑↑	↑
Traffic Volume (veh/h)	0	1004	482	335	809	0	0	0	0	509	2	131
Future Volume (veh/h)	0	1004	482	335	809	0	0	0	0	509	2	131
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1881	1881	1881	0				1881	1874	1759
Adj Flow Rate, veh/h	0	1271	610	424	1024	0				697	0	112
Adj No. of Lanes	0	2	1	2	2	0				2	0	1
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79				0.79	0.79	0.79
Percent Heavy Veh, %	0	1	1	1	1	0				1	1	8
Cap, veh/h	0	1440	644	492	2242	0				798	0	333
Arrive On Green	0.00	0.40	0.40	0.14	0.63	0.00				0.22	0.00	0.22
Sat Flow, veh/h	0	3668	1599	3476	3668	0				3583	0	1495
Grp Volume(v), veh/h	0	1271	610	424	1024	0				697	0	112
Grp Sat Flow(s),veh/h/ln	0	1787	1599	1738	1787	0				1792	0	1495
Q Serve(g_s), s	0.0	23.1	25.8	8.3	10.5	0.0				13.1	0.0	4.4
Cycle Q Clear(g_c), s	0.0	23.1	25.8	8.3	10.5	0.0				13.1	0.0	4.4
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1440	644	492	2242	0				798	0	333
V/C Ratio(X)	0.00	0.88	0.95	0.86	0.46	0.00				0.87	0.00	0.34
Avail Cap(c_a), veh/h	0	1440	644	492	2242	0				834	0	348
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.52	0.52	0.85	0.85	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	19.4	20.2	29.4	6.8	0.0				26.3	0.0	22.9
Incr Delay (d2), s/veh	0.0	4.5	15.7	12.6	0.6	0.0				9.8	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	12.2	14.0	4.9	5.3	0.0				7.6	0.0	1.9
LnGrp Delay(d),s/veh	0.0	23.9	35.9	41.9	7.4	0.0				36.1	0.0	23.4
LnGrp LOS		C	D	D	A					D		C
Approach Vol, veh/h		1881			1448						809	
Approach Delay, s/veh		27.8			17.5						34.3	
Approach LOS		C			B						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	15.7	34.0		20.3		49.7						
Change Period (Y+Rc), s	5.8	5.8		* 4.7		5.8						
Max Green Setting (Gmax), s	9.2	28.2		* 16		43.2						
Max Q Clear Time (g_c+I1), s	10.3	27.8		15.1		12.5						
Green Ext Time (p_c), s	0.0	0.4		0.5		7.7						
Intersection Summary												
HCM 2010 Ctrl Delay			25.5									
HCM 2010 LOS			C									
Notes												

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary

5: I-15 SB & Central Ave

Synchro 10 Report
06/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑	↑↑	↑
Traffic Volume (veh/h)	0	1538	624	543	1217	0	0	0	0	748	2	187
Future Volume (veh/h)	0	1538	624	543	1217	0	0	0	0	748	2	187
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1881	1881	1881	0				1881	1875	1759
Adj Flow Rate, veh/h	0	1619	657	572	1281	0				849	0	132
Adj No. of Lanes	0	2	1	2	2	0				2	0	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	1	1	1	1	0				1	1	8
Cap, veh/h	0	1440	644	457	2206	0				834	0	348
Arrive On Green	0.00	0.40	0.40	0.13	0.62	0.00				0.23	0.00	0.23
Sat Flow, veh/h	0	3668	1599	3476	3668	0				3583	0	1495
Grp Volume(v), veh/h	0	1619	657	572	1281	0				849	0	132
Grp Sat Flow(s),veh/h/ln	0	1787	1599	1738	1787	0				1792	0	1495
Q Serve(g_s), s	0.0	28.2	28.2	9.2	15.0	0.0				16.3	0.0	5.2
Cycle Q Clear(g_c), s	0.0	28.2	28.2	9.2	15.0	0.0				16.3	0.0	5.2
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1440	644	457	2206	0				834	0	348
V/C Ratio(X)	0.00	1.12	1.02	1.25	0.58	0.00				1.02	0.00	0.38
Avail Cap(c_a), veh/h	0	1440	644	457	2206	0				834	0	348
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.09	0.52	0.52	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	20.9	20.9	30.4	8.0	0.0				26.9	0.0	22.6
Incr Delay (d2), s/veh	0.0	57.0	16.1	122.9	0.6	0.0				35.6	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	25.2	15.2	12.2	7.5	0.0				12.1	0.0	2.2
LnGrp Delay(d),s/veh	0.0	77.9	37.0	153.3	8.6	0.0				62.5	0.0	23.3
LnGrp LOS		F	F	F	A					F		C
Approach Vol, veh/h	2276			1853						981		
Approach Delay, s/veh	66.1			53.3						57.2		
Approach LOS	E			D						E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	5.0	34.0		21.0		49.0						
Change Period (Y+Rc), s	5.8	5.8		* 4.7		5.8						
Max Green Setting (Gmax), s	28.2	28.2		* 16		43.2						
Max Q Clear Time (g_c+11), s	30.2	30.2		18.3		17.0						
Green Ext Time (p_c), s	0.0	0.0		0.0		9.9						
Intersection Summary												
HCM 2010 Ctrl Delay			59.7									
HCM 2010 LOS			E									
Notes												

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary

5: I-15 SB & Central Ave

Synchro 10 Report
06/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1538	624	543	1217	0	0	0	0	748	2	187
Future Volume (veh/h)	0	1538	624	543	1217	0	0	0	0	748	2	187
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1881	1881	1881	0				1881	1875	1759
Adj Flow Rate, veh/h	0	1619	657	572	1281	0				849	0	132
Adj No. of Lanes	0	3	1	2	2	0				2	0	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	1	1	1	1	0				1	1	8
Cap, veh/h	0	1977	616	757	2327	0				936	0	391
Arrive On Green	0.00	0.38	0.38	0.22	0.65	0.00				0.26	0.00	0.26
Sat Flow, veh/h	0	5305	1599	3476	3668	0				3583	0	1495
Grp Volume(v), veh/h	0	1619	657	572	1281	0				849	0	132
Grp Sat Flow(s),veh/h/ln	0	1712	1599	1738	1787	0				1792	0	1495
Q Serve(g_s), s	0.0	34.0	46.2	18.5	23.4	0.0				27.5	0.0	8.6
Cycle Q Clear(g_c), s	0.0	34.0	46.2	18.5	23.4	0.0				27.5	0.0	8.6
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1977	616	757	2327	0				936	0	391
V/C Ratio(X)	0.00	0.82	1.07	0.76	0.55	0.00				0.91	0.00	0.34
Avail Cap(c_a), veh/h	0	1977	616	757	2327	0				1024	0	427
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.32	0.32	0.49	0.49	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	33.1	36.9	43.9	11.4	0.0				42.9	0.0	35.9
Incr Delay (d2), s/veh	0.0	1.3	41.3	2.2	0.5	0.0				10.9	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	16.3	27.4	9.1	11.5	0.0				15.0	0.0	3.6
LnGrp Delay(d),s/veh	0.0	34.5	78.2	46.1	11.8	0.0				53.8	0.0	36.4
LnGrp LOS		C	F	D	B					D		D
Approach Vol, veh/h		2276			1853						981	
Approach Delay, s/veh		47.1			22.4						51.4	
Approach LOS		D			C						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	31.9	52.0		36.1		83.9						
Change Period (Y+Rc), s	5.8	5.8		* 4.7		5.8						
Max Green Setting (Gmax), s	23.2	46.2		* 34		75.2						
Max Q Clear Time (g_c+I1), s	20.5	48.2		29.5		25.4						
Green Ext Time (p_c), s	0.6	0.0		1.8		11.8						
Intersection Summary												
HCM 2010 Ctrl Delay			39.0									
HCM 2010 LOS			D									
Notes												

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TM	3-Apr-18	DLRCSRZY-0001	1 OF 2

E/W STREET : CENTRAL AVE
N/S STREET : I-15 SOUTHBOUND
CONDITION : SAT PEAK HOUR

INTERSECTION : 5
PROJECTED GROWTH : 2%
PER YEAR :

TURN MOVEMENTS

	Existing Condition Traffic	Project Trips	Existing + Project Condition Traffic	Ambient Growth	Project Condition Traffic	Related Projects	Cumulative Condition Traffic
Scenario #	3		6		9		12

CENTRAL AVE

EB LEFT	0	0	0	0	0	0	0
EB THRU	895	27	922	18	940	0	940
EB RIGHT	493	17	510	10	520	0	520
WB LEFT	442	0	442	9	451	0	451
WB THRU	880	38	918	18	936	0	936
WB RIGHT	0	0	0	0	0	0	0

I-15 SOUTHBOUND

NB LEFT	0	0	0	0	0	0	0
NB THRU	0	0	0	0	0	0	0
NB RIGHT	0	0	0	0	0	0	0
SB LEFT	311	0	311	7	318	0	318
SB THRU	1	0	1	1	2	0	2
SB RIGHT	121	17	138	3	141	0	141
TOTALS	3143	99	3242	66	3308	0	3308

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN VOLUME SUMMARY	TM	3-Apr-18	DLRCSRZY-0001	2 OF 2

E/W STREET : CENTRAL AVE
CONDITION : SAT PEAK HOUR

N/S STREET : I-15 SOUTHBOUND
PHF : 0.97

NORTH LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
1	0	0	0	0	0	0	1	0
0	0	1	0	0	0	0	0	0
0	0	0	0	0	0	0	0	3
1	0	0	0	0	1	1	0	0

SOUTH LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

EAST LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	1	0	3	0	0	1	0
0	2	0	0	0	0	0	1	1
0	1	0	0	1	0	0	1	0
0	0	0	0	0	1	0	0	0

WEST LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	1	0	0	1	0	0	0	0
0	1	0	0	0	0	0	1	0
0	0	0	0	0	0	0	0	0
0	0	0	0	1	0	0	0	0

NORTH LEG			SOUTH LEG			EAST LEG			WEST LEG		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
13	0	82	0	0	0	0	264	97	107	192	0
24	0	66	0	0	0	0	200	113	135	234	0
44	0	90	0	0	0	0	189	118	113	228	0
37	0	68	0	0	0	0	217	111	138	236	0

TRUCK TOTAL	AUTO VOLUMES	TOTALS	TRUCK PERCENTAGE
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CENTRAL AVE

EB LEFT	0	0	0	0%
EB THRU	5	890	895	1%
EB RIGHT	0	493	493	1%
WB LEFT	3	439	442	1%
WB THRU	10	870	880	1%
WB RIGHT	0	0	0	0%

I-15 SOUTHBOUND

NB LEFT	0	0	0	0%
NB THRU	0	0	0	0%
NB RIGHT	0	0	0	0%
SB LEFT	5	306	311	1%
SB THRU	1	0	1	100%
SB RIGHT	3	118	121	1%

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: I-15 SB RAMPS
 EAST-WEST STREET: CENTRAL
 JURISDICTION: LAKE ELSINORE

DATE: 02-24-18

PEAK HOUR: 01:30PM

NORTH LEG

TOTAL: 433

121	1	311
14	1	82
24	0	67
44	0	93
39	0	69

Total

1st

2nd

3rd

4th

Rt Thru Lt

EAST LEG TOTAL: 1,322

Rt					
Thru	268	203	192	217	880
Lt	98	114	118	112	442

1st 2nd 3rd 4th Total

Total 1st 2nd 3rd 4th

895	194	236	228	237
493	107	135	113	138

Lt

Thru

Rt

WEST LEG TOTAL: 1,388

PEAK HOUR FACTORS

NORTH LEG = 0.79

SOUTH LEG =

EAST LEG = 0.90

WEST LEG = 0.93

ALL LEGS = 0.97

Lt Thru Rt

1st

2nd

3rd

4th

Total

SOUTH LEG

TOTAL: 0

HOOR TOTAL: 3,143

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY
NORTH-SOUTH STREET : I-15 SB RAMPS **LAKE ELSINORE**
EAST-WEST STREET : CENTRAL
BEGINNING TIME : 01:00PM

AUTOS			LARGE 2 AXLE			3 AXLE			4 (+) AXLE			TOTALS
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	
NORTH LEG												
20	0	65	2	0	0	0	0	0	0	0	0	87
19	0	71	0	0	0	0	0	0	1	0	1	92
13	0	82	1	0	0	0	0	0	0	1	0	97
24	0	66	0	0	1	0	0	0	0	0	0	91
44	0	90	0	0	0	0	0	0	0	0	3	137
37	0	68	1	0	0	0	0	1	1	0	0	108
24	1	87	0	0	0	0	0	0	0	0	2	114
33	1	51	0	0	2	0	0	2	0	0	0	89
214	2	580	4	0	3	0	0	3	2	1	6	815
SOUTH LEG												
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
EAST LEG												
0	203	89	0	1	0	0	2	0	0	1	0	296
0	221	91	0	1	1	0	4	1	0	1	0	320
0	264	97	0	0	1	0	3	0	0	1	0	366
0	200	113	0	2	0	0	0	0	0	1	1	317
0	189	118	0	1	0	0	1	0	0	1	0	310
0	217	111	0	0	0	0	0	1	0	0	0	329
0	251	90	0	1	0	0	0	0	0	0	1	343
0	254	94	0	0	0	0	0	1	0	1	0	350
0	1799	803	0	6	2	0	10	3	0	6	2	2631
WEST LEG												
103	155	0	0	0	0	0	0	0	0	0	0	258
111	165	0	0	0	0	0	1	0	0	1	0	278
107	192	0	0	1	0	0	1	0	0	0	0	301
135	234	0	0	1	0	0	0	0	0	1	0	371
113	228	0	0	0	0	0	0	0	0	0	0	341
138	236	0	0	0	0	0	1	0	0	0	0	375
80	199	0	0	0	0	0	1	0	2	2	0	284
98	228	0	0	3	0	0	1	0	1	1	0	332
885	1637	0	0	5	0	0	5	0	3	5	0	2540

Prepared by Newport Traffic Studies

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: I-15 SB RAMPs

EAST-WEST STREET: CENTRAL

TIME: 01:00PM-02:00PM

DATE: 02-24-18

NORTH LEG

80	1	286	Total
22	0	65	1st
20	0	72	2nd
14	1	82	3rd
24	0	67	4th
Rt	Thru	Lt	

Total 1st 2nd 3rd 4th

					Lt
752	155	167	194	236	Thru
456	103	111	107	135	Rt

Rt					
Thru	207	227	268	203	905
Lt	89	93	98	114	394
	1st	2nd	3rd	4th	Total

Lt Thru Rt

1st			
2nd			
3rd			
4th			
Total			

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: I-15 SB RAMPS

EAST-WEST STREET: CENTRAL

TIME: 02:00PM-03:00PM

DATE: 02-24-18

NORTH LEG

140	2	306	Total
44	0	93	1st
39	0	69	2nd
24	1	89	3rd
33	1	55	4th
Rt	Thru	Lt	

Total 1st 2nd 3rd 4th

					Lt
900	228	237	202	233	Thru
432	113	138	82	99	Rt

Rt					
Thru	192	217	252	255	916
Lt	118	112	91	95	416
	1st	2nd	3rd	4th	Total

Lt Thru Rt

1st			
2nd			
3rd			
4th			
Total			

Prepared by NEWPORT TRAFFIC STUDIES

HCM 2010 Signalized Intersection Summary

5: I-15 SB & Central Ave

03/27/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑	↑↑	↑
Traffic Volume (veh/h)	0	895	493	442	880	0	0	0	0	311	1	121
Future Volume (veh/h)	0	895	493	442	880	0	0	0	0	311	1	121
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1881	1881	1881	0				1881	1870	1881
Adj Flow Rate, veh/h	0	923	508	456	907	0				360	0	84
Adj No. of Lanes	0	2	1	2	2	0				2	0	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	1	1	1	1	0				1	100	1
Cap, veh/h	0	1248	558	727	2373	0				521	0	232
Arrive On Green	0.00	0.35	0.35	0.21	0.66	0.00				0.15	0.00	0.15
Sat Flow, veh/h	0	3668	1599	3476	3668	0				3583	0	1599
Grp Volume(v), veh/h	0	923	508	456	907	0				360	0	84
Grp Sat Flow(s),veh/h/ln	0	1787	1599	1738	1787	0				1792	0	1599
Q Serve(g_s), s	0.0	12.5	16.7	6.6	6.3	0.0				5.3	0.0	2.6
Cycle Q Clear(g_c), s	0.0	12.5	16.7	6.6	6.3	0.0				5.3	0.0	2.6
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1248	558	727	2373	0				521	0	232
V/C Ratio(X)	0.00	0.74	0.91	0.63	0.38	0.00				0.69	0.00	0.36
Avail Cap(c_a), veh/h	0	1248	558	727	2373	0				606	0	270
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.49	0.49	0.81	0.81	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	15.7	17.1	19.8	4.2	0.0				22.3	0.0	21.2
Incr Delay (d2), s/veh	0.0	2.0	12.3	1.4	0.4	0.0				2.8	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.4	9.2	3.2	3.1	0.0				2.8	0.0	1.2
LnGrp Delay(d),s/veh	0.0	17.7	29.4	21.2	4.5	0.0				25.1	0.0	22.1
LnGrp LOS		B	C	C	A					C		C
Approach Vol, veh/h		1431			1363						444	
Approach Delay, s/veh		21.8			10.1						24.5	
Approach LOS		C			B						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	17.3	25.0		12.7		42.3						
Change Period (Y+Rc), s	5.8	5.8		* 4.7		5.8						
Max Green Setting (Gmax), s	10.2	19.2		* 9.3		35.2						
Max Q Clear Time (g_c+I1), s	8.6	18.7		7.3		8.3						
Green Ext Time (p_c), s	0.3	0.4		0.4		6.4						
Intersection Summary												
HCM 2010 Ctrl Delay				17.3								
HCM 2010 LOS				B								
Notes												

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary

5: I-15 SB & Central Ave

03/27/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	922	510	442	918	0	0	0	0	311	1	138
Future Volume (veh/h)	0	922	510	442	918	0	0	0	0	311	1	138
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1881	1881	1881	0				1881	1870	1881
Adj Flow Rate, veh/h	0	951	526	456	946	0				366	0	95
Adj No. of Lanes	0	2	1	2	2	0				2	0	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	1	1	1	1	0				1	100	1
Cap, veh/h	0	1248	558	727	2372	0				521	0	232
Arrive On Green	0.00	0.35	0.35	0.21	0.66	0.00				0.15	0.00	0.15
Sat Flow, veh/h	0	3668	1599	3476	3668	0				3583	0	1599
Grp Volume(v), veh/h	0	951	526	456	946	0				366	0	95
Grp Sat Flow(s),veh/h/ln	0	1787	1599	1738	1787	0				1792	0	1599
Q Serve(g_s), s	0.0	13.0	17.5	6.6	6.7	0.0				5.3	0.0	3.0
Cycle Q Clear(g_c), s	0.0	13.0	17.5	6.6	6.7	0.0				5.3	0.0	3.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1248	558	727	2372	0				521	0	232
V/C Ratio(X)	0.00	0.76	0.94	0.63	0.40	0.00				0.70	0.00	0.41
Avail Cap(c_a), veh/h	0	1248	558	727	2372	0				606	0	270
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.49	0.49	0.80	0.80	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	15.9	17.4	19.8	4.2	0.0				22.4	0.0	21.4
Incr Delay (d2), s/veh	0.0	2.2	16.1	1.4	0.4	0.0				3.0	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.7	10.1	3.2	3.3	0.0				2.9	0.0	1.4
LnGrp Delay(d),s/veh	0.0	18.1	33.5	21.2	4.6	0.0				25.4	0.0	22.5
LnGrp LOS		B	C	C	A					C		C
Approach Vol, veh/h		1477			1402						461	
Approach Delay, s/veh		23.6			10.0						24.8	
Approach LOS		C			B						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	17.3	25.0		12.7		42.3						
Change Period (Y+Rc), s	5.8	5.8		* 4.7		5.8						
Max Green Setting (Gmax), s	10.2	19.2		* 9.3		35.2						
Max Q Clear Time (g_c+I1), s	8.6	19.5		7.3		8.7						
Green Ext Time (p_c), s	0.3	0.0		0.4		6.7						
Intersection Summary												
HCM 2010 Ctrl Delay			18.1									
HCM 2010 LOS			B									
Notes												

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary

5: I-15 SB & Central Ave

03/27/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑	↑↑	↑
Traffic Volume (veh/h)	0	940	520	451	936	0	0	0	0	318	2	141
Future Volume (veh/h)	0	940	520	451	936	0	0	0	0	318	2	141
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1881	1881	1881	0				1881	1860	1881
Adj Flow Rate, veh/h	0	969	536	465	965	0				374	0	97
Adj No. of Lanes	0	2	1	2	2	0				2	0	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	1	1	1	1	0				1	100	1
Cap, veh/h	0	1248	558	727	2372	0				521	0	232
Arrive On Green	0.00	0.35	0.35	0.21	0.66	0.00				0.15	0.00	0.15
Sat Flow, veh/h	0	3668	1599	3476	3668	0				3583	0	1599
Grp Volume(v), veh/h	0	969	536	465	965	0				374	0	97
Grp Sat Flow(s),veh/h/ln	0	1787	1599	1738	1787	0				1792	0	1599
Q Serve(g_s), s	0.0	13.3	18.1	6.7	6.8	0.0				5.5	0.0	3.0
Cycle Q Clear(g_c), s	0.0	13.3	18.1	6.7	6.8	0.0				5.5	0.0	3.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1248	558	727	2372	0				521	0	232
V/C Ratio(X)	0.00	0.78	0.96	0.64	0.41	0.00				0.72	0.00	0.42
Avail Cap(c_a), veh/h	0	1248	558	727	2372	0				606	0	270
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.47	0.47	0.79	0.79	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	16.0	17.5	19.9	4.3	0.0				22.4	0.0	21.4
Incr Delay (d2), s/veh	0.0	2.3	18.1	1.5	0.4	0.0				3.4	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.9	10.7	3.4	3.4	0.0				2.9	0.0	1.4
LnGrp Delay(d),s/veh	0.0	18.3	35.6	21.3	4.7	0.0				25.9	0.0	22.6
LnGrp LOS		B	D	C	A					C		C
Approach Vol, veh/h		1505			1430						471	
Approach Delay, s/veh		24.4			10.1						25.2	
Approach LOS		C			B						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	7.3	25.0		12.7		42.3						
Change Period (Y+Rc), s	5.8	5.8		* 4.7		5.8						
Max Green Setting (Gmax), s	19.2	19.2		* 9.3		35.2						
Max Q Clear Time (g_c+1/3), s	20.1	20.1		7.5		8.8						
Green Ext Time (p_c), s	0.3	0.0		0.4		6.9						
Intersection Summary												
HCM 2010 Ctrl Delay			18.5									
HCM 2010 LOS			B									
Notes												

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary

5: I-15 SB & Central Ave

Synchro 10 Report

06/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	940	520	451	936	0	0	0	0	318	2	141
Future Volume (veh/h)	0	940	520	451	936	0	0	0	0	318	2	141
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1881	1881	1881	0				1881	1860	1881
Adj Flow Rate, veh/h	0	989	547	475	985	0				382	0	99
Adj No. of Lanes	0	2	1	2	2	0				2	0	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	1	1	1	1	0				1	100	1
Cap, veh/h	0	1248	558	727	2372	0				521	0	232
Arrive On Green	0.00	0.35	0.35	0.21	0.66	0.00				0.15	0.00	0.15
Sat Flow, veh/h	0	3668	1599	3476	3668	0				3583	0	1599
Grp Volume(v), veh/h	0	989	547	475	985	0				382	0	99
Grp Sat Flow(s),veh/h/ln	0	1787	1599	1738	1787	0				1792	0	1599
Q Serve(g_s), s	0.0	13.7	18.6	6.9	7.0	0.0				5.6	0.0	3.1
Cycle Q Clear(g_c), s	0.0	13.7	18.6	6.9	7.0	0.0				5.6	0.0	3.1
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1248	558	727	2372	0				521	0	232
V/C Ratio(X)	0.00	0.79	0.98	0.65	0.42	0.00				0.73	0.00	0.43
Avail Cap(c_a), veh/h	0	1248	558	727	2372	0				606	0	270
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.45	0.45	0.78	0.78	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	16.1	17.7	19.9	4.3	0.0				22.5	0.0	21.4
Incr Delay (d2), s/veh	0.0	2.4	21.2	1.6	0.4	0.0				3.9	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	7.2	11.3	3.5	3.6	0.0				3.0	0.0	1.5
LnGrp Delay(d),s/veh	0.0	18.5	38.9	21.6	4.7	0.0				26.4	0.0	22.6
LnGrp LOS		B	D	C	A					C		C
Approach Vol, veh/h		1536			1460						481	
Approach Delay, s/veh		25.8			10.2						25.6	
Approach LOS		C			B						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	7.3	25.0		12.7		42.3						
Change Period (Y+Rc), s	5.8	5.8		* 4.7		5.8						
Max Green Setting (Gmax), s	10.2	19.2		* 9.3		35.2						
Max Q Clear Time (g_c+1/3), s	10.2	20.6		7.6		9.0						
Green Ext Time (p_c), s	0.3	0.0		0.3		7.0						
Intersection Summary												
HCM 2010 Ctrl Delay			19.2									
HCM 2010 LOS			B									
Notes												

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary

5: I-15 SB & Central Ave

Synchro 10 Report
06/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑					↑	↑	↑
Traffic Volume (veh/h)	0	940	520	451	936	0	0	0	0	318	2	141
Future Volume (veh/h)	0	940	520	451	936	0	0	0	0	318	2	141
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1881	1881	1881	0				1881	1860	1881
Adj Flow Rate, veh/h	0	989	547	475	985	0				382	0	99
Adj No. of Lanes	0	3	1	2	2	0				2	0	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	1	1	1	1	0				1	100	1
Cap, veh/h	0	1775	553	967	2527	0				513	0	229
Arrive On Green	0.00	0.35	0.35	0.28	0.71	0.00				0.14	0.00	0.14
Sat Flow, veh/h	0	5305	1599	3476	3668	0				3583	0	1599
Grp Volume(v), veh/h	0	989	547	475	985	0				382	0	99
Grp Sat Flow(s),veh/h/ln	0	1712	1599	1738	1787	0				1792	0	1599
Q Serve(g_s), s	0.0	10.9	23.8	8.0	7.8	0.0				7.2	0.0	4.0
Cycle Q Clear(g_c), s	0.0	10.9	23.8	8.0	7.8	0.0				7.2	0.0	4.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1775	553	967	2527	0				513	0	229
V/C Ratio(X)	0.00	0.56	0.99	0.49	0.39	0.00				0.75	0.00	0.43
Avail Cap(c_a), veh/h	0	1775	553	967	2527	0				732	0	327
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.61	0.61	0.79	0.79	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	18.6	22.8	21.1	4.2	0.0				28.8	0.0	27.4
Incr Delay (d2), s/veh	0.0	0.8	27.4	0.3	0.4	0.0				2.5	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.3	14.7	3.9	4.0	0.0				3.7	0.0	1.8
LnGrp Delay(d),s/veh	0.0	19.3	50.2	21.4	4.5	0.0				31.3	0.0	28.7
LnGrp LOS		B	D	C	A					C		C
Approach Vol, veh/h		1536			1460						481	
Approach Delay, s/veh		30.3			10.0						30.7	
Approach LOS		C			B						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	25.3	30.0		14.7		55.3						
Change Period (Y+Rc), s	5.8	5.8		* 4.7		5.8						
Max Green Setting (Gmax), s	15.2	24.2		* 14		45.2						
Max Q Clear Time (g_c+I1), s	10.0	25.8		9.2		9.8						
Green Ext Time (p_c), s	0.8	0.0		0.9		7.5						
Intersection Summary												
HCM 2010 Ctrl Delay				21.8								
HCM 2010 LOS				C								
Notes												

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



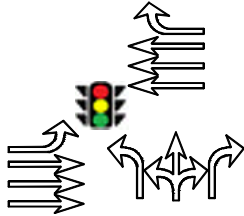
DAVID EVANS
AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TM	3-Apr-18	DLRCSRZY-0001	1 OF 2

E/W STREET : CENTRAL AVE
N/S STREET : I-15 NORTHBOUND
CONDITION : AM PEAK HOUR

INTERSECTION : 6
PROJECTED GROWTH : 2%
PER YEAR :

CONDITION DIAGRAMS



EXISTING GEOMETRICS

TURN MOVEMENTS

	Existing Condition Traffic	Project Trips	Existing + Project Condition Traffic	Ambient Growth	Project Condition Traffic	Related Projects	Cumulative Condition Traffic
Condition							
Scenario #	1		4		7		10

CENTRAL AVE

EB LEFT	68	5	73	2	75	50	125
EB THRU	692	6	698	14	712	338	1050
EB RIGHT	0	0	0	0	0	0	0
WB LEFT	0	0	0	0	0	0	0
WB THRU	1253	15	1268	26	1294	504	1798
WB RIGHT	484	0	484	10	494	172	666

I-15 NORTHBOUND

NB LEFT	464	11	475	10	485	137	622
NB THRU	14	0	14	1	15	0	15
NB RIGHT	499	0	499	10	509	142	651
SB LEFT	0	0	0	0	0	0	0
SB THRU	0	0	0	0	0	0	0
SB RIGHT	0	0	0	0	0	0	0
TOTALS	3474	37	3511	73	3584	1343	4927

Los Angeles: 213.785.7887 ~ Ontario: 909.481.5750 ~ San Diego: 619.400.0600 ~ Santa Clarita: 661.284.7400

Temecula: 951.294.9300 ~ Tustin: 714.665.4500 ~ Victorville: 760.524.9100



DAVID EVANS
AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN VOLUME SUMMARY	TM	3-Apr-18	DLRCSRZY-0001	2 OF 2

E/W STREET : CENTRAL AVE
CONDITION : AM PEAK HOUR

N/S STREET : I-15 NORTHBOUND
PHF : 0.90

NORTH LEG								
LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

SOUTH LEG								
LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
1	0	0	0	0	0	1	0	0
0	0	0	0	0	1	2	0	0
0	0	0	0	0	0	0	0	0
1	0	0	0	0	1	2	0	0

EAST LEG								
LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
2	2	0	0	0	0	5	4	0
0	5	0	0	1	0	3	2	0
0	4	0	0	0	0	1	3	0
0	5	0	0	2	0	4	2	0

WEST LEG								
LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	2	3	0	0	0	0	3	0
0	2	3	0	1	0	0	0	0
0	1	0	0	1	0	0	2	0
0	3	2	0	2	0	0	2	1

NORTH LEG			SOUTH LEG			EAST LEG			WEST LEG		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	118	8	88	72	264	0	0	170	12
0	0	0	130	1	105	91	369	0	0	168	12
0	0	0	129	2	134	170	322	0	0	174	17
0	0	0	115	3	135	136	268	0	0	161	18

TRUCK TOTAL	AUTO VOLUMES	TOTALS	TRUCK PERCENTAGE
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CENTRAL AVE

EB LEFT	9	59	68	13%
EB THRU	19	673	692	3%
EB RIGHT	0	0	0	0%
WB LEFT	0	0	0	0%
WB THRU	30	1223	1253	1%
WB RIGHT	15	469	484	3%

I-15 NORTHBOUND

NB LEFT	2	462	464	1%
NB THRU	0	14	14	1%
NB RIGHT	7	492	499	1%
SB LEFT	0	0	0	0%
SB THRU	0	0	0	0%
SB RIGHT	0	0	0	0%

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: I-15 NB RAMP
 EAST-WEST STREET: CENTRAL
 JURISDICTION: LAKE ELSINORE

DATE: 02-22-18

PEAK HOUR: 07:00AM

NORTH LEG

TOTAL:

0

Total

1st

2nd

3rd

4th

Rt Thru Lt

EAST LEG TOTAL: 1,737

Rt	79	94	171	140	484
Thru	270	377	329	277	1253
Lt					

Total 1st 2nd 3rd 4th

68	15	15	17	21
692	175	171	178	168

Lt

Thru

Rt

1st 2nd 3rd 4th Total

WEST LEG TOTAL: 760

PEAK HOUR FACTORS

NORTH LEG =

SOUTH LEG = 0.92

EAST LEG = 0.87

WEST LEG = 0.97

ALL LEGS = 0.90

Lt Thru Rt

1st	88	8	120
2nd	106	1	132
3rd	134	2	129
4th	136	3	118
Total	464	14	499

TOTAL: 977

SOUTH LEG

HOURLY TOTAL: 3,474

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY
 NORTH-SOUTH STREET : I-15 NB RAMPS
 EAST-WEST STREET : CENTRAL
 BEGINNING TIME : 07:00AM

LAKE ELSINORE
 02-22-18

AUTOS			LARGE 2 AXLE			3 AXLE			4 (+) AXLE			TOTALS
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	
NORTH LEG												
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH LEG												
118	8	88	1	0	0	0	0	0	1	0	0	216
130	1	105	0	0	0	0	0	1	2	0	0	239
129	2	134	0	0	0	0	0	0	0	0	0	265
115	3	135	1	0	0	0	0	1	2	0	0	257
87	0	123	0	0	0	0	0	0	1	0	1	212
86	0	115	0	0	0	0	0	0	1	0	0	202
86	4	98	0	0	3	1	0	2	3	0	3	200
85	1	103	0	0	0	0	0	0	2	0	0	191
836	19	901	2	0	3	1	0	4	12	0	4	1782
EAST LEG												
72	264	0	2	2	0	0	0	0	5	4	0	349
91	369	0	0	5	0	0	1	0	3	2	0	471
170	322	0	0	4	0	0	0	0	1	3	0	500
136	268	0	0	5	0	0	2	0	4	2	0	417
116	194	0	1	6	0	0	3	0	3	2	0	325
97	215	0	1	2	0	0	2	0	5	5	0	327
109	134	0	0	7	0	0	2	0	5	2	0	259
99	69	0	0	2	0	1	1	0	4	1	0	177
890	1835	0	4	33	0	1	11	0	30	21	0	2825
WEST LEG												
0	170	12	0	2	3	0	0	0	0	3	0	190
0	168	12	0	2	3	0	1	0	0	0	0	186
0	174	17	0	1	0	0	1	0	0	2	0	195
0	161	18	0	3	2	0	2	0	0	2	1	189
0	149	14	0	3	1	0	1	2	0	2	1	173
0	163	21	0	0	2	0	1	0	0	4	3	194
0	137	14	0	1	4	0	1	2	0	6	5	170
0	157	18	0	2	0	0	1	1	0	0	1	180
0	1279	126	0	14	15	0	8	5	0	19	11	1477

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: I-15 NB RAMPS

EAST-WEST STREET: CENTRAL

TIME: 07:00AM-08:00AM

DATE: 02-22-18

NORTH LEG

Total

1st

2nd

3rd

4th

Rt Thru Lt

Total 1st 2nd 3rd 4th

68	15	15	17	21
692	175	171	178	168

Lt

Thru

Rt

Rt

Thru

Lt

79	94	171	140	484
270	377	329	277	1253

1st 2nd 3rd 4th Total

Lt Thru Rt

1st

2nd

3rd

4th

Total

88	8	120
106	1	132
134	2	129
136	3	118
464	14	499

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: I-15 NB RAMPS

EAST-WEST STREET: CENTRAL

TIME: 08:00AM-09:00AM

DATE: 02-22-18

NORTH LEG

Total

1st

2nd

3rd

4th

Rt Thru Lt

Total 1st 2nd 3rd 4th

89	18	26	25	20
628	155	168	145	160

Lt

Thru

Rt

Rt	120	103	114	104	441
Thru	205	224	145	73	647
Lt					

1st 2nd 3rd 4th Total

Lt Thru Rt

1st	124	0	88
2nd	115	0	87
3rd	106	4	90
4th	103	1	87
Total	448	5	352

Prepared by NEWPORT TRAFFIC STUDIES

HCM 2010 Signalized Intersection Summary

6: I-15 NB & Central Ave

03/27/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 				
Traffic Volume (veh/h)	68	692	0	0	1253	484	464	14	499	0	0	0
Future Volume (veh/h)	68	692	0	0	1253	484	464	14	499	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1681	1845	0	0	1881	1845	1881	1881	1881			
Adj Flow Rate, veh/h	76	769	0	0	1392	538	701	0	368			
Adj No. of Lanes	1	3	0	0	3	1	2	0	1			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	13	3	0	0	1	3	1	1	1			
Cap, veh/h	92	2831	0	0	2095	639	942	0	420			
Arrive On Green	0.06	0.56	0.00	0.00	0.41	0.41	0.26	0.00	0.26			
Sat Flow, veh/h	1601	5202	0	0	5305	1568	3583	0	1599			
Grp Volume(v), veh/h	76	769	0	0	1392	538	701	0	368			
Grp Sat Flow(s),veh/h/ln	1601	1679	0	0	1712	1568	1792	0	1599			
Q Serve(g_s), s	2.8	4.7	0.0	0.0	13.2	18.6	10.8	0.0	13.2			
Cycle Q Clear(g_c), s	2.8	4.7	0.0	0.0	13.2	18.6	10.8	0.0	13.2			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	92	2831	0	0	2095	639	942	0	420			
V/C Ratio(X)	0.82	0.27	0.00	0.00	0.66	0.84	0.74	0.00	0.88			
Avail Cap(c_a), veh/h	112	2831	0	0	2095	639	973	0	434			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.82	0.82	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	28.0	6.8	0.0	0.0	14.4	16.0	20.3	0.0	21.2			
Incr Delay (d2), s/veh	27.5	0.2	0.0	0.0	1.7	12.7	3.0	0.0	17.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.0	2.2	0.0	0.0	6.5	10.2	5.7	0.0	7.9			
LnGrp Delay(d),s/veh	55.5	7.0	0.0	0.0	16.1	28.7	23.3	0.0	38.7			
LnGrp LOS	E	A			B	C	C		D			
Approach Vol, veh/h		845			1930			1069				
Approach Delay, s/veh		11.3			19.6			28.6				
Approach LOS		B			B			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		39.5			9.3	30.3		20.5				
Change Period (Y+Rc), s		5.8			5.8	5.8		4.7				
Max Green Setting (Gmax), s		33.2			4.2	23.2		16.3				
Max Q Clear Time (g_c+I1), s		6.7			4.8	20.6		15.2				
Green Ext Time (p_c), s		5.2			0.0	2.2		0.5				
Intersection Summary												
HCM 2010 Ctrl Delay			20.3									
HCM 2010 LOS			C									
Notes												

User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary

6: I-15 NB & Central Ave

03/27/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 				
Traffic Volume (veh/h)	73	698	0	0	1268	484	475	14	499	0	0	0
Future Volume (veh/h)	73	698	0	0	1268	484	475	14	499	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1681	1845	0	0	1881	1845	1881	1881	1881			
Adj Flow Rate, veh/h	81	776	0	0	1409	538	711	0	370			
Adj No. of Lanes	1	3	0	0	3	1	2	0	1			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	13	3	0	0	1	3	1	1	1			
Cap, veh/h	99	2827	0	0	2070	632	945	0	422			
Arrive On Green	0.06	0.56	0.00	0.00	0.40	0.40	0.26	0.00	0.26			
Sat Flow, veh/h	1601	5202	0	0	5305	1568	3583	0	1599			
Grp Volume(v), veh/h	81	776	0	0	1409	538	711	0	370			
Grp Sat Flow(s),veh/h/ln	1601	1679	0	0	1712	1568	1792	0	1599			
Q Serve(g_s), s	3.0	4.8	0.0	0.0	13.5	18.7	10.9	0.0	13.3			
Cycle Q Clear(g_c), s	3.0	4.8	0.0	0.0	13.5	18.7	10.9	0.0	13.3			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	99	2827	0	0	2070	632	945	0	422			
V/C Ratio(X)	0.82	0.27	0.00	0.00	0.68	0.85	0.75	0.00	0.88			
Avail Cap(c_a), veh/h	112	2827	0	0	2070	632	973	0	434			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.81	0.81	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	27.8	6.8	0.0	0.0	14.7	16.3	20.3	0.0	21.2			
Incr Delay (d2), s/veh	28.3	0.2	0.0	0.0	1.8	13.6	3.3	0.0	17.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.1	2.3	0.0	0.0	6.7	10.5	5.8	0.0	7.9			
LnGrp Delay(d),s/veh	56.1	7.0	0.0	0.0	16.6	29.8	23.5	0.0	39.0			
LnGrp LOS	E	A			B	C	C		D			
Approach Vol, veh/h	857					1947		1081				
Approach Delay, s/veh	11.7					20.2		28.8				
Approach LOS	B					C		C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2					5		6		8		
Phs Duration (G+Y+Rc), s	39.5					9.5		30.0		20.5		
Change Period (Y+Rc), s	5.8					5.8		5.8		4.7		
Max Green Setting (Gmax), s	33.2					4.2		23.2		16.3		
Max Q Clear Time (g_c+I1), s	6.8					5.0		20.7		15.3		
Green Ext Time (p_c), s	5.2					0.0		2.1		0.5		
Intersection Summary												
HCM 2010 Ctrl Delay			20.7									
HCM 2010 LOS			C									
Notes												

User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary

6: I-15 NB & Central Ave

03/27/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 				
Traffic Volume (veh/h)	75	712	0	0	1294	494	485	15	509	0	0	0
Future Volume (veh/h)	75	712	0	0	1294	494	485	15	509	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1681	1845	0	0	1881	1845	1881	1881	1881			
Adj Flow Rate, veh/h	83	791	0	0	1438	549	726	0	378			
Adj No. of Lanes	1	3	0	0	3	1	2	0	1			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	13	3	0	0	1	3	1	1	1			
Cap, veh/h	101	2813	0	0	2047	625	955	0	426			
Arrive On Green	0.06	0.56	0.00	0.00	0.40	0.40	0.27	0.00	0.27			
Sat Flow, veh/h	1601	5202	0	0	5305	1568	3583	0	1599			
Grp Volume(v), veh/h	83	791	0	0	1438	549	726	0	378			
Grp Sat Flow(s),veh/h/ln	1601	1679	0	0	1712	1568	1792	0	1599			
Q Serve(g_s), s	3.1	4.9	0.0	0.0	14.0	19.4	11.2	0.0	13.6			
Cycle Q Clear(g_c), s	3.1	4.9	0.0	0.0	14.0	19.4	11.2	0.0	13.6			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	101	2813	0	0	2047	625	955	0	426			
V/C Ratio(X)	0.82	0.28	0.00	0.00	0.70	0.88	0.76	0.00	0.89			
Avail Cap(c_a), veh/h	112	2813	0	0	2047	625	973	0	434			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.80	0.80	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	27.8	6.9	0.0	0.0	15.1	16.7	20.2	0.0	21.1			
Incr Delay (d2), s/veh	28.2	0.2	0.0	0.0	2.0	16.1	3.5	0.0	19.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.2	2.3	0.0	0.0	6.9	11.2	6.0	0.0	8.3			
LnGrp Delay(d),s/veh	56.0	7.1	0.0	0.0	17.1	32.8	23.7	0.0	40.3			
LnGrp LOS	E	A			B	C	C		D			
Approach Vol, veh/h		874			1987			1104				
Approach Delay, s/veh		11.8			21.4			29.4				
Approach LOS		B			C			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		39.3			9.6	29.7		20.7				
Change Period (Y+Rc), s		5.8			5.8	5.8		4.7				
Max Green Setting (Gmax), s		33.2			4.2	23.2		16.3				
Max Q Clear Time (g_c+I1), s		6.9			5.1	21.4		15.6				
Green Ext Time (p_c), s		5.3			0.0	1.5		0.4				
Intersection Summary												
HCM 2010 Ctrl Delay			21.5									
HCM 2010 LOS			C									
Notes												

User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary

6: I-15 NB & Central Ave

Synchro 10 Report

06/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	1050	0	0	1798	666	622	15	651	0	0	0
Future Volume (veh/h)	125	1050	0	0	1798	666	622	15	651	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1681	1845	0	0	1881	1845	1881	1881	1881			
Adj Flow Rate, veh/h	132	1105	0	0	1893	701	879	0	457			
Adj No. of Lanes	1	3	0	0	3	1	2	0	1			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	13	3	0	0	1	3	1	1	1			
Cap, veh/h	112	2787	0	0	1986	606	973	0	434			
Arrive On Green	0.07	0.55	0.00	0.00	0.39	0.39	0.27	0.00	0.27			
Sat Flow, veh/h	1601	5202	0	0	5305	1568	3583	0	1599			
Grp Volume(v), veh/h	132	1105	0	0	1893	701	879	0	457			
Grp Sat Flow(s),veh/h/ln	1601	1679	0	0	1712	1568	1792	0	1599			
Q Serve(g_s), s	4.2	7.5	0.0	0.0	21.5	23.2	14.2	0.0	16.3			
Cycle Q Clear(g_c), s	4.2	7.5	0.0	0.0	21.5	23.2	14.2	0.0	16.3			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	112	2787	0	0	1986	606	973	0	434			
V/C Ratio(X)	1.18	0.40	0.00	0.00	0.95	1.16	0.90	0.00	1.05			
Avail Cap(c_a), veh/h	112	2787	0	0	1986	606	973	0	434			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.48	0.48	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	27.9	7.7	0.0	0.0	17.9	18.4	21.1	0.0	21.9			
Incr Delay (d2), s/veh	115.5	0.2	0.0	0.0	11.8	87.9	11.5	0.0	57.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	5.4	3.5	0.0	0.0	12.2	24.7	8.5	0.0	14.1			
LnGrp Delay(d),s/veh	143.4	7.9	0.0	0.0	29.7	106.3	32.6	0.0	79.4			
LnGrp LOS	F	A			C	F	C		F			
Approach Vol, veh/h	1237					2594		1336				
Approach Delay, s/veh	22.3					50.4		48.6				
Approach LOS	C					D		D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2					5		6		8		
Phs Duration (G+Y+Rc), s	39.0					10.0		29.0		21.0		
Change Period (Y+Rc), s	5.8					5.8		5.8		4.7		
Max Green Setting (Gmax), s	33.2					4.2		23.2		16.3		
Max Q Clear Time (g_c+I1), s	9.5					6.2		25.2		18.3		
Green Ext Time (p_c), s	7.7					0.0		0.0		0.0		
Intersection Summary												
HCM 2010 Ctrl Delay			43.2									
HCM 2010 LOS			D									
Notes												

User approved volume balancing among the lanes for turning movement.



DAVID EVANS
AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TM	3-Apr-18	DLRCSRZY-0001	1 OF 2

E/W STREET : CENTRAL AVE
N/S STREET : I-15 NORTHBOUND
CONDITION : PM PEAK HOUR

INTERSECTION : 6
PROJECTED GROWTH : 2%
PER YEAR :

CONDITION DIAGRAMS

TURN MOVEMENTS

	Existing Condition Traffic	Project Trips	Existing + Project Condition Traffic	Ambient Growth	Project Condition Traffic	Related Projects	Cumulative Condition Traffic
Condition							
Scenario #	2		5		8		11

CENTRAL AVE

EB LEFT	97	12	109	2	111	115	226
EB THRU	1358	16	1374	28	1402	658	2060
EB RIGHT	0	0	0	0	0	0	0
WB LEFT	0	0	0	0	0	0	0
WB THRU	695	11	706	14	720	525	1245
WB RIGHT	279	0	279	6	285	191	476

I-15 NORTHBOUND

NB LEFT	421	8	429	9	438	91	529
NB THRU	4	0	4	1	5	0	5
NB RIGHT	548	0	548	11	559	255	814
SB LEFT	0	0	0	0	0	0	0
SB THRU	0	0	0	0	0	0	0
SB RIGHT	0	0	0	0	0	0	0
TOTALS	3402	47	3449	71	3520	1835	5355

Los Angeles: 213.785.7887 ~ Ontario: 909.481.5750 ~ San Diego: 619.400.0600 ~ Santa Clarita: 661.284.7400

Temecula: 951.294.9300 ~ Tustin: 714.665.4500 ~ Victorville: 760.524.9100



DAVID EVANS
AND ASSOCIATES INC.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN VOLUME SUMMARY	TM	3-Apr-18	DLRCSRZY-0001	2 OF 2

E/W STREET : CENTRAL AVE
CONDITION : PM PEAK HOUR

N/S STREET : I-15 NORTHBOUND
PHF : 0.96

NORTH LEG								
LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

SOUTH LEG								
LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
1	0	0	0	1	1	1	0	4
0	0	1	0	0	0	2	0	1
0	0	0	0	0	1	1	0	0
0	0	1	1	0	0	5	0	2

EAST LEG								
LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
0	0	0	1	0	0	1	0	0
0	0	0	0	0	0	0	2	0
0	2	0	0	1	0	1	0	0

WEST LEG								
LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	1	1
0	0	0	0	0	3	0	0	0
0	0	0	0	0	0	0	2	0
0	0	0	0	0	0	0	0	0

NORTH LEG			SOUTH LEG			EAST LEG			WEST LEG		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	130	1	113	40	170	0	0	343	19
0	0	0	158	1	101	61	178	0	0	312	14
0	0	0	121	0	111	79	157	0	0	353	30
0	0	0	128	1	85	96	185	0	0	347	30

TRUCK TOTAL	AUTO VOLUMES	TOTALS	TRUCK PERCENTAGE
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CENTRAL AVE

EB LEFT	4	93	97	4%
EB THRU	3	1355	1358	1%
EB RIGHT	0	0	0	0%
WB LEFT	0	0	0	0%
WB THRU	5	690	695	1%
WB RIGHT	3	276	279	1%

I-15 NORTHBOUND

NB LEFT	11	410	421	3%
NB THRU	1	3	4	25%
NB RIGHT	11	537	548	1%
SB LEFT	0	0	0	0%
SB THRU	0	0	0	0%
SB RIGHT	0	0	0	0%

Los Angeles Office: 213.785.7887 ~ Ontario Office: 909.481.5750 ~ San Diego Office: 619.400.0600
Santa Barbara Office: 805.962.8590 ~ Santa Clarita Office: 661.284.7400I ~ Temecula Office: 951.294.9300
Tustin Office: 714.665.4500 ~ Victorville Office: 760.524.9100

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: I-15 NB RAMPS
EAST-WEST STREET: CENTRAL
JURISDICTION: LAKE ELSINORE

DATE: 02-22-18

PEAK HOUR: 04:00PM

NORTH LEG

TOTAL: 0

Total

1st

2nd

3rd

4th

Rt Thru Lt

EAST LEG TOTAL: 974

Rt	40	63	79	97	279
Thru	170	178	159	188	695
Lt					

Total 1st 2nd 3rd 4th

97	20	17	30	30
1358	344	312	355	347

Lt

Thru

Rt

1st 2nd 3rd 4th Total

WEST LEG TOTAL: 1,455

PEAK HOUR FACTORS

NORTH LEG =
SOUTH LEG = 0.92
EAST LEG = 0.85
WEST LEG = 0.94
ALL LEGS = 0.96

	Lt	Thru	Rt
1st	118	2	132
2nd	103	1	160
3rd	112	0	122
4th	88	1	134
Total	421	4	548

SOUTH LEG

TOTAL: 973

HOURLY TOTAL: 3,402

Prepared by NEWPORT TRAFFIC STUDIES

BEGINNING TIME : 04:00PM

AUTOS			LARGE 2 AXLE			3 AXLE			4(+) AXLE			TOTALS
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	
NORTH LEG												
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH LEG												
130	1	113	1	0	0	0	1	1	1	0	4	252
158	1	101	0	0	1	0	0	0	2	0	1	264
121	0	111	0	0	0	0	0	1	1	0	0	234
128	1	85	0	0	1	1	0	0	5	0	2	223
147	1	103	0	0	0	1	0	0	1	0	0	253
148	2	103	0	0	0	0	0	0	4	0	1	258
162	1	101	0	0	0	0	0	0	1	0	0	265
125	2	107	0	0	0	0	0	0	0	0	0	234
1119	9	824	1	0	2	2	1	2	15	0	8	1983
EAST LEG												
40	170	0	0	0	0	0	0	0	0	0	0	210
61	178	0	0	0	0	1	0	0	1	0	0	241
79	157	0	0	0	0	0	0	0	0	2	0	238
96	185	0	0	2	0	0	1	0	1	0	0	285
84	129	0	0	2	0	0	1	0	4	1	0	221
108	93	0	0	1	0	2	1	0	0	0	0	205
85	93	0	0	0	0	0	0	0	0	0	0	178
84	77	0	0	0	0	0	0	0	0	0	0	161
637	1082	0	0	5	0	3	3	0	6	3	0	1739
WEST LEG												
0	343	19	0	0	0	0	0	0	0	1	1	364
0	312	14	0	0	0	0	0	3	0	0	0	329
0	353	30	0	0	0	0	0	0	0	2	0	385
0	347	30	0	0	0	0	0	0	0	0	0	377
0	306	24	0	0	0	0	0	1	0	3	0	334
0	262	21	0	0	2	0	0	1	0	0	0	286
0	142	15	0	0	2	0	0	0	0	0	1	160
0	153	39	0	0	0	0	0	0	0	0	0	192
0	2218	192	0	0	4	0	0	5	0	6	2	2427

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: I-15 NB RAMPS

EAST-WEST STREET: CENTRAL

TIME: 04:00PM-05:00PM

DATE: 02-22-18

NORTH LEG

Total

1st

2nd

3rd

4th

Rt Thru Lt

Total 1st 2nd 3rd 4th

97	20	17	30	30
1358	344	312	355	347

Lt

Thru

Rt

Rt

Thru

Lt

40	63	79	97	279
170	178	159	188	695

1st 2nd 3rd 4th Total

Lt Thru Rt

1st

2nd

3rd

4th

Total

118	2	132
103	1	160
112	0	122
88	1	134
421	4	548

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: I-15 NB RAMPS

EAST-WEST STREET: CENTRAL

TIME: 05:00PM-06:00PM

DATE: 02-22-18

NORTH LEG

			Total
			1st
			2nd
			3rd
			4th
Rt	Thru	Lt	

Total 1st 2nd 3rd 4th

106	25	24	18	39
866	309	262	142	153

Lt

Thru

Rt

Rt

Thru

Lt

88	110	85	84	367
133	95	93	77	398

1st 2nd 3rd 4th Total

Lt Thru Rt

1st	103	1	149
2nd	104	2	152
3rd	101	1	163
4th	107	2	125
Total	415	6	589

Prepared by NEWPORT TRAFFIC STUDIES

HCM 2010 Signalized Intersection Summary

6: I-15 NB & Central Ave

03/27/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	97	1358	0	0	695	279	421	4	548	0	0	0
Future Volume (veh/h)	97	1358	0	0	695	279	421	4	548	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1827	1881	0	0	1881	1881	1845	1866	1881			
Adj Flow Rate, veh/h	101	1415	0	0	724	291	639	0	360			
Adj No. of Lanes	1	3	0	0	3	1	2	0	1			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	4	1	0	0	1	1	3	25	1			
Cap, veh/h	128	2939	0	0	2064	643	888	0	404			
Arrive On Green	0.07	0.57	0.00	0.00	0.40	0.40	0.25	0.00	0.25			
Sat Flow, veh/h	1740	5305	0	0	5305	1599	3514	0	1599			
Grp Volume(v), veh/h	101	1415	0	0	724	291	639	0	360			
Grp Sat Flow(s),veh/h/ln	1740	1712	0	0	1712	1599	1757	0	1599			
Q Serve(g_s), s	3.4	9.8	0.0	0.0	5.9	8.0	10.0	0.0	13.0			
Cycle Q Clear(g_c), s	3.4	9.8	0.0	0.0	5.9	8.0	10.0	0.0	13.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	128	2939	0	0	2064	643	888	0	404			
V/C Ratio(X)	0.79	0.48	0.00	0.00	0.35	0.45	0.72	0.00	0.89			
Avail Cap(c_a), veh/h	151	2939	0	0	2064	643	896	0	408			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.45	0.45	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	27.3	7.6	0.0	0.0	12.5	13.1	20.5	0.0	21.6			
Incr Delay (d2), s/veh	10.2	0.3	0.0	0.0	0.5	2.3	2.8	0.0	20.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.0	4.7	0.0	0.0	2.8	3.9	5.1	0.0	8.0			
LnGrp Delay(d),s/veh	37.6	7.8	0.0	0.0	13.0	15.4	23.3	0.0	42.5			
LnGrp LOS	D	A			B	B	C		D			
Approach Vol, veh/h	1516			1015			999					
Approach Delay, s/veh	9.8			13.7			30.2					
Approach LOS	A			B			C					
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			5			8					
Phs Duration (G+Y+Rc), s	40.1			10.2			19.9					
Change Period (Y+Rc), s	5.8			5.8			4.7					
Max Green Setting (Gmax), s	34.2			5.2			15.3					
Max Q Clear Time (g_c+I1), s	11.8			5.4			15.0					
Green Ext Time (p_c), s	10.1			0.0			0.1					
Intersection Summary												
HCM 2010 Ctrl Delay	16.7											
HCM 2010 LOS	B											
Notes												

User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary

6: I-15 NB & Central Ave

03/27/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	109	1374	0	0	706	279	429	4	548	0	0	0
Future Volume (veh/h)	109	1374	0	0	706	279	429	4	548	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1827	1881	0	0	1881	1881	1845	1866	1881			
Adj Flow Rate, veh/h	114	1431	0	0	735	291	646	0	361			
Adj No. of Lanes	1	3	0	0	3	1	2	0	1			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	4	1	0	0	1	1	3	25	1			
Cap, veh/h	144	2937	0	0	2014	627	889	0	405			
Arrive On Green	0.08	0.57	0.00	0.00	0.39	0.39	0.25	0.00	0.25			
Sat Flow, veh/h	1740	5305	0	0	5305	1599	3514	0	1599			
Grp Volume(v), veh/h	114	1431	0	0	735	291	646	0	361			
Grp Sat Flow(s),veh/h/ln	1740	1712	0	0	1712	1599	1757	0	1599			
Q Serve(g_s), s	3.9	9.9	0.0	0.0	6.1	8.1	10.1	0.0	13.1			
Cycle Q Clear(g_c), s	3.9	9.9	0.0	0.0	6.1	8.1	10.1	0.0	13.1			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	144	2937	0	0	2014	627	889	0	405			
V/C Ratio(X)	0.79	0.49	0.00	0.00	0.36	0.46	0.73	0.00	0.89			
Avail Cap(c_a), veh/h	151	2937	0	0	2014	627	896	0	408			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.41	0.41	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	27.0	7.6	0.0	0.0	12.9	13.5	20.5	0.0	21.6			
Incr Delay (d2), s/veh	10.7	0.2	0.0	0.0	0.5	2.5	3.0	0.0	21.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.3	4.7	0.0	0.0	3.0	4.0	5.2	0.0	8.1			
LnGrp Delay(d),s/veh	37.7	7.9	0.0	0.0	13.4	16.0	23.5	0.0	42.7			
LnGrp LOS	D	A			B	B	C		D			
Approach Vol, veh/h	1545			1026			1007					
Approach Delay, s/veh	10.1			14.2			30.3					
Approach LOS	B			B			C					
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			5			8					
Phs Duration (G+Y+Rc), s	40.1			10.8			19.9					
Change Period (Y+Rc), s	5.8			5.8			4.7					
Max Green Setting (Gmax), s	34.2			5.2			15.3					
Max Q Clear Time (g_c+I1), s	11.9			5.9			15.1					
Green Ext Time (p_c), s	10.2			0.0			0.1					
Intersection Summary												
HCM 2010 Ctrl Delay	16.9											
HCM 2010 LOS	B											
Notes												

User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary

6: I-15 NB & Central Ave

03/27/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	1402	0	0	720	285	438	5	559	0	0	0
Future Volume (veh/h)	111	1402	0	0	720	285	438	5	559	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1827	1881	0	0	1881	1881	1845	1865	1881			
Adj Flow Rate, veh/h	116	1460	0	0	750	297	659	0	369			
Adj No. of Lanes	1	3	0	0	3	1	2	0	1			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	4	1	0	0	1	1	3	25	1			
Cap, veh/h	147	2927	0	0	1997	622	896	0	408			
Arrive On Green	0.08	0.57	0.00	0.00	0.39	0.39	0.25	0.00	0.25			
Sat Flow, veh/h	1740	5305	0	0	5305	1599	3514	0	1599			
Grp Volume(v), veh/h	116	1460	0	0	750	297	659	0	369			
Grp Sat Flow(s),veh/h/ln	1740	1712	0	0	1712	1599	1757	0	1599			
Q Serve(g_s), s	3.9	10.2	0.0	0.0	6.3	8.4	10.3	0.0	13.4			
Cycle Q Clear(g_c), s	3.9	10.2	0.0	0.0	6.3	8.4	10.3	0.0	13.4			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	147	2927	0	0	1997	622	896	0	408			
V/C Ratio(X)	0.79	0.50	0.00	0.00	0.38	0.48	0.74	0.00	0.90			
Avail Cap(c_a), veh/h	151	2927	0	0	1997	622	896	0	408			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.37	0.37	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	26.9	7.8	0.0	0.0	13.1	13.8	20.5	0.0	21.6			
Incr Delay (d2), s/veh	9.9	0.2	0.0	0.0	0.5	2.6	3.2	0.0	23.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.3	4.8	0.0	0.0	3.0	4.1	5.3	0.0	8.5			
LnGrp Delay(d),s/veh	36.9	8.0	0.0	0.0	13.7	16.4	23.7	0.0	44.8			
LnGrp LOS	D	A			B	B	C		D			
Approach Vol, veh/h	1576		1047				1028					
Approach Delay, s/veh	10.1		14.4				31.3					
Approach LOS	B		B				C					
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		5				8					
Phs Duration (G+Y+Rc), s	40.0		10.9				20.0					
Change Period (Y+Rc), s	5.8		5.8				4.7					
Max Green Setting (Gmax), s	34.2		5.2				15.3					
Max Q Clear Time (g_c+I1), s	12.2		5.9				15.4					
Green Ext Time (p_c), s	10.4		0.0				0.0					
Intersection Summary												
HCM 2010 Ctrl Delay			17.3									
HCM 2010 LOS			B									
Notes												

User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary
6: I-15 NB & Central Ave

Synchro 10 Report
06/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	226	2060	0	0	1245	476	529	5	814	0	0	0
Future Volume (veh/h)	226	2060	0	0	1245	476	529	5	814	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1827	1881	0	0	1881	1881	1845	1871	1881			
Adj Flow Rate, veh/h	235	2146	0	0	1297	496	369	0	1046			
Adj No. of Lanes	1	3	0	0	3	1	1	0	2			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	4	1	0	0	1	1	3	25	1			
Cap, veh/h	151	2927	0	0	1986	618	448	0	815			
Arrive On Green	0.09	0.57	0.00	0.00	0.39	0.39	0.25	0.00	0.25			
Sat Flow, veh/h	1740	5305	0	0	5305	1599	1757	0	3198			
Grp Volume(v), veh/h	235	2146	0	0	1297	496	369	0	1046			
Grp Sat Flow(s),veh/h/ln	1740	1712	0	0	1712	1599	1757	0	1599			
Q Serve(g_s), s	5.2	18.5	0.0	0.0	12.4	16.5	11.9	0.0	15.3			
Cycle Q Clear(g_c), s	5.2	18.5	0.0	0.0	12.4	16.5	11.9	0.0	15.3			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	151	2927	0	0	1986	618	448	0	815			
V/C Ratio(X)	1.56	0.73	0.00	0.00	0.65	0.80	0.82	0.00	1.28			
Avail Cap(c_a), veh/h	151	2927	0	0	1986	618	448	0	815			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	27.4	9.5	0.0	0.0	15.1	16.4	21.1	0.0	22.4			
Incr Delay (d2), s/veh	254.3	0.2	0.0	0.0	1.7	10.6	11.8	0.0	136.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.1	8.6	0.0	0.0	6.1	9.0	7.2	0.0	22.1			
LnGrp Delay(d),s/veh	281.7	9.7	0.0	0.0	16.8	26.9	32.9	0.0	158.9			
LnGrp LOS	F	A			B	C	C		F			
Approach Vol, veh/h	2381			1793			1415					
Approach Delay, s/veh	36.5			19.6			126.0					
Approach LOS	D			B			F					
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			5			8					
Phs Duration (G+Y+Rc), s	40.0			11.0			20.0					
Change Period (Y+Rc), s	5.8			5.8			4.7					
Max Green Setting (Gmax), s	34.2			5.2			15.3					
Max Q Clear Time (g_c+I1), s	20.5			7.2			17.3					
Green Ext Time (p_c), s	10.9			0.0			0.0					
Intersection Summary												
HCM 2010 Ctrl Delay	53.8											
HCM 2010 LOS	D											
Notes												

User approved volume balancing among the lanes for turning movement.

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN MOVEMENTS	TM	3-Apr-18	DLRCSRZY-0001	1 OF 2

E/W STREET : CENTRAL AVE
N/S STREET : I-15 NORTHBOUND
CONDITION : SAT PEAK HOUR

INTERSECTION : 6
PROJECTED GROWTH : 2%
PER YEAR :

CONDITION DIAGRAMS

TURN MOVEMENTS

	Existing Condition Traffic	Project Trips	Existing + Project Condition Traffic	Ambient Growth	Project Condition Traffic	Related Projects	Cumulative Condition Traffic
Condition							
Scenario #	3		6		9		12

CENTRAL AVE

EB LEFT	75	17	92	2	94	0	94
EB THRU	1142	22	1164	23	1187	0	1187
EB RIGHT	0	0	0	0	0	0	0
WB LEFT	0	0	0	0	0	0	0
WB THRU	915	22	937	19	956	0	956
WB RIGHT	410	0	410	9	419	0	419

I-15 NORTHBOUND

NB LEFT	462	17	479	10	489	0	489
NB THRU	2	0	2	1	3	0	3
NB RIGHT	610	0	610	13	623	0	623
SB LEFT	0	0	0	0	0	0	0
SB THRU	0	0	0	0	0	0	0
SB RIGHT	0	0	0	0	0	0	0
TOTALS	3616	78	3694	77	3771	0	3771

SUBJECT	BY	DATE	JOB NO.	SHEET OF
TURN VOLUME SUMMARY	TM	3-Apr-18	DLRCSRZY-0001	2 OF 2

E/W STREET : CENTRAL AVE
CONDITION : SAT PEAK HOUR

N/S STREET : I-15 NORTHBOUND
PHF : 0.96

NORTH LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

SOUTH LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
2	0	1	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	1	0	0
0	0	0	0	0	0	1	0	1

EAST LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	1	0	0	0	0	0	2	0
0	2	0	0	1	0	0	1	0
0	0	0	0	1	0	0	0	0
0	1	0	0	0	0	0	0	0

WEST LEG

LARGE 2 AXLE			LARGE 3 AXLE			LARGE 4(+) AXLE		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	2	0	0	0	0	0	1	0
0	0	0	0	0	0	0	2	1
0	0	0	0	1	1	0	0	0
0	0	0	0	1	0	0	2	2

NORTH LEG			SOUTH LEG			EAST LEG			WEST LEG		
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT
0	0	0	141	0	108	100	284	0	0	275	23
0	0	0	151	0	101	112	205	0	0	295	24
0	0	0	163	2	129	89	199	0	0	286	14
0	0	0	150	0	122	109	218	0	0	277	10

TRUCK TOTAL	AUTO VOLUMES	TOTALS	TRUCK PERCENTAGE
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CENTRAL AVE

EB LEFT	4	71	75	5%
EB THRU	9	1133	1142	1%
EB RIGHT	0	0	0	0%
WB LEFT	0	0	0	0%
WB THRU	9	906	915	1%
WB RIGHT	0	410	410	1%

I-15 NORTHBOUND

NB LEFT	2	460	462	1%
NB THRU	0	2	2	1%
NB RIGHT	5	605	610	1%
SB LEFT	0	0	0	0%
SB THRU	0	0	0	0%
SB RIGHT	0	0	0	0%

INTERSECTION TURN COUNT

PEAK HOUR

NORTH-SOUTH STREET: I-15 NB RAMPS
 EAST-WEST STREET: CENTRAL
 JURISDICTION: LAKE ELSINORE

DATE: 02-24-18

PEAK HOUR: 01:45PM

NORTH LEG

TOTAL: 0

Total

1st

2nd

3rd

4th

Rt Thru Lt

EAST LEG TOTAL: 1,325

Rt	100	112	89	109	410
Thru	287	209	200	219	915
Lt					

Total 1st 2nd 3rd 4th

75	23	25	15	12
1142	278	297	287	280

Lt

Thru

Rt

1st 2nd 3rd 4th Total

WEST LEG TOTAL: 1,217

PEAK HOUR FACTORS

NORTH LEG =
 SOUTH LEG = 0.91
 EAST LEG = 0.86
 WEST LEG = 0.94
 ALL LEGS = 0.96

	Lt	Thru	Rt
1st	109	0	144
2nd	101	0	151
3rd	129	2	164
4th	123	0	151
Total	462	2	610

TOTAL: 1,074

SOUTH LEG

HOURLY TOTAL: 3,616

Prepared by NEWPORT TRAFFIC STUDIES

SANBAG CLASSIFICATION SUMMARY												
NORTH-SOUTH STREET : I-15 NB RAMPS									LAKE ELSINORE			
EAST-WEST STREET : CENTRAL									02-24-18			
BEGINNING TIME : 01:00PM												
AUTOS			LARGE 2 AXLE			3 AXLE			4 (+) AXLE			TOTALS
RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	RT	THRU	LT	
NORTH LEG												
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH LEG												
106	0	100	2	0	0	1	0	0	0	0	0	209
112	0	108	2	0	0	1	0	1	0	0	0	224
161	1	133	0	0	0	0	0	0	1	0	0	296
141	0	108	2	0	1	1	0	0	0	0	0	253
151	0	101	0	0	0	0	0	0	0	0	0	252
163	2	129	0	0	0	0	0	0	1	0	0	295
150	0	122	0	0	0	0	0	0	1	0	1	274
151	0	124	2	0	0	0	0	0	1	0	0	278
1135	3	925	8	0	1	3	0	1	4	0	1	2081
EAST LEG												
77	192	0	0	1	0	0	2	0	0	1	0	273
84	202	0	0	2	0	0	4	0	2	1	0	295
83	229	0	0	1	0	0	3	0	0	1	0	317
100	284	0	0	1	0	0	0	0	0	2	0	387
112	205	0	0	2	0	0	1	0	0	1	0	321
89	199	0	0	0	0	0	1	0	0	0	0	289
109	218	0	0	1	0	0	0	0	0	0	0	328
107	227	0	0	0	0	0	1	0	2	1	0	338
761	1756	0	0	8	0	0	12	0	4	7	0	2548
WEST LEG												
0	200	21	0	0	0	0	0	0	0	0	0	221
0	218	17	0	0	0	0	1	0	0	2	0	238
0	256	15	0	1	0	0	0	1	0	0	0	273
0	275	23	0	2	0	0	0	0	0	1	0	301
0	295	24	0	0	0	0	0	0	0	2	1	322
0	286	14	0	0	0	0	1	1	0	0	0	302
0	277	10	0	0	0	0	1	0	0	2	2	292
0	270	14	0	3	2	0	3	0	0	1	0	293
0	2077	138	0	6	2	0	6	2	0	8	3	2242

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: I-15 NB RAMPS

EAST-WEST STREET: CENTRAL

TIME: 01:00PM-02:00PM

DATE: 02-24-18

NORTH LEG

			Total
			1st
			2nd
			3rd
			4th
Rt	Thru	Lt	

Total 1st 2nd 3rd 4th

77	21	17	16	23	Lt
956	200	221	257	278	Thru
					Rt

Rt	77	86	83	100	346
Thru	196	209	234	287	926
Lt					
	1st	2nd	3rd	4th	Total

	Lt	Thru	Rt
1st	100	0	109
2nd	109	0	115
3rd	133	1	162
4th	109	0	144
Total	451	1	530

Prepared by NEWPORT TRAFFIC STUDIES

INTERSECTION TURNING COUNT

NORTH-SOUTH STREET: I-15 NB RAMPS

EAST-WEST STREET: CENTRAL

TIME: 02:00PM-03:00PM

DATE: 02-24-18

NORTH LEG

			Total
			1st
			2nd
			3rd
			4th
Rt	Thru	Lt	

Total 1st 2nd 3rd 4th

68	25	15	12	16	Lt
1141	297	287	280	277	Thru
					Rt

Rt	112	89	109	109	419
Thru	209	200	219	229	857
Lt					
	1st	2nd	3rd	4th	Total

	Lt	Thru	Rt
1st	101	0	151
2nd	129	2	164
3rd	123	0	151
4th	124	0	154
Total	477	2	620

Prepared by NEWPORT TRAFFIC STUDIES

HCM 2010 Signalized Intersection Summary

6: I-15 NB & Central Ave

03/27/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	1142	0	0	915	410	462	2	610	0	0	0
Future Volume (veh/h)	75	1142	0	0	915	410	462	2	610	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1810	1881	0	0	1881	1881	1881	1881	1881			
Adj Flow Rate, veh/h	78	1190	0	0	953	427	703	0	398			
Adj No. of Lanes	1	3	0	0	3	1	2	0	1			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	5	1	0	0	1	1	1	1	1			
Cap, veh/h	134	2797	0	0	1900	592	1005	0	448			
Arrive On Green	0.08	0.54	0.00	0.00	0.37	0.37	0.28	0.00	0.28			
Sat Flow, veh/h	1723	5305	0	0	5305	1599	3583	0	1599			
Grp Volume(v), veh/h	78	1190	0	0	953	427	703	0	398			
Grp Sat Flow(s),veh/h/ln	1723	1712	0	0	1712	1599	1792	0	1599			
Q Serve(g_s), s	2.6	8.2	0.0	0.0	8.6	13.8	10.5	0.0	14.3			
Cycle Q Clear(g_c), s	2.6	8.2	0.0	0.0	8.6	13.8	10.5	0.0	14.3			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	134	2797	0	0	1900	592	1005	0	448			
V/C Ratio(X)	0.58	0.43	0.00	0.00	0.50	0.72	0.70	0.00	0.89			
Avail Cap(c_a), veh/h	134	2797	0	0	1900	592	1033	0	461			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.64	0.64	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	26.7	8.1	0.0	0.0	14.6	16.2	19.3	0.0	20.7			
Incr Delay (d2), s/veh	4.0	0.3	0.0	0.0	0.9	7.4	2.0	0.0	18.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.4	3.9	0.0	0.0	4.2	7.3	5.5	0.0	8.6			
LnGrp Delay(d),s/veh	30.7	8.4	0.0	0.0	15.6	23.7	21.4	0.0	39.0			
LnGrp LOS	C	A			B	C	C		D			
Approach Vol, veh/h	1268			1380			1101					
Approach Delay, s/veh	9.8			18.1			27.7					
Approach LOS	A			B			C					
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			5			8					
Phs Duration (G+Y+Rc), s	38.5			10.5			21.5					
Change Period (Y+Rc), s	5.8			5.8			4.7					
Max Green Setting (Gmax), s	32.2			4.2			17.3					
Max Q Clear Time (g_c+I1), s	10.2			4.6			16.3					
Green Ext Time (p_c), s	8.2			0.0			0.5					
Intersection Summary												
HCM 2010 Ctrl Delay	18.1											
HCM 2010 LOS	B											
Notes												

User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary

6: I-15 NB & Central Ave

03/27/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 				
Traffic Volume (veh/h)	92	1164	0	0	937	410	479	2	610	0	0	0
Future Volume (veh/h)	92	1164	0	0	937	410	479	2	610	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1810	1881	0	0	1881	1881	1881	1881	1881			
Adj Flow Rate, veh/h	96	1212	0	0	976	427	719	0	401			
Adj No. of Lanes	1	3	0	0	3	1	2	0	1			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	5	1	0	0	1	1	1	1	1			
Cap, veh/h	121	2791	0	0	1935	602	1009	0	450			
Arrive On Green	0.07	0.54	0.00	0.00	0.38	0.38	0.28	0.00	0.28			
Sat Flow, veh/h	1723	5305	0	0	5305	1599	3583	0	1599			
Grp Volume(v), veh/h	96	1212	0	0	976	427	719	0	401			
Grp Sat Flow(s),veh/h/ln	1723	1712	0	0	1712	1599	1792	0	1599			
Q Serve(g_s), s	3.3	8.5	0.0	0.0	8.8	13.6	10.8	0.0	14.4			
Cycle Q Clear(g_c), s	3.3	8.5	0.0	0.0	8.8	13.6	10.8	0.0	14.4			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	121	2791	0	0	1935	602	1009	0	450			
V/C Ratio(X)	0.80	0.43	0.00	0.00	0.50	0.71	0.71	0.00	0.89			
Avail Cap(c_a), veh/h	121	2791	0	0	1935	602	1033	0	461			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.61	0.61	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	27.5	8.2	0.0	0.0	14.4	15.9	19.4	0.0	20.7			
Incr Delay (d2), s/veh	19.8	0.3	0.0	0.0	0.9	6.9	2.3	0.0	18.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.2	4.0	0.0	0.0	4.2	7.1	5.6	0.0	8.7			
LnGrp Delay(d),s/veh	47.3	8.5	0.0	0.0	15.3	22.8	21.6	0.0	39.4			
LnGrp LOS	D	A			B	C	C		D			
Approach Vol, veh/h	1308			1403			1120					
Approach Delay, s/veh	11.3			17.6			28.0					
Approach LOS	B			B			C					
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			5			8					
Phs Duration (G+Y+Rc), s	38.4			10.0			21.6					
Change Period (Y+Rc), s	5.8			5.8			4.7					
Max Green Setting (Gmax), s	32.2			4.2			17.3					
Max Q Clear Time (g_c+I1), s	10.5			5.3			16.4					
Green Ext Time (p_c), s	8.3			0.0			0.5					
Intersection Summary												
HCM 2010 Ctrl Delay	18.5											
HCM 2010 LOS	B											
Notes												

User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary

6: I-15 NB & Central Ave

03/27/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	1187	0	0	956	19	489	3	623	0	0	0
Future Volume (veh/h)	94	1187	0	0	956	19	489	3	623	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1810	1881	0	0	1881	1881	1881	1881	1881			
Adj Flow Rate, veh/h	98	1236	0	0	996	20	734	0	410			
Adj No. of Lanes	1	3	0	0	3	1	2	0	1			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	5	1	0	0	1	1	1	1	1			
Cap, veh/h	121	2775	0	0	1919	598	1020	0	455			
Arrive On Green	0.07	0.54	0.00	0.00	0.37	0.37	0.28	0.00	0.28			
Sat Flow, veh/h	1723	5305	0	0	5305	1599	3583	0	1599			
Grp Volume(v), veh/h	98	1236	0	0	996	20	734	0	410			
Grp Sat Flow(s),veh/h/ln	1723	1712	0	0	1712	1599	1792	0	1599			
Q Serve(g_s), s	3.4	8.7	0.0	0.0	9.0	0.5	11.1	0.0	14.8			
Cycle Q Clear(g_c), s	3.4	8.7	0.0	0.0	9.0	0.5	11.1	0.0	14.8			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	121	2775	0	0	1919	598	1020	0	455			
V/C Ratio(X)	0.81	0.45	0.00	0.00	0.52	0.03	0.72	0.00	0.90			
Avail Cap(c_a), veh/h	121	2775	0	0	1919	598	1033	0	461			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.59	0.59	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	27.5	8.3	0.0	0.0	14.6	11.9	19.3	0.0	20.6			
Incr Delay (d2), s/veh	21.4	0.3	0.0	0.0	1.0	0.1	2.4	0.0	20.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.3	4.2	0.0	0.0	4.4	0.2	5.7	0.0	9.1			
LnGrp Delay(d),s/veh	48.9	8.7	0.0	0.0	15.6	12.0	21.7	0.0	41.0			
LnGrp LOS	D	A			B	B	C		D			
Approach Vol, veh/h	1334			1016			1144					
Approach Delay, s/veh	11.6			15.5			28.6					
Approach LOS	B			B			C					
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			5			8					
Phs Duration (G+Y+Rc), s	38.2			10.0			21.8					
Change Period (Y+Rc), s	5.8			5.8			4.7					
Max Green Setting (Gmax), s	32.2			4.2			17.3					
Max Q Clear Time (g_c+I1), s	10.7			5.4			16.8					
Green Ext Time (p_c), s	8.5			0.0			0.3					
Intersection Summary												
HCM 2010 Ctrl Delay	18.3											
HCM 2010 LOS	B											
Notes												

User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary
6: I-15 NB & Central Ave

Synchro 10 Report
06/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 				
Traffic Volume (veh/h)	94	1187	0	0	956	19	489	3	623	0	0	0
Future Volume (veh/h)	94	1187	0	0	956	19	489	3	623	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1810	1881	0	0	1881	1881	1881	1881	1881			
Adj Flow Rate, veh/h	99	1249	0	0	1006	20	742	0	415			
Adj No. of Lanes	1	3	0	0	3	1	2	0	1			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	5	1	0	0	1	1	1	1	1			
Cap, veh/h	121	2767	0	0	1911	595	1026	0	458			
Arrive On Green	0.07	0.54	0.00	0.00	0.37	0.37	0.29	0.00	0.29			
Sat Flow, veh/h	1723	5305	0	0	5305	1599	3583	0	1599			
Grp Volume(v), veh/h	99	1249	0	0	1006	20	742	0	415			
Grp Sat Flow(s),veh/h/ln	1723	1712	0	0	1712	1599	1792	0	1599			
Q Serve(g_s), s	3.4	8.9	0.0	0.0	9.2	0.5	11.2	0.0	15.0			
Cycle Q Clear(g_c), s	3.4	8.9	0.0	0.0	9.2	0.5	11.2	0.0	15.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	121	2767	0	0	1911	595	1026	0	458			
V/C Ratio(X)	0.82	0.45	0.00	0.00	0.53	0.03	0.72	0.00	0.91			
Avail Cap(c_a), veh/h	121	2767	0	0	1911	595	1033	0	461			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.56	0.56	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	27.5	8.4	0.0	0.0	14.7	12.0	19.3	0.0	20.6			
Incr Delay (d2), s/veh	21.8	0.3	0.0	0.0	1.0	0.1	2.5	0.0	21.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.4	4.2	0.0	0.0	4.5	0.2	5.8	0.0	9.3			
LnGrp Delay(d),s/veh	49.3	8.7	0.0	0.0	15.8	12.1	21.8	0.0	42.0			
LnGrp LOS	D	A			B	B	C		D			
Approach Vol, veh/h	1348			1026			1157					
Approach Delay, s/veh	11.7			15.7			29.0					
Approach LOS	B			B			C					
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			5			6			8		
Phs Duration (G+Y+Rc), s	38.1			10.0			28.1			21.9		
Change Period (Y+Rc), s	5.8			5.8			5.8			4.7		
Max Green Setting (Gmax), s	32.2			4.2			22.2			17.3		
Max Q Clear Time (g_c+I1), s	10.9			5.4			11.2			17.0		
Green Ext Time (p_c), s	8.5			0.0			4.8			0.2		
Intersection Summary												
HCM 2010 Ctrl Delay	18.5											
HCM 2010 LOS	B											
Notes												

User approved volume balancing among the lanes for turning movement.



APPENDIX D: CENTRAL PLAZA DEVELOPMENT PROJECT STATUS MEMO



DAVID EVANS
AND ASSOCIATES INC.

MEMORANDUM

DATE: June 18, 2018

TO: Jim Daisa
Trisha Munoz

FROM: Aaron Cook

SUBJECT: Status of Central Plaza Collier/Crane Traffic Signal

PROJECT: DLRCRZY0001
Honda Center Lake Elsinore

CC:

The Central Plaza Retail Center is currently under construction on the parcel immediately to the Northwest of the proposed Honda Center project site. The two projects share a driveway that is accessed at the intersection of Collier Avenue and Crane Street. As of the date of this memo, the majority of the on-site construction of the Central Plaza Retail Center is completed. The offsite improvements required as conditions to open the retail center are still in various phases of design and construction. Offsite improvement plans have not been approved due delays related to obtaining an encroachment permit from Caltrans for proposed improvements on Central Avenue. However, portions of the offsite improvements have been constructed at risk and the Caltrans encroachment permit process is nearly complete after 5 plancheck reviews.

The construction plans for the proposed signal at Collier and Crane have completed 3 plancheck reviews with the city, but cannot be approved until the Caltrans encroachment permit is obtained. Construction bonds for the signal will be processed once the plans are approved.

It is expected that the signal plans, including the Collier/Crane intersection, will be approved and bonded within the next 2 months and installed within the next 4 months.

Attachments/Enclosures: N/A

File Path: P:\D\DLRCRZY0001\0300COM\0310Internal\0313Letters\DLRC0001-CentralPlazaStatus-Memo-20180619.docx