

APPENDIX 1.1:

APPROVED TRAFFIC STUDY SCOPING AGREEMENT

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CITY OF MENIFEE
ENGINEERING DEPARTMENT

Approved
City of Meniffee
12-4-2017

FOR USE BY

Permit#:

Received Date:

TRAFFIC SCOPING/STUDY/TIA

APPLICATION

SUBMITTAL REQUIREMENTS

THIS FORM MUST BE SUBMITTED WITH FIRST PLAN CHECK:

Project No: Tract No. 36911 Schedule: _____ (if applicable)

Project Description: 75 single family detached DUs

Name of Owner: Recreational Land Investments

Signature: _____ Phone #: _____

Mailing Address: 5642 Research Dr. FAX number: _____

Unit A Huntington Beach, CA
92649 Email Address: _____

Name of Applicant: Urban Crossroads Contact: Charlene So
(Traffic Consultant)

Authorized Signature: _____ Phone #: (949) 336-5982

Mailing Address: 260 E. Baker St., Suite 200 FAX number: _____

Costa Mesa, CA 92626 Email Address: CSO@urbanxroads.com

Submittal Requirements

- | | | | |
|----|----------|--------|-----------------------|
| 1. | _____ | 2 Sets | Site Plan |
| 2. | <u>X</u> | 2 Sets | Traffic/Scoping Study |
| 3. | _____ | 1 | \$1,000.00 – Deposit |

FIRST SUBMITTAL REQUIREMENTS

- A. The City reserves the right to reject the submitted plan package without performing any plan checks if any of the required plans or information items are missing.

I, the undersigned engineer, do verify that all the items necessary for this project and checked above are attached.


Signature

Nov. 17 / 2017
Date

Civil Engineer's Stamp

Charlene So
Printed Name

Urban Crossroads, Inc.
Firm Name

260 E. Baker St. Suite 200, Costa Mesa, CA
Address

92626

(949) 336-5982
Phone Number

Cso@urbanxroads.com
Fax
Email Address



11/7/2016

ATTACHMENT A

SCOPING AGREEMENT FOR TRAFFIC IMPACT STUDY

This letter acknowledges the City of Menifee Engineering Department requirements for the traffic impact analysis of the following project. The analysis must follow the latest City Traffic Impact Analysis Guidelines dated August 2015.

Case No. _____
 Related Cases - _____
 SP No. _____
 EIR No. _____
 GPA No. _____
 CZ No. _____
 Project Name: Tract No. 36911 South
 Project Location: West of Valley Bl. + Chambers Av.
 Project Description: 75 Single Family DU's

<u>Consultant</u> Name: <u>Urban Crossroads, Inc. Charlene So</u> Address: <u>260 E. Baker St. Suite 200</u> <u>Costa Mesa, CA 92626</u> Telephone: <u>(949) 336-5982</u>	<u>Developer</u> <u>Recreational Land Investments</u> <u>5642 Research Dr. Unit A</u> <u>Huntington Beach CA 92649</u>
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A. Trip Generation Source: ITE Trip Generation Manual, most recent edition 10th Ed (2017)

Existing Land Use <u>2.1-5 DU/AZ</u>	Proposed Land Use <u>2.1-5 DU/AZ</u>
Existing Zoning <u>Res.</u>	Proposed Zoning <u>Res.</u>
Total Daily Trips <u>708</u>	

	In	Out	Total
AM Trips	<u>14</u>	<u>42</u>	<u>56</u>
PM Trips	<u>47</u>	<u>27</u>	<u>74</u>

Internal Trip Allowance ☐ Yes ☒ No (_____ % Trip Discount)

Pass-By Trip Allowance ☐ Yes ☒ No (_____ % Trip Discount)

(Attach additional sheet if this is a multi-use site with a breakdown of trips generated)

B. Trip Geographic Distribution: N 30 % S 10 % E 60 % W 0 %
 (See attached exhibit for detailed assignment)

C. Background Traffic

Project Completion Year: 2019 Annual Ambient Growth Rate: 2.0 %
 Other area projects to be included: city to provide updates to list + New projects

Please contact the Engineering Department or use the most recently provided data

Model/Forecast methodology if required N/A.

D. Build-out Studies: Does this project require a Build-out Study ?

☐ Yes ☒ No

E. Study intersections: (NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies.)

- | | |
|-------------------------------------|----------|
| 1. <u>Valley Bl. / Chambers Av.</u> | 5. _____ |
| 2. <u>Valley Bl. / Connie Wy.</u> | 6. _____ |
| 3. <u>Mumeta Rd. / Chambers Av.</u> | 7. _____ |
| 4. <u>Mumeta Rd. / McClain Bl.</u> | 8. _____ |

F. Study Roadway Segments (For Build-out Studies):

- | | |
|--|----------|
| 1. <u>Valley Bl. , Chambers Av to Connie Wy.</u> | 5. _____ |
| 2. <u>Chambers Av, Valley Bl to Connie Wy.</u> | 6. _____ |
| 3. <u>Chambers Av, Connie Wy to Mumeta Rd.</u> | 7. _____ |
| 4. <u>Mumeta Rd, Chambers Av to McClain Bl.</u> | 8. _____ |

G. Other Jurisdictional Impacts

Is this project within any other Agency's Sphere of Influence or one-mile radius of boundaries? ☐ Yes ☒ No

If so, name of Jurisdiction: _____

H. Site Plan (please attach a legible 11'X17' copy)

I. Specific issues to be addressed in the Study (in addition to the standard analysis described in the Guideline) (To be filled out by Engineering Department)

TS warrant analysis for Valley Bl / Chambers Av. +
Mumeta Rd. / Chambers Av.

Recommended by:



Consultant's Representative

11/17/2017
Date

Scoping Agreement Submitted on

11/17/2017
Date

Scoping Agreement Resubmitted on

12/4/2017
Date

Approved Scoping Agreement:

City of Menifee
Engineering Department

Date

cc: Community Services Department

December 4, 2017

Mr. Nick Minicilli
City of Menifee
29714 Haun Road
Menifee, California 92586

SUBJECT: TRACT NO. 36911 TRAFFIC IMPACT ANALYSIS – SCOPING AGREEMENT

Dear Mr. Nick Minicilli:

Urban Crossroads, Inc. is pleased to submit this scoping letter to City of Menifee regarding the Traffic Impact Analysis for the proposed Tract No. 36911 development (“Project”), which is located south of Chambers Avenue and west of Valley Boulevard in the City of Menifee. It is our understanding that the Project is to consist of 75 single family detached residential dwelling units. This letter describes the draft proposed project trip generation, trip distribution, and analysis methodology, which have been used to establish the draft proposed project study area and analysis locations.

A preliminary site plan for the proposed Project is shown on Exhibit 1. Exhibit 2 depicts the location of the proposed Project in relation to the existing roadway network. It is anticipated that the Project would be developed in a single phase with an anticipated Opening Year of 2019. As indicated on Exhibit 2, access to the Project site will be provided to Trumble Road via the following driveways:

- Valley Boulevard via Chambers Avenue – full access
- Valley Boulevard via Connie Way – full access

TRIP GENERATION

In order to develop the traffic characteristics of the proposed project, trip-generation statistics published in the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017) for Single Family Detached Residential (ITE Land Use Code 210) was used. Table 1 presents the trip generation rates and the resulting trip generation summary for the proposed Project. As shown in Table 1, the Project is anticipated to generate a net total of 708 trip-ends per day with 56 AM peak hour trips and 74 PM peak hour trips.

TRIP DISTRIBUTION

The Project trip distribution patterns are graphically depicted on Exhibit 3.

ANALYSIS SCENARIOS

Consistent with the City's TIA guidelines, intersection analysis will be provided for the following analysis scenarios:

- Existing (2017) Conditions
- Existing plus Project (E+P) Conditions
- Opening Year Cumulative Without Project Conditions
- Opening Year Cumulative With Project Conditions

All study area intersections will be analyzed using the 2010 HCM methodology. Long range analysis is not being proposed as the Project is consistent with the currently adopted General Plan Land Use and Zoning.

STUDY AREA

The traffic impact study area was defined in conformance with the requirements of the City's TIA guidelines, which state that the minimum area to be studied shall include any intersection of "Collector" or higher classification street, with "Collector" or higher classification streets, at which the proposed project will add 50 or more peak hour trips. Exhibit 2 identifies the proposed study area intersections based on the aforementioned criteria. As requested by City staff, the proposed study area roadway segments are also identified on Exhibit 2.

LEVEL OF SERVICE (LOS) CRITERIA

Per Policy C-1.2 of the City of Menifee General Plan, the following LOS will be utilized for study area intersections located within the City: Require development to achieve a peak hour Level of Service (LOS) D or better at intersections where LOS E may be permitted. Therefore, any intersection operating at LOS E or F will be considered deficient for the purposes of this analysis.

THRESHOLDS OF SIGNIFICANCE – INTERSECTIONS

To determine whether the addition of project traffic at a study intersection results in a significant project-related impact, the following thresholds of significance will be utilized:

- If an intersection is projected to operate at an acceptable level of service (i.e., LOS D or better) under Existing traffic conditions and the addition of project traffic, as measured by 50 or more peak hour trips, is expected to cause the intersection to operate at an unacceptable level of service (i.e., LOS E or F), the impact is considered significant;

- If an intersection is projected to operate at LOS E or LOS F under Existing, and the addition of project traffic, as measured by 50 or more peak hour trips, the impact is considered significant.

The proposed significance thresholds will be applied at study area intersections for the purposes of determining project-related impacts.

EXISTING COUNT DATA

Traffic counts for the study area intersections will be collected when schools in the vicinity of the Project's study area are in session, and operating on normal bell schedules. Traffic counts will not be conducted the week of Thanksgiving.

FAIR SHARE CALCULATION METHODOLOGY

Improvements found to be included in the City of Menifee's Development Impact Fee (DIF) program and Western Riverside Council of Governments Transportation Uniform Mitigation Fee (TUMF), will be identified as such. For improvements that do not appear to be in either of the pre-existing fee programs, a fair share financial contribution based on the Project's fair share impact may be imposed in order to mitigate the Project's share of impacts in lieu of construction.

If the intersection is currently operating at deficient LOS under Existing traffic conditions, the Project's fair share cost of improvements would be determined based on the following equation, which is the ratio of Project traffic to total traffic:

$$\text{Project Fair Share \%} = \text{Project Traffic} / 2019 \text{ Total Traffic}$$

If the intersection is currently operating at acceptable LOS under Existing traffic conditions, the Project's fair share cost of improvements would be determined based on the following equation, which is the ratio of Project traffic to new traffic, where new traffic is total future traffic less existing baseline traffic:

$$\text{Project Fair Share \%} = \text{Project Traffic} / (2019 \text{ Total Traffic} - \text{Existing Traffic})$$

TRAFFIC SIGNAL WARRANTS

Traffic signal warrant analysis will be performed for the following intersections for all applicable analysis scenarios:

- Valley Bl. & Chambers Av.
- Murrieta Rd. & Chambers Av.

OPEN ITEMS – CUMULATIVE DEVELOPMENT PROJECTS

A cumulative list is provided on Table 2 and shown on Exhibit 4. We request that City staff review and provide any changes to the list of cumulative development projects for inclusion in the traffic study, and associated mitigation measures where appropriate for recently approved, but not yet constructed development.

FEE PROGRAM

It is requested that the City provide a list of facilities that are included in the City's fee program.

SIGNAL TIMING

It is requested that the City of Menifee provide existing signal timing for intersections within their jurisdiction. If existing signal timing is not available, default values consistent with the most current CA MUTCD guidelines will be utilized.

If you have any questions, please contact me directly at (949) 336-5982.

Respectfully submitted,

URBAN CROSSROADS, INC.

A handwritten signature in cursive script that reads "Charlene So".

Charlene So, PE
Senior Associate

EXHIBIT 1: PRELIMINARY SITE PLAN

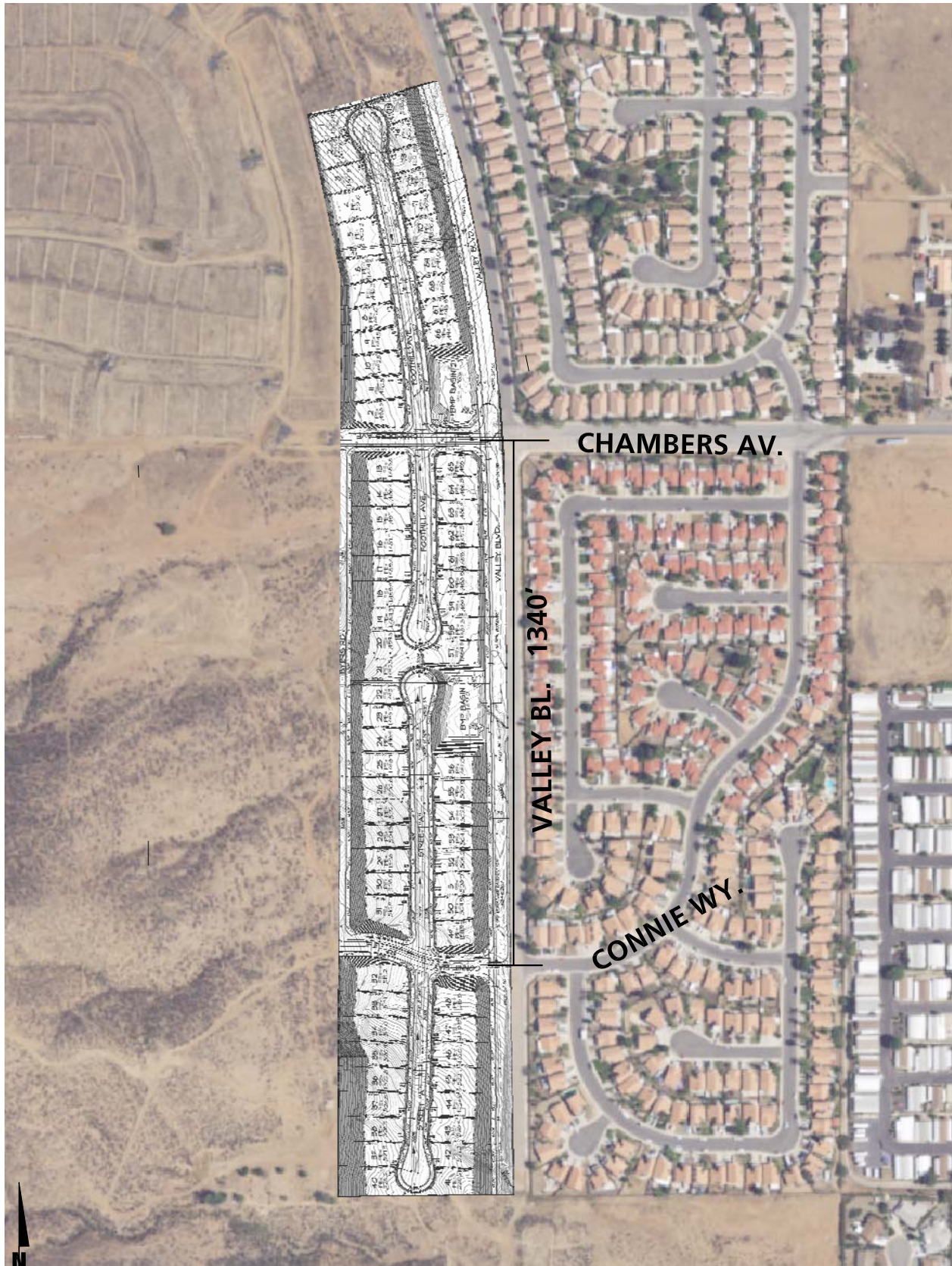


EXHIBIT 2: LOCATION MAP



LEGEND:

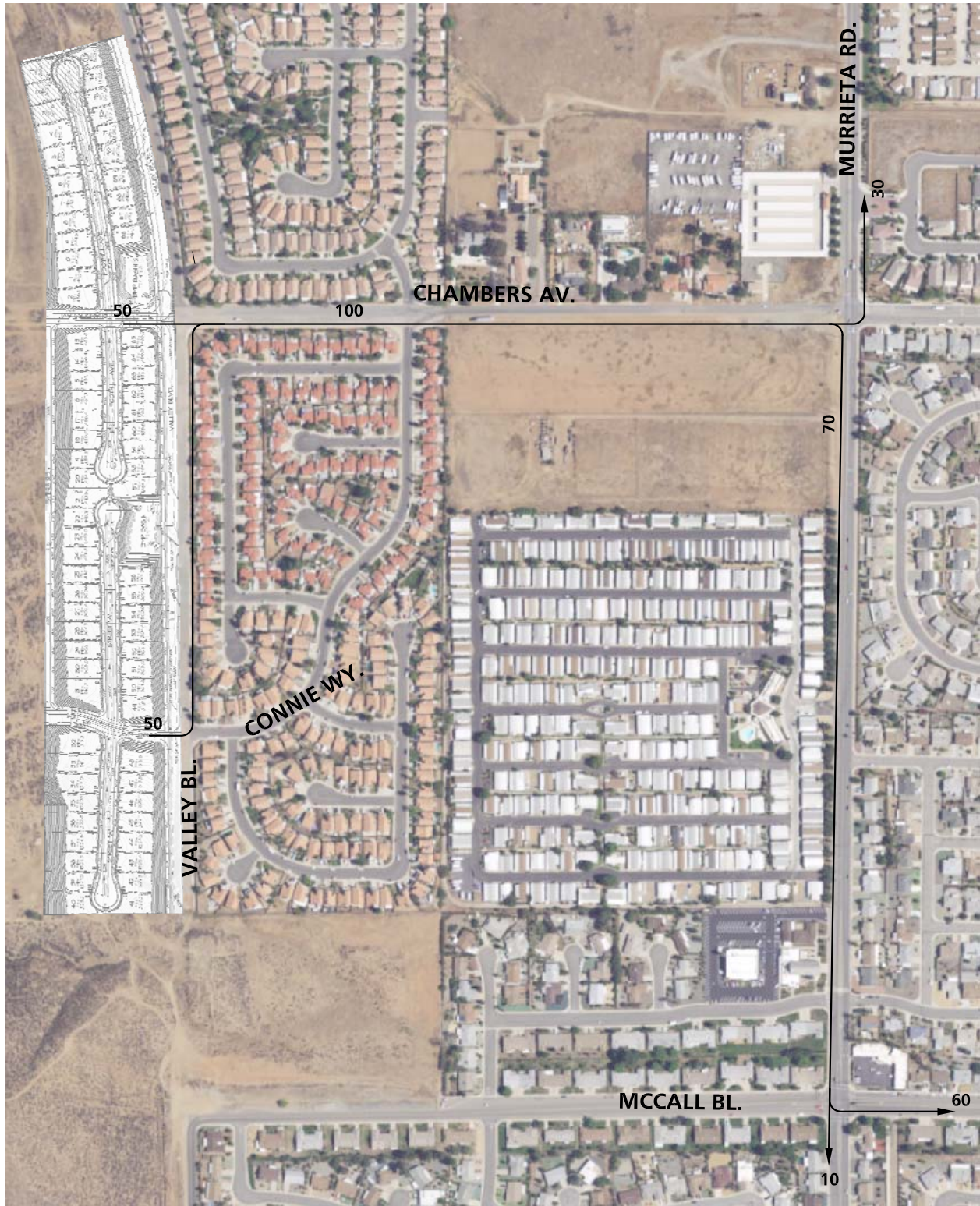


= INTERSECTION ANALYSIS LOCATION



= ROADWAY SEGMENT ANALYSIS LOCATION

EXHIBIT 3: PROJECT TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

EXHIBIT 4: CUMULATIVE DEVELOPMENT LOCATION MAP

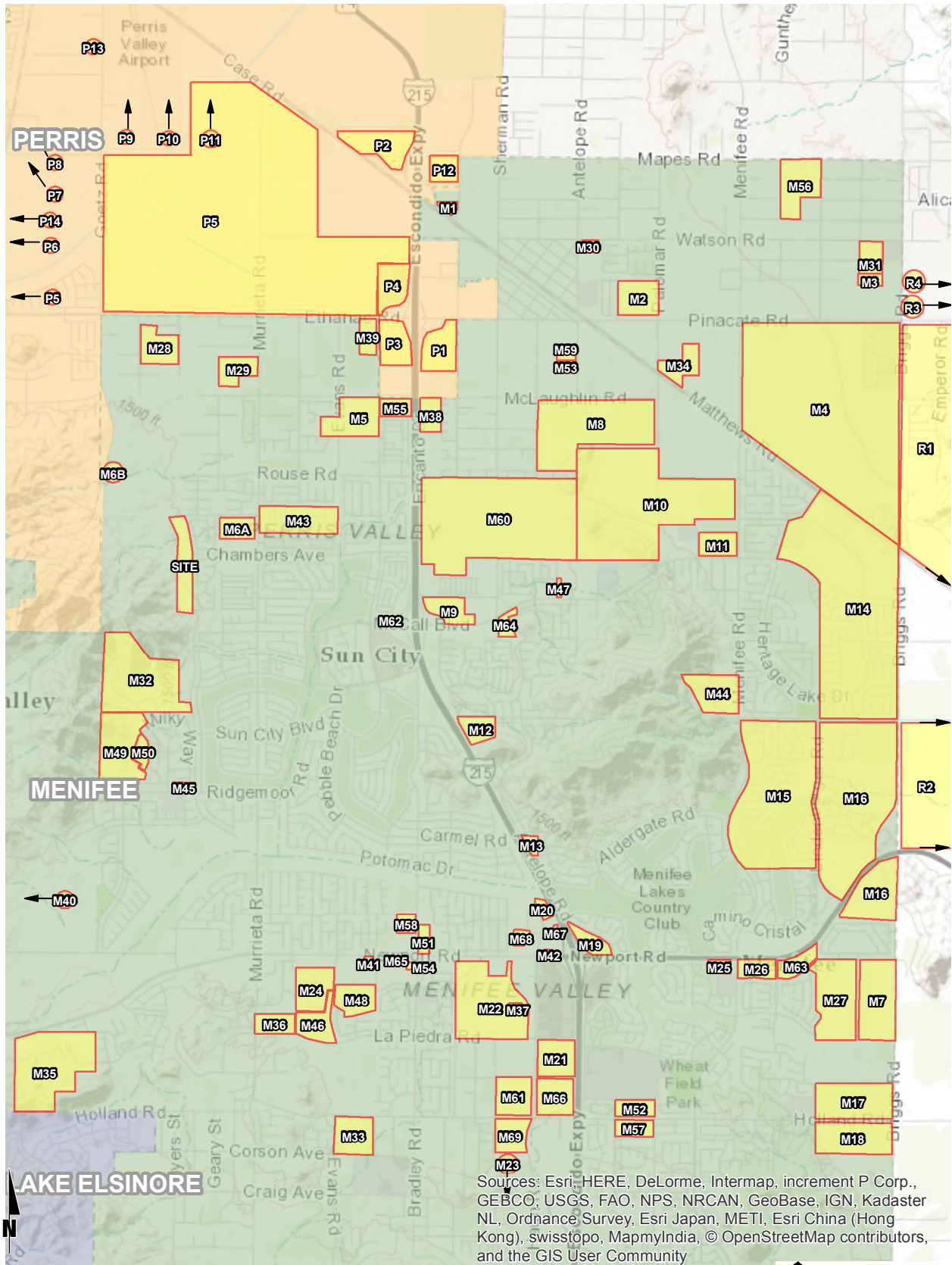


Table 1

Project Trip Generation Summary

Land Use	Units ²	ITE LU	AM Peak Hour			PM Peak Hour			Daily
		Code	In	Out	Total	In	Out	Total	
Project Trip Generation Rates ¹									
Single Family Detached Residential	DU	210	0.19	0.56	0.74	0.62	0.37	0.99	9.44

Land Use	Quantity	Units ²	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Tentative Tract No. 36911	75	DU	14	42	56	47	27	74	708

¹ Trip Generation Source: Institute of Transportation Engineers (ITE), [Trip Generation Manual](#), Tenth Edition (2017).

² DU = dwelling units

Table 2
(Page 1 of 6)

Summary of Cumulative Development Projects

No.	Project Name	Land Use	Quantity ¹	
CITY OF MENIFEE				
M1	CUP 2016-289	Fast-food w/ Drive-Thru	3.039	TSF
		Retail	14.95	TSF
M2	TR 34118	Single Family Residential	169	DU
M3	TR34600	Single Family Residential	153	DU
M4	TR 31811	Single Family Residential	559	DU
	TR 31812	Senior Adult Detached Housing	742	DU
M5	TR 30182	Single Family Residential	84	DU
	TR 33419	Single Family Residential	140	DU
	TR 33648	Single Family Residential	56	DU
	TR 35143	Single Family Residential	15	DU
M6A	TR 32314	Single Family Residential	33	DU
M6B	Cimarron Ridge	Single Family Residential	756	DU
M7	TR 2016-285, SP 2016-286, GPA 2016-287, CZ 2016-288	Single Family Residential	305	DU
M8	TR 29777	Single Family Residential	177	DU
M9	Menifee North Shopping Center	Free-Standing Discount Superstore	200.000	TSF
		Bank with Drive-through Window	5.500	TSF
		Fast-food w/ Drive-Thru	6.700	TSF
		Shopping Center	10.000	TSF
		Gas Station & Market / Car Wash	16	VFP
M10	TR 29835	Single Family Residential	543	DU
	TR 31098	Single Family Residential	264	DU
M11	CUP 03549	Self-Storage Facility	152.893	TSF
		Grocery Store	45.000	TSF
		Pharmacy	14.600	TSF
		Shopping Center	11.500	TSF
		Restaurants	6.100	TSF
		Fast-food w/ Drive-Thru	3.500	TSF
		Gas Station & Market / Car Wash	16	VFP
M12	PP 19469R1	Senior Apartments	221	DU
M13	CUP 2017-042	Assisted Living	118	Rooms
M14	TR 34180	Single Family Residential (80% Built)	97	DU
	TR 34406	Single Family Residential (25% Built)	693	DU
M15	TR 31582	Single Family Residential (50% Built)	140	DU

Table 2
(Page 2 of 6)

Summary of Cumulative Development Projects

No.	Project Name	Land Use	Quantity ¹	
M16	TR 32100	Single Family Residential	170	DU
	TR 32101	Single Family Residential	197	DU
	TR 32102	Single Family Residential	272	DU
M17	Nautical Cove Residential	Single Family Residential	235	DU
M18	Menifee Heights - TR32277	Single Family Residential	359	DU
		Active Parks	10.2	AC
M19	Menifee Lakes Shopping Center (PP 2009-052)	Shopping Center	120.848	TSF
		Gas Station & Market / Car Wash	12	VFP
		Hotel	71	ROOM
M20	SP 248 Newport Hub	Shopping Center (50% occupied)	229.70	TSF
		General Office	97.6	TSF
		General Light Industrial (50% occupied)	241.8	TSF
		Motel	100	ROOM
M21	Pechanga Commercial Site (PP 2010-123)	Shopping Center	208.160	TSF
M22	Menifee Town Center Specific Plan	Shopping Center	409.370	TSF
		Hotel	99	ROOM
		Single Family Residential	277	DU
		Condo/Townhomes / Apartments	548	DU
M23	Junction at Menifee	Shopping Center	526.800	TSF
	Menifee Shopping Center	Shopping Center	238.180	TSF
M24	TR 28788 & TR 29794	Single Family Residential (50% Built)	334	DU
M25	TPM 2009-168	Archibald's; Rite-Aid; Senior Apartments	N/A	
M26	Newport & Menifee Retail	Shopping Center	138.091	TSF
M27	The Lakes (TR 30422 / SP 247 Amendment 1)	Single Family Residential (75% Built)82	327	DU
M28	TTM 34037	Single Family Residential	132	DU
M29	TTM 31856	Single Family Residential	79	DU
M30	TTM 35876	Single Family Residential	17	DU
M31	TTM 33738	Single Family Residential	52	DU
M32	TTM 31456	Single Family Residential	177	DU
M33	PA 2014-218	Single Family Residential	80	DU
M34	CUP 2016-263	Manufacturing	12.323	TSF
M35	TR 32025	Single Family Residential	198	DU
M36	TR 30812	Single Family Residential	29	DU
M37	PP 2016-239	Recreation Community Center	N/A	
M38	CUP 2016-233	Automobile Parts Sales	17.600	TSF

Table 2
(Page 3 of 6)

Summary of Cumulative Development Projects

No.	Project Name	Land Use	Quantity ¹
M39	PAR 2015-228	Gas Station & Market / Car Wash	8 VFP
		Fast-food w/ Drive-Thru	4.365 TSF
M40	PAR 2016-215	Gas Station & Market / Car Wash	4 VFP
		Fast-food w/ Drive-Thru	3.200 TSF
		Retail	2.000 TSF
M41	CUP 2015-157	Car Wash	4.392 TSF
		Tire Shop	6.166 TSF
M42	PAR 2016-154/PP 2017-021	Wholesale Market	29.536 TSF
		Retail	12.993 TSF
		High Turnover (Sit-Down) Restaurant	8.646 TSF
M43	PP 2016-213 (TR 30507)	Single Family Residential	111 TSF
M44	2013-040	Senior Adult Attached Housing	228 DU
M45	TR 2016-038	Single Family Residential	18 DU
M46	TM 28787	Single Family Residential	67 DU
M47	CUP 2016-183	Assisted Living	45.246 TSF
		Mixed Office/Retail	10.368 TSF
M48	TM 28790	Single Family Residential	156 DU
M49	TR 28859	Single Family Residential (65% Built)	86 DU
M50	TR 28859-1	Automobile Parts Sales	6.214 TSF
M51	CUP 2013-157	Tire Store	7.171 TSF
M52	PP 2015-164	Senior Adult Attached Housing	100 DU
		Apartments	238 DU
M53	EOT 2015-012	General Light Industrial	97.564 TSF
M54	PP 2015-099	Retail	9.750 TSF
M55	PAR 2015-133	Condo/Townhomes	126 DU
M56	TR 31536	Single Family Residential	44 DU
M57	TTM 2015-165	Single Family Residential	68 DU
M58	PAR 2015-195	Condo/Townhomes	207 DU
M59	2011-003	Office	21.623 TSF
		Warehouse	40.000 TSF
M60	Fleming Ranch Specific Plan	Single Family Residential	1080 DU
		Shopping Center	225.000 TSF
		Sports Park	13.4 AC
M61	PAR 2016-039/TR33511	Single Family Residential	71 DU
M62	CUP 2016-110	Fast-food w/ Drive-Thru	2.400 DU

Table 2
(Page 4 of 6)

Summary of Cumulative Development Projects

No.	Project Name	Land Use	Quantity ¹	
M63	GPA 2016-061; SPA -062; TR -063	Single Family Residential	54	DU
M64	PP 2016-124	Fast-food w/ Drive-Thru	6.200	TSF
		Retail	1.000	TSF
		Gas Station & Market / Car Wash	12	VFP
M65	PP 2016-164	Fast-food w/ Drive-Thru	2.730	TSF
M66	PP 22628; EOT 2016-102	Mixed Commercial/Industrial	N/A	
M67	PP 2016-135	Medical Office	25.698	TSF
M68	PAR 2016-154	Retail	38.582	TSF
M69	TR 2017-174; CUP 2017-173; PP 2017-175	Assisted Living	142	Rooms
		Memory Care	36	Rooms
		Office	21.722	TSF
CITY OF PERRIS				
P1	Towne Center (DPR 06-0337)	Shopping Center	286.000	TSF
		Free-Standing Discount Store	221.000	TSF
P2	Metrolink Station	Light Rail Transit	680	SP
P3	PDO 07-12-0006	Condo/Townhomes	400	DU
		Shopping Center	60.000	TSF
P4	Remaining DPR 04-0621 (Perris Crossing)	Fast-food w/ Drive-Thru	16.300	TSF
		General Office	24.200	TSF
		Specialty Retail	26.825	TSF
		Shopping Center	209.500	TSF
P5	Green Valley Specific Plan	Single Family Residential	976	DU
		Condo/Townhomes	1,472	DU
		Apartments	926	DU
		Community Center	131.769	TSF
		Shopping Center	303.831	TSF
	Riverwoods Specific Plan	Single Family Residential	663	DU
		Elementary School	600	STU
		City Park	12	AC
Community Center		2.500	TSF	

Table 2
(Page 5 of 6)

Summary of Cumulative Development Projects

No.	Project Name	Land Use	Quantity ¹	
P6	TR 31304	Single Family Residential	123	DU
	TR 31407	Single Family Residential	243	DU
	TR 31650	Single Family Residential	61	DU
	TR 30973	Single Family Residential	35	DU
	TR 31225	Single Family Residential	57	DU
	TR 31226	Single Family Residential	82	DU
	TR 33050	Single Family Residential	35	DU
	TR 33199	Single Family Residential	26	DU
	TR 33200	Single Family Residential	130	DU
	TR 33247	Single Family Residential	28	DU
	TR 33193	Condo/Townhomes	94	DU
	TR 32032	Single Family Residential	108	DU
	TR 31926	Single Family Residential	337	DU
	TR 33900	Single Family Residential	198	DU
	TR 33973	Single Family Residential	384	DU
	TR 31925	Single Family Residential	10	DU
	TR 36343	Single Family Residential	184	DU
	TR 32666	Single Family Residential	663	DU
P7	DPR 07-0130 (First Industrial)	High-Cube Warehouse	760.000	TSF
	DPR 08-01-0007 (First Industrial)	High-Cube Warehouse	3,200.000	TSF
	DPR 08-04-0006 (First Industrial)	High-Cube Warehouse	3,400.000	TSF
P8	TR 32525	Single Family Residential	162	DU
P9	Downtown Specific Plan	Single Family Residential	391	DU
		Apartments	2,598	DU
		Condo/Townhomes	377	DU
		General Office	1,588.271	TSF
		Shopping Center	536.576	TSF
		General Light Industrial (Existing Uses)	-344	TSF
	DPR 12-07-0011	Specialty Retail	12.48	TSF

Table 2
(Page 6 of 6)

Summary of Cumulative Development Projects

No.	Project Name	Land Use	Quantity ¹	
P10	Parkwest Specific Plan	Single Family Residential	2,027	DU
	TR 34078	Single Family Residential	72	DU
	TR 31678	Single Family Residential	67	DU
	DPR 06-0378	Senior Apartments	429	DU
	DPR 10-03-0001	Senior Apartments	190	DU
	TR 31651	Single Family Residential	57	DU
	TR 31240-1	Single Family Residential	114	DU
	DPR 12-05-0013	Apartments	75	DU
P11	DPR 08-04-0016 (Redlands Retail)	Shopping Center	643.000	TSF
	DPR 10-01-0008	Shopping Center	43.000	TSF
	DPR 07-07-0032	Shopping Center	83.464	TSF
P12	DPR 11-12-0009	Hotel	100	ROOM
P13	DPR 14-03-0018; MA 14-03-0019	Manufacturing	47	TSF
P14	ADPR 14-03-0008	City Park	6.0	AC
COUNTY OF RIVERSIDE				
R1	TR 31500	Single Family Residential	182	DU
	TR 32514	Condo/Townhomes	86	DU
	TR 30972	Single Family Residential	91	DU
		City Park	1.50	AC
R2	TR 30266	Single Family Residential	245	DU
		Condo/Townhomes	265	DU
		Elementary School	600	STU
		City Park	5	AC
		Shopping Center	183.600	TSF
	TR 33498	Condo/Townhomes	233	DU
	TR 34677	Single Family Residential	420	DU
		City Park	4.1	AC
	TR 31100	Single Family Residential	286	DU
	TTM 34842	Single Family Residential	32	DU
	TT 31537	Single Family Residential	588	DU
		Elementary School	600	DU
	TR 30808	Single Family Residential	393	DU
R3	PP 25248	Shopping Center	8.239	TSF
R4	TR 29322	Single Family Residential	202	DU

¹ TSF = Thousand Square Feet; DU = Dwelling Unit; AC = Acres; STU = Students; VFP = Vehicle Fueling Positions

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APPENDIX 3.1:

EXISTING (2017) TRAFFIC COUNTS – DECEMBER 2017

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City of Menifee
N/S: Valley Boulevard
E/W: Chambers Avenue
Weather: Clear

File Name : 01_MEN_Va Ch AM
Site Code : 05117839
Start Date : 12/7/2017
Page No : 1

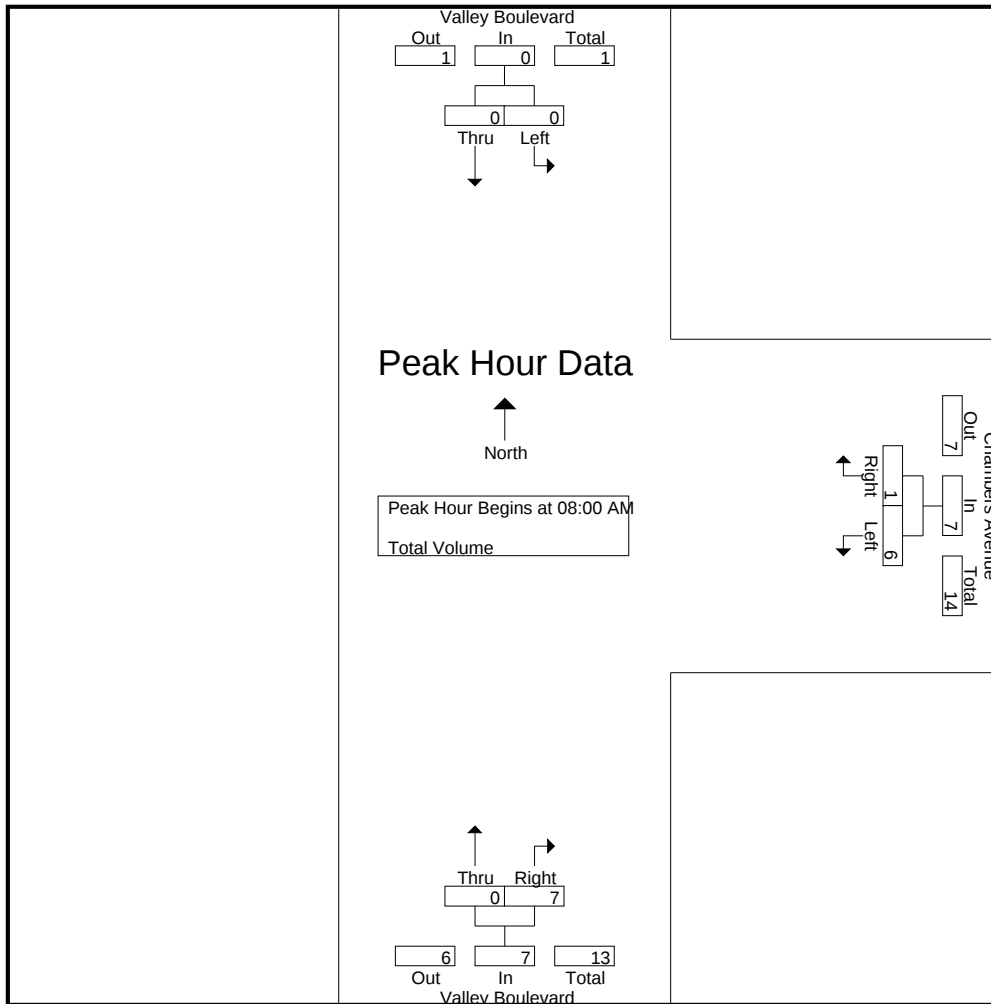
Groups Printed- Total Volume

	Valley Boulevard Southbound				Chambers Avenue Westbound				Valley Boulevard Northbound						
Start Time	Left	Thru	RTOR	App. Total	Left	Right	RTOR	App. Total	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	1	0	0	1	0	2	0	2	0	1	0	1	0	4	4
07:15 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1
07:30 AM	0	1	0	1	1	1	0	2	1	1	0	2	0	5	5
07:45 AM	1	0	0	1	0	1	0	1	0	0	0	0	0	2	2
Total	2	1	0	3	1	4	0	5	1	3	0	4	0	12	12
08:00 AM	0	0	0	0	1	0	0	1	0	2	0	2	0	3	3
08:15 AM	0	0	0	0	2	0	0	2	0	0	0	0	0	2	2
08:30 AM	0	0	0	0	1	1	0	2	0	3	0	3	0	5	5
08:45 AM	0	0	0	0	2	0	0	2	0	2	0	2	0	4	4
Total	0	0	0	0	6	1	0	7	0	7	0	7	0	14	14
Grand Total	2	1	0	3	7	5	0	12	1	10	0	11	0	26	26
Apprch %	66.7	33.3			58.3	41.7			9.1	90.9					
Total %	7.7	3.8		11.5	26.9	19.2		46.2	3.8	38.5		42.3	0	100	

	Valley Boulevard Southbound			Chambers Avenue Westbound			Valley Boulevard Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	0	0	0	1	0	1	0	2	2	3
08:15 AM	0	0	0	2	0	2	0	0	0	2
08:30 AM	0	0	0	1	1	2	0	3	3	5
08:45 AM	0	0	0	2	0	2	0	2	2	4
Total Volume	0	0	0	6	1	7	0	7	7	14
% App. Total	0	0		85.7	14.3		0	100		
PHF	.000	.000	.000	.750	.250	.875	.000	.583	.583	.700

City of Menifee
N/S: Valley Boulevard
E/W: Chambers Avenue
Weather: Clear

File Name : 01_MEN_Va Ch AM
Site Code : 05117839
Start Date : 12/7/2017
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:00 AM			08:00 AM			08:00 AM		
+0 mins.	1	0	1	1	0	1	0	2	2
+15 mins.	0	0	0	2	0	2	0	0	0
+30 mins.	0	1	1	1	1	2	0	3	3
+45 mins.	1	0	1	2	0	2	0	2	2
Total Volume	2	1	3	6	1	7	0	7	7
% App. Total	66.7	33.3		85.7	14.3		0	100	
PHF	.500	.250	.750	.750	.250	.875	.000	.583	.583

City of Menifee
N/S: Valley Boulevard
E/W: Chambers Avenue
Weather: Clear

File Name : 01_MEN_Va Ch PM
Site Code : 05117839
Start Date : 12/7/2017
Page No : 1

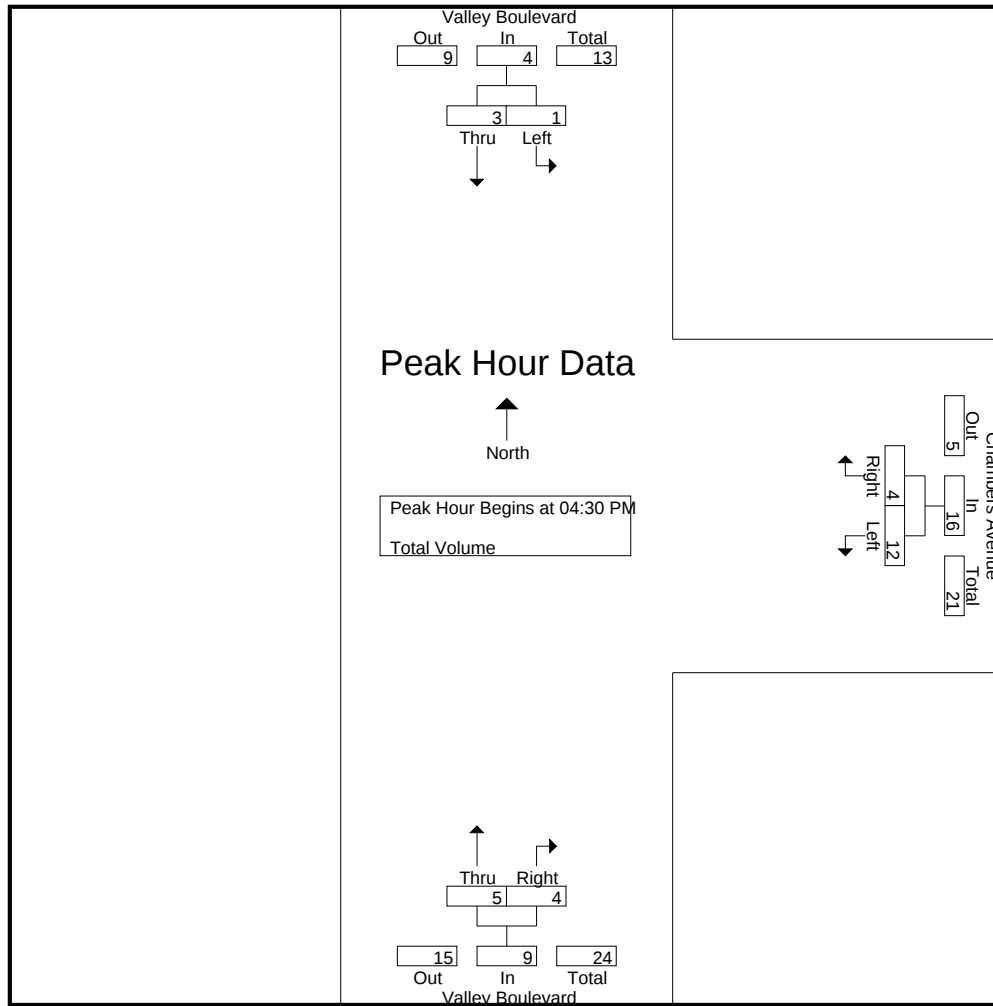
Groups Printed- Total Volume

	Valley Boulevard Southbound				Chambers Avenue Westbound				Valley Boulevard Northbound						
Start Time	Left	Thru	RTOR	App. Total	Left	Right	RTOR	App. Total	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	2	0	0	2	0	1	0	1	1	2	0	3	0	6	6
04:15 PM	1	0	0	1	4	1	0	5	0	2	0	2	0	8	8
04:30 PM	0	0	0	0	2	0	0	2	3	2	0	5	0	7	7
04:45 PM	0	1	0	1	3	1	0	4	0	0	0	0	0	5	5
Total	3	1	0	4	9	3	0	12	4	6	0	10	0	26	26
05:00 PM	0	1	0	1	2	0	0	2	0	0	0	0	0	3	3
05:15 PM	1	1	0	2	5	3	0	8	2	2	0	4	0	14	14
05:30 PM	1	0	0	1	3	0	0	3	0	0	0	0	0	4	4
05:45 PM	0	0	0	0	2	1	0	3	0	2	0	2	0	5	5
Total	2	2	0	4	12	4	0	16	2	4	0	6	0	26	26
Grand Total	5	3	0	8	21	7	0	28	6	10	0	16	0	52	52
Apprch %	62.5	37.5			75	25			37.5	62.5					
Total %	9.6	5.8		15.4	40.4	13.5		53.8	11.5	19.2		30.8	0	100	

	Valley Boulevard Southbound			Chambers Avenue Westbound			Valley Boulevard Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	0	0	0	2	0	2	3	2	5	7
04:45 PM	0	1	1	3	1	4	0	0	0	5
05:00 PM	0	1	1	2	0	2	0	0	0	3
05:15 PM	1	1	2	5	3	8	2	2	4	14
Total Volume	1	3	4	12	4	16	5	4	9	29
% App. Total	25	75		75	25		55.6	44.4		
PHF	.250	.750	.500	.600	.333	.500	.417	.500	.450	.518

City of Menifee
N/S: Valley Boulevard
E/W: Chambers Avenue
Weather: Clear

File Name : 01_MEN_Va Ch PM
Site Code : 05117839
Start Date : 12/7/2017
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Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM			04:45 PM			04:00 PM		
+0 mins.	0	1	1	3	1	4	1	2	3
+15 mins.	0	1	1	2	0	2	0	2	2
+30 mins.	1	1	2	5	3	8	3	2	5
+45 mins.	1	0	1	3	0	3	0	0	0
Total Volume	2	3	5	13	4	17	4	6	10
% App. Total	40	60		76.5	23.5		40	60	
PHF	.500	.750	.625	.650	.333	.531	.333	.750	.500

Location: Menifee
 N/S: Valley Boulevard
 E/W: Chambers Avenue



Date: 12/7/2017
 Day: Thursday

PEDESTRIANS

	North Leg Valley Boulevard	East Leg Chambers Avenue	South Leg Valley Boulevard	West Leg Dead End	TOTAL
7:00 AM	0	1	0	0	1
7:15 AM	0	1	0	0	1
7:30 AM	1	0	0	0	1
7:45 AM	0	0	0	0	0
8:00 AM	0	1	0	0	1
8:15 AM	0	1	0	0	1
8:30 AM	0	0	0	0	0
8:45 AM	0	1	0	0	1
TOTAL VOLUMES:	1	5	0	0	6

	North Leg Valley Boulevard	East Leg Chambers Avenue	South Leg Valley Boulevard	West Leg Dead End	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

Location: Menifee
 N/S: Valley Boulevard
 E/W: Chambers Avenue



Date: 12/7/2017
 Day: Thursday

BICYCLES

	North Leg Valley Boulevard	East Leg Chambers Avenue	South Leg Valley Boulevard	West Leg Dead End	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

	North Leg Valley Boulevard	East Leg Chambers Avenue	South Leg Valley Boulevard	West Leg Dead End	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

City of Menifee
N/S: Valley Boulevard
E/W: Connie Way
Weather: Clear

File Name : 02_MEN_Va Co AM
Site Code : 05117839
Start Date : 12/7/2017
Page No : 1

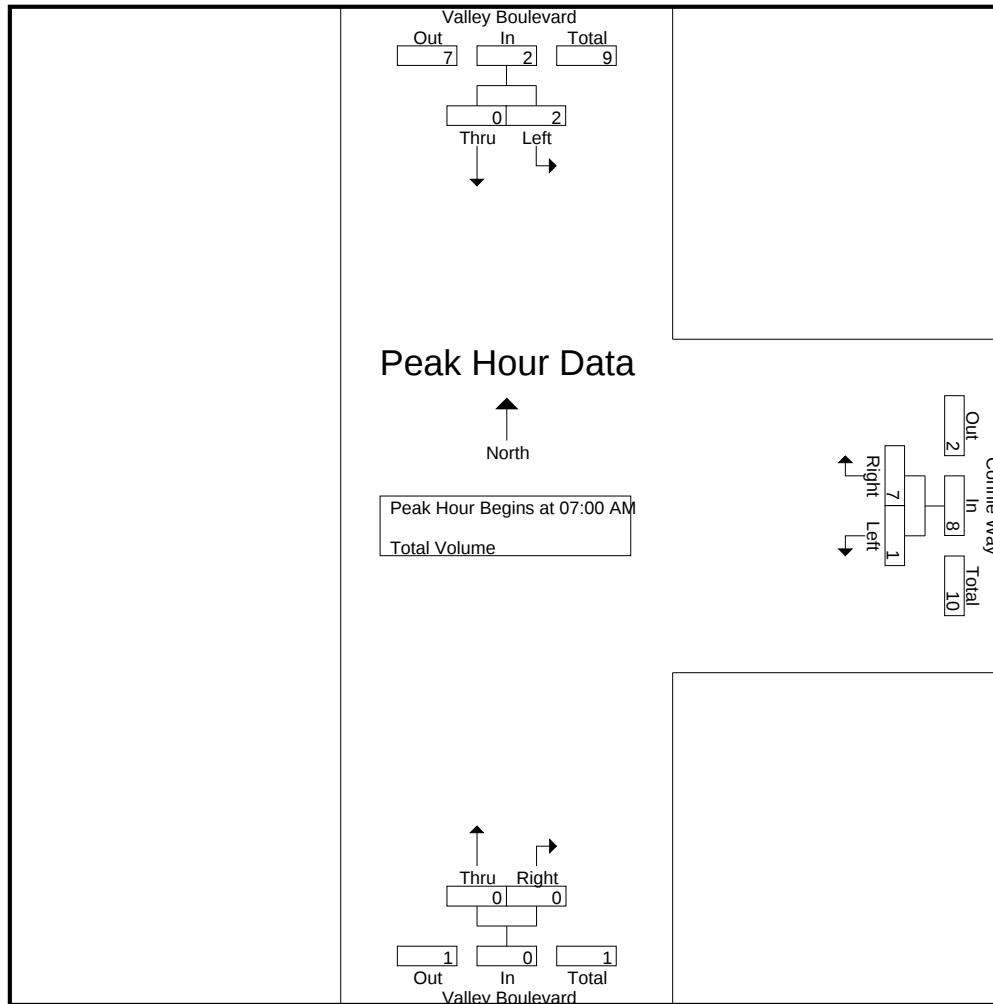
Groups Printed- Total Volume

	Valley Boulevard Southbound				Connie Way Westbound				Valley Boulevard Northbound						
Start Time	Left	Thru	RTOR	App. Total	Left	Right	RTOR	App. Total	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	1
07:15 AM	0	0	0	0	0	3	0	3	0	0	0	0	0	3	3
07:30 AM	1	0	0	1	1	3	0	4	0	0	0	0	0	5	5
07:45 AM	1	0	0	1	0	0	0	0	0	0	0	0	0	1	1
Total	2	0	0	2	1	7	0	8	0	0	0	0	0	10	10
08:00 AM	1	0	0	1	0	0	0	0	0	0	0	0	0	1	1
08:15 AM	1	0	0	1	0	0	0	0	0	0	0	0	0	1	1
08:30 AM	1	0	0	1	0	3	0	3	0	0	0	0	0	4	4
08:45 AM	1	0	0	1	0	0	0	0	0	0	0	0	0	1	1
Total	4	0	0	4	0	3	0	3	0	0	0	0	0	7	7
Grand Total	6	0	0	6	1	10	0	11	0	0	0	0	0	17	17
Apprch %	100	0			9.1	90.9			0	0					
Total %	35.3	0		35.3	5.9	58.8		64.7	0	0		0	0	100	

	Valley Boulevard Southbound			Connie Way Westbound			Valley Boulevard Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	0	0	0	0	1	1	0	0	0	1
07:15 AM	0	0	0	0	3	3	0	0	0	3
07:30 AM	1	0	1	1	3	4	0	0	0	5
07:45 AM	1	0	1	0	0	0	0	0	0	1
Total Volume	2	0	2	1	7	8	0	0	0	10
% App. Total	100	0		12.5	87.5		0	0		
PHF	.500	.000	.500	.250	.583	.500	.000	.000	.000	.500

City of Menifee
N/S: Valley Boulevard
E/W: Connie Way
Weather: Clear

File Name : 02_MEN_Va Co AM
Site Code : 05117839
Start Date : 12/7/2017
Page No : 2



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

	07:30 AM			07:00 AM			07:00 AM		
+0 mins.	1	0	1	0	1	1	0	0	0
+15 mins.	1	0	1	0	3	3	0	0	0
+30 mins.	1	0	1	1	3	4	0	0	0
+45 mins.	1	0	1	0	0	0	0	0	0
Total Volume	4	0	4	1	7	8	0	0	0
% App. Total	100	0		12.5	87.5		0	0	
PHF	1.000	.000	1.000	.250	.583	.500	.000	.000	.000

City of Menifee
N/S: Valley Boulevard
E/W: Connie Way
Weather: Clear

File Name : 02_MEN_Va Co PM
Site Code : 05117839
Start Date : 12/7/2017
Page No : 1

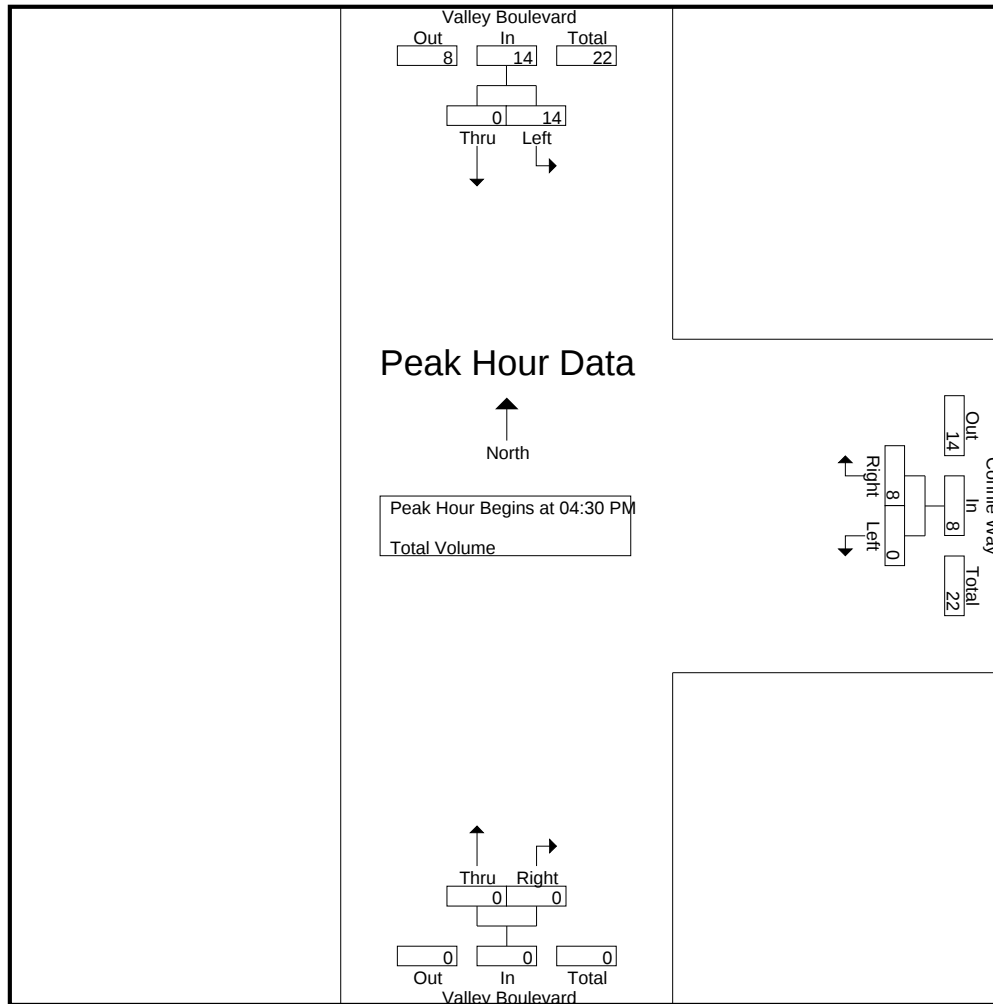
Groups Printed- Total Volume

	Valley Boulevard Southbound				Connie Way Westbound				Valley Boulevard Northbound						
Start Time	Left	Thru	RTOR	App. Total	Left	Right	RTOR	App. Total	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	3	0	3	0	0	0	0	0	3	3
04:15 PM	3	0	0	3	0	2	0	2	0	0	0	0	0	5	5
04:30 PM	2	0	0	2	0	4	0	4	0	0	0	0	0	6	6
04:45 PM	4	0	0	4	0	0	0	0	0	0	0	0	0	4	4
Total	9	0	0	9	0	9	0	9	0	0	0	0	0	18	18
05:00 PM	3	0	0	3	0	1	0	1	0	0	0	0	0	4	4
05:15 PM	5	0	0	5	0	3	0	3	0	0	0	0	0	8	8
05:30 PM	3	0	0	3	0	0	0	0	0	0	0	0	0	3	3
05:45 PM	2	0	0	2	0	2	0	2	0	0	0	0	0	4	4
Total	13	0	0	13	0	6	0	6	0	0	0	0	0	19	19
Grand Total	22	0	0	22	0	15	0	15	0	0	0	0	0	37	37
Apprch %	100	0			0	100			0	0					
Total %	59.5	0		59.5	0	40.5		40.5	0	0		0	0	100	

	Valley Boulevard Southbound			Connie Way Westbound			Valley Boulevard Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	2	0	2	0	4	4	0	0	0	6
04:45 PM	4	0	4	0	0	0	0	0	0	4
05:00 PM	3	0	3	0	1	1	0	0	0	4
05:15 PM	5	0	5	0	3	3	0	0	0	8
Total Volume	14	0	14	0	8	8	0	0	0	22
% App. Total	100	0		0	100		0	0		
PHF	.700	.000	.700	.000	.500	.500	.000	.000	.000	.688

City of Menifee
N/S: Valley Boulevard
E/W: Connie Way
Weather: Clear

File Name : 02_MEN_Va Co PM
Site Code : 05117839
Start Date : 12/7/2017
Page No : 2



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

	04:45 PM			04:00 PM			04:00 PM		
+0 mins.	4	0	4	0	3	3	0	0	0
+15 mins.	3	0	3	0	2	2	0	0	0
+30 mins.	5	0	5	0	4	4	0	0	0
+45 mins.	3	0	3	0	0	0	0	0	0
Total Volume	15	0	15	0	9	9	0	0	0
% App. Total	100	0		0	100		0	0	
PHF	.750	.000	.750	.000	.563	.563	.000	.000	.000

Location: Menifee
 N/S: Valley Boulevard
 E/W: Connie Way



Date: 12/7/2017
 Day: Thursday

PEDESTRIANS

	North Leg Valley Boulevard	East Leg Connie Way	South Leg Valley Boulevard	West Leg Dead End	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	2	2	4
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	2	2	4

	North Leg Valley Boulevard	East Leg Connie Way	South Leg Valley Boulevard	West Leg Dead End	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	2	2	4
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	2	2	4

Location: Menifee
 N/S: Valley Boulevard
 E/W: Connie Way



Date: 12/7/2017
 Day: Thursday

BICYCLES

	North Leg Valley Boulevard	East Leg Connie Way	South Leg Valley Boulevard	West Leg Dead End	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

	North Leg Valley Boulevard	East Leg Connie Way	South Leg Valley Boulevard	West Leg Dead End	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Menifee
N/S: Murrieta Road
EW: Chambers Avenue
Weather: Clear

File Name : 03_MEN_Mu Ch AM
Site Code : 05117839
Start Date : 12/7/2017
Page No : 1

Groups Printed- Total Volume

Start Time	Murrieta Road Southbound					Chambers Avenue Westbound					Murrieta Road Northbound					Chambers Avenue Eastbound				
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total
07:00 AM	6	57	1	0	64	2	1	2	0	5	1	59	2	0	62	6	4	18	0	28
07:15 AM	9	79	0	0	88	3	2	4	0	9	3	63	5	0	71	7	10	21	0	38
07:30 AM	10	75	3	0	88	1	2	4	0	7	17	90	6	0	113	4	10	24	0	38
07:45 AM	15	54	5	0	74	7	4	2	0	13	14	70	1	0	85	8	2	11	0	21
Total	40	265	9	0	314	13	9	12	0	34	35	282	14	0	331	25	26	74	0	125
08:00 AM	9	54	1	0	64	1	2	8	0	11	5	86	2	0	93	0	14	11	0	25
08:15 AM	8	72	2	0	82	2	3	6	0	11	8	72	4	0	84	3	9	12	0	24
08:30 AM	16	67	4	0	87	8	8	10	1	26	11	54	1	0	66	3	8	8	0	19
08:45 AM	10	57	2	0	69	4	5	11	0	20	4	56	1	0	61	3	6	6	0	15
Total	43	250	9	0	302	15	18	35	1	68	28	268	8	0	304	9	37	37	0	83
Grand Total	83	515	18	0	616	28	27	47	1	102	63	550	22	0	635	34	63	111	0	208
Approch %	13.5	83.6	2.9			27.5	26.5	46.1			9.9	86.6	3.5		40.7	16.3	30.3	53.4		13.3
Total %	5.3	33	1.2		39.5	1.8	1.7	3		6.5	4	35.2	1.4			2.2	4	7.1		

3.1-13

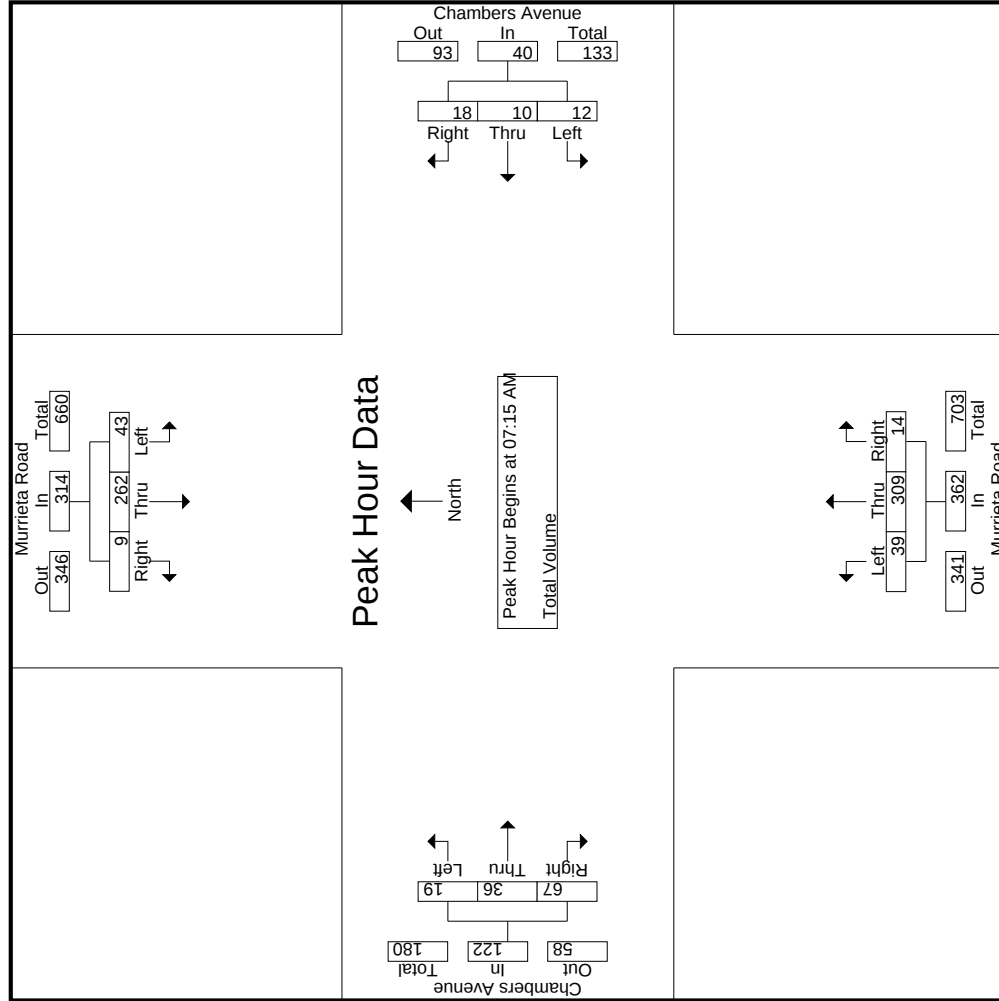
Start Time	Murrieta Road Southbound					Chambers Avenue Westbound					Murrieta Road Northbound					Chambers Avenue Eastbound				
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total
07:15 AM	9	79	0		88	3	2	4		9	3	63	5		71	7	10	21		38
07:30 AM	10	75	3		88	1	2	4		7	17	90	6		113	4	10	24		38
07:45 AM	15	54	5		74	7	4	2		13	14	70	1		85	8	2	11		21
08:00 AM	9	54	1		64	1	2	8		11	5	86	2		93	0	14	11		25
Total Volume	43	262	9		314	12	10	18		40	39	309	14		362	19	36	67		122
% App. Total	13.7	83.4	2.9			30	25	45			10.8	85.4	3.9			15.6	29.5	54.9		
PHF	.717	.829	.450		.892	.429	.625	.563		.769	.574	.858	.583		.801	.594	.643	.698		.852

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

Counts Unlimited
 PO Box 1178
 Corona, CA 92878
 (951) 268-6268

City of Menifee
 N/S: Murrieta Road
 E/W: Chambers Avenue
 Weather: Clear

File Name : 03_MEN_Mu Ch AM
 Site Code : 05117839
 Start Date : 12/7/2017
 Page No : 2



File Name : 03_MEN_Mu Ch AM
Site Code : 05117839
Start Date : 12/7/2017
Page No : 3

File Name : 03_MEN_Mu Ch AM
Site Code : 05117839
Start Date : 12/7/2017
Page No : 3

Start Time	Murrieta Road Southbound				Chambers Avenue Westbound				Murrieta Road Northbound				Chambers Avenue Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins. +15 mins. +30 mins. +45 mins.	07:00 AM				08:00 AM				07:30 AM				07:00 AM			
	6	57	1	64	1	2	8	11	17	90	6	113	6	4	18	28
	9	79	0	88	2	3	6	11	14	70	1	85	7	10	21	38
	10	75	3	88	8	8	10	26	5	86	2	93	4	10	24	38
	15	54	5	74	4	5	11	20	8	72	4	84	8	2	11	21
Total Volume	40	265	9	314	15	18	35	68	44	318	13	375	25	26	74	125
% App. Total	12.7	84.4	2.9		22.1	26.5	51.5		11.7	84.8	3.5		20	20.8	59.2	
PHF	.667	.839	.450	.892	.469	.563	.795	.654	.647	.883	.542	.830	.781	.650	.771	.822

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Menifee
N/S: Murrieta Road
EW: Chambers Avenue
Weather: Clear

File Name : 03_MEN_Mu Ch PM
Site Code : 05117839
Start Date : 12/7/2017
Page No : 1

Groups Printed- Total Volume

Start Time	Murrieta Road Southbound					Chambers Avenue Westbound					Murrieta Road Northbound					Chambers Avenue Eastbound				
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total
04:00 PM	11	92	5	0	108	5	5	18	0	28	14	74	3	0	91	5	7	17	0	29
04:15 PM	12	87	8	0	107	3	2	20	0	25	20	63	5	0	88	7	3	8	0	18
04:30 PM	8	77	11	0	96	4	7	15	0	26	13	77	3	0	93	6	5	15	0	26
04:45 PM	15	63	5	0	83	2	6	8	0	16	14	74	1	0	89	5	3	12	0	20
Total	46	319	29	0	394	14	20	61	0	95	61	288	12	0	361	23	18	52	0	93
05:00 PM	7	76	6	0	89	3	7	10	0	20	12	75	2	0	89	4	2	8	0	14
05:15 PM	5	86	10	0	101	0	9	11	0	20	17	73	5	0	95	3	7	6	0	16
05:30 PM	6	73	9	0	88	4	10	14	0	28	26	72	8	0	106	3	1	4	0	8
05:45 PM	3	71	7	0	81	2	5	10	0	17	12	57	1	0	70	7	6	9	0	22
Total	21	306	32	0	359	9	31	45	0	85	67	277	16	0	360	17	16	27	0	60
Grand Total	67	625	61	0	753	23	51	106	0	180	128	565	28	0	721	40	34	79	0	153
Approch %	8.9	83	8.1			12.8	28.3	58.9		10	17.8	78.4	3.9		39.9	26.1	22.2	51.6		8.5
Total %	3.7	34.6	3.4		41.7	1.3	2.8	5.9			7.1	31.3	1.5			2.2	1.9	4.4		

3.1-16

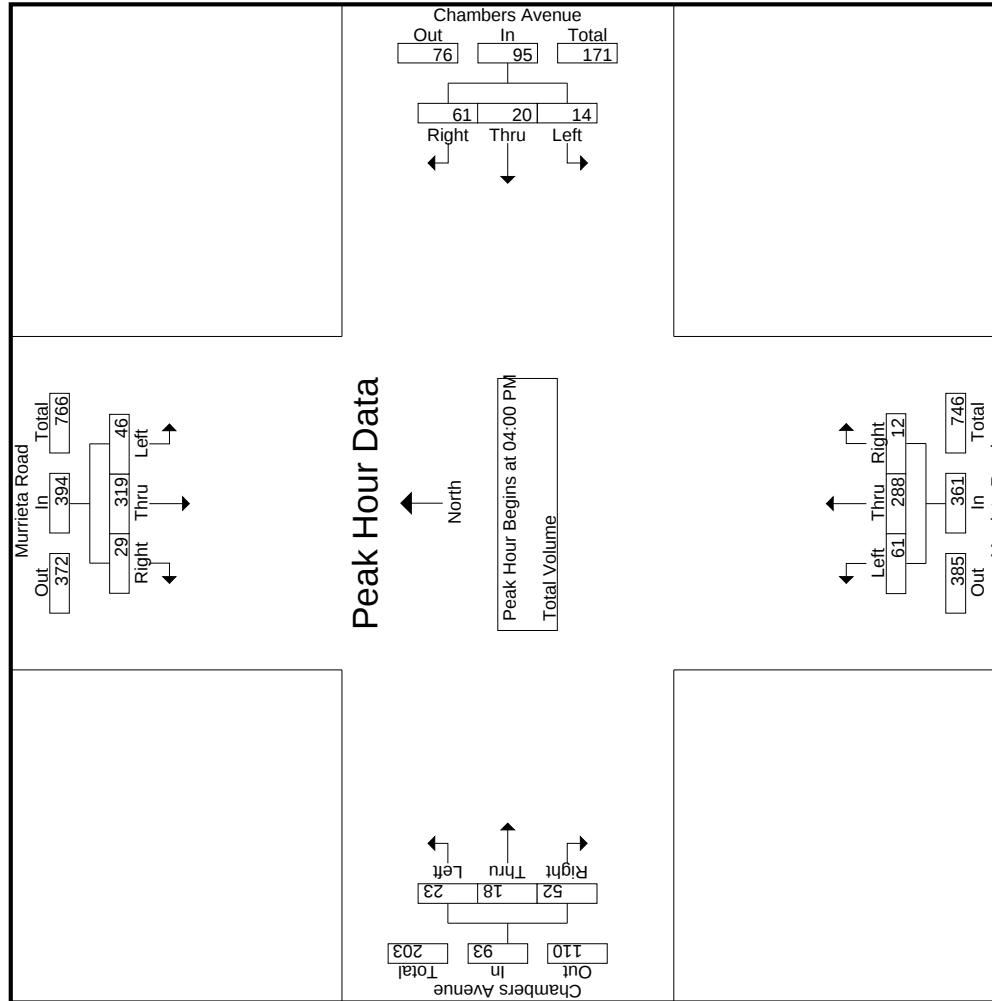
Start Time	Murrieta Road Southbound					Chambers Avenue Westbound					Murrieta Road Northbound					Chambers Avenue Eastbound				
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total
04:00 PM	11	92	5	0	108	5	5	18	0	28	14	74	3	0	91	5	7	17	0	29
04:15 PM	12	87	8	0	107	3	2	20	0	25	20	63	5	0	88	7	3	8	0	18
04:30 PM	8	77	11	0	96	4	7	15	0	26	13	77	3	0	93	6	5	15	0	26
04:45 PM	15	63	5	0	83	2	6	8	0	16	14	74	1	0	89	5	3	12	0	20
Total Volume	46	319	29	0	394	14	20	61	0	95	61	288	12	0	361	23	18	52	0	93
% App. Total	11.7	81	7.4			14.7	21.1	64.2		10	16.9	79.8	3.3		39.9	24.7	19.4	55.9		8.5
PHF	.767	.867	.659		.912	.700	.714	.763		.848	.763	.935	.600		.970	.821	.643	.765		.921

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

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Menifee
N/S: Murrieta Road
E/W: Chambers Avenue
Weather: Clear

File Name : 03_MEN_Mu Ch PM
Site Code : 05117839
Start Date : 12/7/2017
Page No : 2



File Name : 03_MEN_Mu Ch PM
Site Code : 05117839
Start Date : 12/7/2017
Page No : 3

File Name : 03_MEN_Mu Ch PM
Site Code : 05117839
Start Date : 12/7/2017
Page No : 3

Start Time	Murrieta Road Southbound				Chambers Avenue Westbound				Murrieta Road Northbound				Chambers Avenue Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins. +15 mins. +30 mins. +45 mins.	04:00 PM				04:00 PM				04:45 PM				04:00 PM			
	11	92	5	108	5	5	18	28	14	74	1	89	5	7	17	29
	12	87	8	107	3	2	20	25	12	75	2	89	7	3	8	18
	8	77	11	96	4	7	15	26	17	73	5	95	6	5	15	26
Total Volume	15	63	5	83	2	6	8	16	26	72	8	106	5	3	12	20
% App. Total	46	319	29	394	14	20	61	95	69	294	16	379	23	18	52	93
	11.7	81	7.4		14.7	21.1	64.2		18.2	77.6	4.2		24.7	19.4	55.9	
PHF	.767	.867	.659	.912	.700	.714	.763	.848	.663	.980	.500	.894	.821	.643	.765	.802

Location: Menifee
 N/S: Murrieta Road
 E/W: Chambers Avenue



Date: 12/7/2017
 Day: Thursday

PEDESTRIANS

	North Leg Murrieta Road	East Leg Chambers Avenue	South Leg Murrieta Road	West Leg Chambers Avenue	TOTAL
7:00 AM	0	1	0	0	1
7:15 AM	0	0	0	0	0
7:30 AM	0	1	0	0	1
7:45 AM	0	0	0	0	0
8:00 AM	1	0	0	1	2
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	1	0	0	1
TOTAL VOLUMES:	1	3	0	1	5

	North Leg Murrieta Road	East Leg Chambers Avenue	South Leg Murrieta Road	West Leg Chambers Avenue	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	2	0	0	0	2
4:45 PM	0	0	0	0	0
5:00 PM	0	2	2	0	4
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	2	2	2	0	6

Location: Menifee
 N/S: Murrieta Road
 E/W: Chambers Avenue



Date: 12/7/2017
 Day: Thursday

BICYCLES

	North Leg Murrieta Road	East Leg Chambers Avenue	South Leg Murrieta Road	West Leg Chambers Avenue	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	1	0	1
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	1	0	0	1
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	1	1	0	2

	North Leg Murrieta Road	East Leg Chambers Avenue	South Leg Murrieta Road	West Leg Chambers Avenue	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Menifee
N/S: Murrieta Road
EW: McCall Boulevard
Weather: Clear

File Name : 04_MEN_Mu McC AM
Site Code : 05117839
Start Date : 12/7/2017
Page No : 1

Groups Printed- Total Volume

	Murrieta Road Southbound					McCall Boulevard Westbound					Murrieta Road Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	18	53	11	1	82	44	6	6	3	56	0	59	38	17	97	7	30	2	2	39	23	274	297
07:15 AM	13	59	27	7	99	35	25	7	3	67	0	47	41	15	88	20	29	0	0	49	25	303	328
07:30 AM	18	54	40	17	112	35	26	19	14	80	1	62	46	17	109	48	42	3	0	93	48	394	442
07:45 AM	22	42	2	1	66	34	16	20	13	70	1	65	42	13	108	25	30	0	0	55	27	299	326
Total	71	208	80	26	359	148	73	52	33	273	2	233	167	62	402	100	131	5	2	236	123	1270	1393
08:00 AM	16	47	6	4	69	46	14	33	26	93	0	58	57	21	115	12	23	0	0	35	51	312	363
08:15 AM	28	47	8	3	83	57	10	20	14	87	0	57	40	20	97	9	21	0	0	30	37	297	334
08:30 AM	36	70	5	1	111	39	13	22	16	74	0	37	40	12	77	4	23	0	0	27	29	289	318
08:45 AM	34	46	6	1	86	42	29	15	8	86	1	34	27	13	62	6	18	1	0	25	22	259	281
Total	114	210	25	9	349	184	66	90	64	340	1	186	164	66	351	31	85	1	0	117	139	1157	1296
Grand Total	185	418	105	35	708	332	139	142	97	613	3	419	331	128	753	131	216	6	2	353	262	2427	2689
Approch %	26.1	59	14.8			54.2	22.7	23.2		25.3	0.4	55.6	44		31	37.1	61.2	1.7		14.5	9.7	90.3	
Total %	7.6	17.2	4.3		29.2	13.7	5.7	5.9			0.1	17.3	13.6			5.4	8.9	0.2					

3.1-21

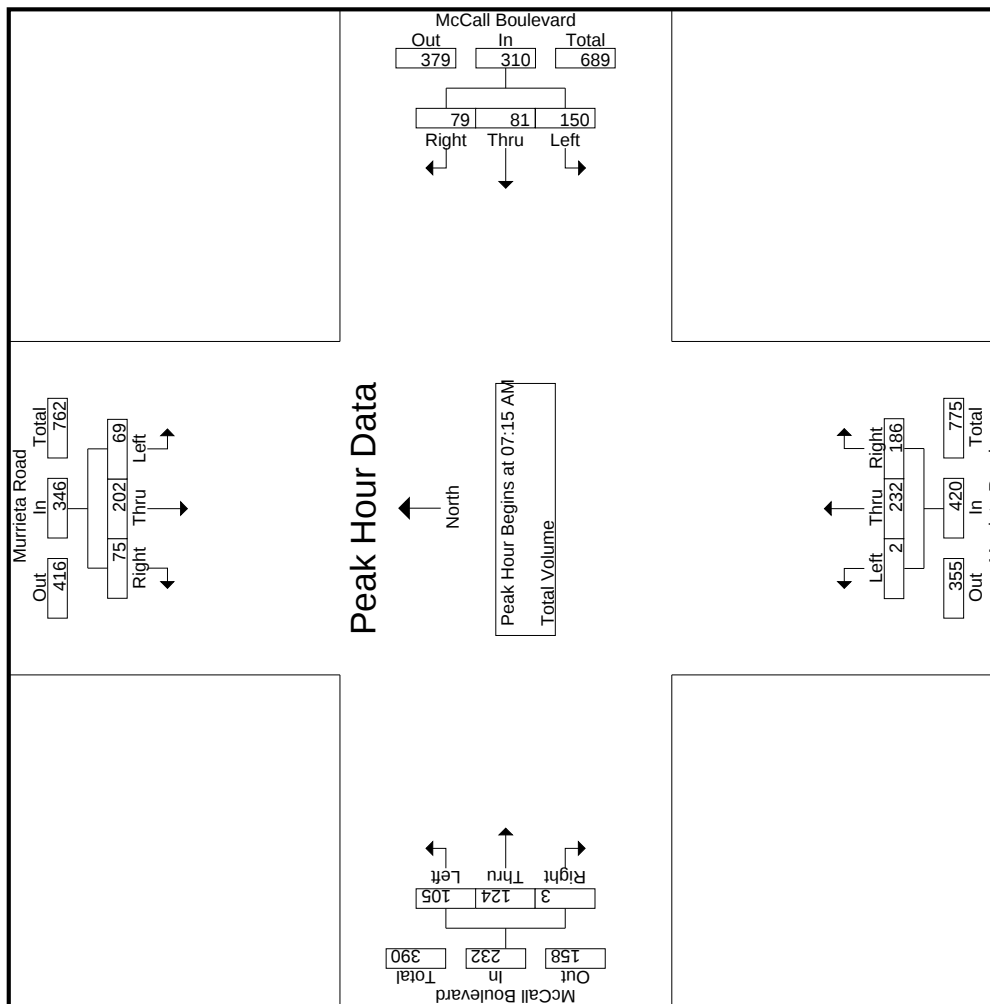
	Murrieta Road Southbound					McCall Boulevard Westbound					Murrieta Road Northbound					McCall Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																				
Peak Hour for Entire Intersection Begins at 07:15 AM																				
07:15 AM	13	59	27	99		35	25	7	67		0	47	41	88		20	29	0	49	
07:30 AM	18	54	40	112		35	26	19	80		1	62	46	109		48	42	3	93	
07:45 AM	22	42	2	66		34	16	20	70		1	65	42	108		25	30	0	55	
08:00 AM	16	47	6	69		46	14	33	93		0	58	57	115		12	23	0	35	
Total Volume	69	202	75	346		150	81	79	310		2	232	186	420		105	124	3	232	
% App. Total	19.9	58.4	21.7			48.4	26.1	25.5			0.5	55.2	44.3			45.3	53.4	1.3		
PHF	.784	.856	.469	.772		.815	.779	.598	.833		.500	.892	.816	.913		.547	.738	.250	.624	

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

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Menifee
N/S: Murrieta Road
E/W: McCall Boulevard
Weather: Clear

File Name : 04_MEN_Mu McC AM
Site Code : 05117839
Start Date : 12/7/2017
Page No : 2



File Name : 04_MEN_Mu McC AM
Site Code : 05117839
Start Date : 12/7/2017
Page No : 3

City of Menifee
N/S: Murrieta Road
E/W: McCall Boulevard
Weather: Clear

Start Time	Murrieta Road Southbound			McCall Boulevard Westbound			Murrieta Road Northbound			McCall Boulevard Eastbound			Int. Total	
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total		
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1														
Peak Hour for Each Approach Begins at:														
+0 mins. +15 mins. +30 mins. +45 mins. Total Volume % App. Total	07:00 AM			08:00 AM			07:30 AM			07:00 AM				
	18	53	11	82	46	14	33	62	46	109	7	30	2	39
	13	59	27	99	57	10	20	65	42	108	20	29	0	49
	18	54	40	112	39	13	22	58	57	115	48	42	3	93
	22	42	2	66	42	29	15	0	57	40	97	25	30	0
	71	208	80	359	184	66	90	242	185	429	100	131	5	236
	19.8	57.9	22.3		54.1	19.4	26.5	56.4	43.1		42.4	55.5	2.1	
PHF	.807	.881	.500	.801	.807	.569	.682	.931	.811	.933	.521	.780	.417	.634

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Menifee
N/S: Murrieta Road
EW: McCall Boulevard
Weather: Clear

File Name : 04_MEN_Mu McC PM
Site Code : 05117839
Start Date : 12/7/2017
Page No : 1

Groups Printed- Total Volume

	Murrieta Road Southbound					McCall Boulevard Westbound					Murrieta Road Northbound					McCall Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	23	66	12	5	101	56	25	39	25	120	1	74	52	18	127	7	14	0	0	21	48	369	417
04:15 PM	28	61	5	3	94	60	27	53	27	140	0	76	44	22	120	3	11	0	0	14	52	368	420
04:30 PM	25	63	6	3	94	73	22	43	23	138	2	62	53	13	117	6	11	0	0	17	39	366	405
04:45 PM	23	53	11	2	87	55	33	26	20	114	0	65	47	15	112	6	13	0	0	19	37	332	369
Total	99	243	34	13	376	244	107	161	95	512	3	277	196	68	476	22	49	0	0	71	176	1435	1611
05:00 PM	27	56	9	3	92	65	30	34	16	129	0	67	47	8	114	8	16	0	0	24	27	359	386
05:15 PM	32	78	8	3	118	74	16	29	20	119	0	60	43	16	103	5	17	0	0	22	39	362	401
05:30 PM	52	69	10	4	131	69	31	23	12	123	1	67	50	14	118	10	19	3	3	32	33	404	437
05:45 PM	21	60	11	5	92	50	24	24	20	98	0	51	37	10	88	8	12	1	1	21	36	299	335
Total	132	263	38	15	433	258	101	110	68	469	1	245	177	48	423	31	64	4	4	99	135	1424	1559
Grand Total	231	506	72	28	809	502	208	271	163	981	4	522	373	116	899	53	113	4	4	170	311	2859	3170
Approch %	28.6	62.5	8.9		51.2	21.2	27.6			34.3	0.4	58.1	41.5		31.4	31.2	66.5	2.4		5.9		9.8	90.2
Total %	8.1	17.7	2.5		28.3	17.6	7.3	9.5			0.1	18.3	13			1.9	4	0.1					

3.1-24

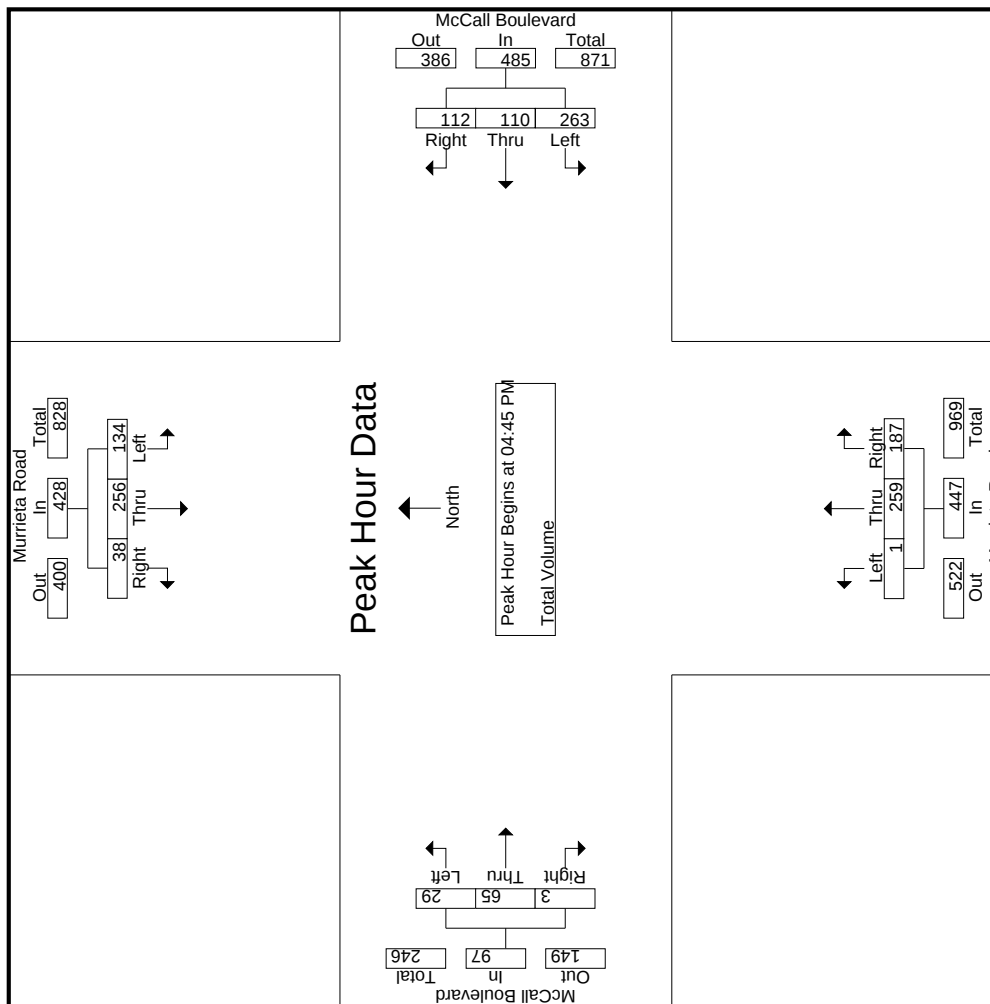
Start Time	Murrieta Road Southbound				McCall Boulevard Westbound				Murrieta Road Northbound				McCall Boulevard Eastbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	23	53	11	87	55	33	26	114	0	65	47	112	6	13	0	19	332
05:00 PM	27	56	9	92	65	30	34	129	0	67	47	114	8	16	0	24	359
05:15 PM	32	78	8	118	74	16	29	119	0	60	43	103	5	17	0	22	362
05:30 PM	52	69	10	131	69	31	23	123	1	67	50	118	10	19	3	32	404
Total Volume	134	256	38	428	263	110	112	485	1	259	187	447	29	65	3	97	1457
% App. Total	31.3	59.8	8.9		54.2	22.7	23.1		0.2	57.9	41.8		29.9	67	3.1		
PHF	.644	.821	.864	.817	.889	.833	.824	.940	.250	.966	.935	.947	.725	.855	.250	.758	.902

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

Counts Unlimited
 PO Box 1178
 Corona, CA 92878
 (951) 268-6268

City of Menifee
 N/S: Murrieta Road
 E/W: McCall Boulevard
 Weather: Clear

File Name : 04_MEN_Mu McC PM
 Site Code : 05117839
 Start Date : 12/7/2017
 Page No : 2



File Name : 04_MEN_Mu McC PM
Site Code : 05117839
Start Date : 12/7/2017
Page No : 3

City of Menifee
N/S: Murrieta Road
E/W: McCall Boulevard
Weather: Clear

Start Time	Murrieta Road Southbound			McCall Boulevard Westbound			Murrieta Road Northbound			McCall Boulevard Eastbound			Int. Total			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total				
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins. +15 mins. +30 mins. +45 mins. Total Volume % App. Total	05:00 PM			04:15 PM			04:00 PM			05:00 PM						
	27	56	9	92	60	27	53	140	1	74	52	127	8	16	0	24
	32	78	8	118	73	22	43	138	0	76	44	120	5	17	0	22
	52	69	10	131	55	33	26	114	2	62	53	117	10	19	3	32
	21	60	11	92	65	30	34	129	0	65	47	112	8	12	1	21
	132	263	38	433	253	112	156	521	3	277	196	476	31	64	4	99
	30.5	60.7	8.8		48.6	21.5	29.9		0.6	58.2	41.2		31.3	64.6	4	
PHF	.635	.843	.864	.826	.866	.848	.736	.930	.375	.911	.925	.937	.775	.842	.333	.773

Location: Menifee
 N/S: Murrieta Road
 E/W: McCall Boulevard



Date: 12/7/2017
 Day: Thursday

PEDESTRIANS

	North Leg Murrieta Road	East Leg McCall Boulevard	South Leg Murrieta Road	West Leg McCall Boulevard	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	1	0	1
7:30 AM	0	0	0	1	1
7:45 AM	0	0	1	0	1
8:00 AM	0	0	0	0	0
8:15 AM	1	0	0	0	1
8:30 AM	1	0	0	0	1
8:45 AM	1	0	0	0	1
TOTAL VOLUMES:	3	0	2	1	6

	North Leg Murrieta Road	East Leg McCall Boulevard	South Leg Murrieta Road	West Leg McCall Boulevard	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	0	0	1	0	1
4:30 PM	0	0	0	0	0
4:45 PM	2	0	0	1	3
5:00 PM	0	0	0	0	0
5:15 PM	1	0	0	1	2
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	3	0	1	2	6

Location: Menifee
 N/S: Murrieta Road
 E/W: McCall Boulevard



Date: 12/7/2017
 Day: Thursday

BICYCLES

	North Leg Murrieta Road	East Leg McCall Boulevard	South Leg Murrieta Road	West Leg McCall Boulevard	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	1	1
7:45 AM	1	0	0	0	1
8:00 AM	0	0	0	0	0
8:15 AM	0	1	0	0	1
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	1	1	0	1	3

	North Leg Murrieta Road	East Leg McCall Boulevard	South Leg Murrieta Road	West Leg McCall Boulevard	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

Counts Unlimited, Inc.

City of Menifee
Chambers Avenue
E/ Valley Boulevard
24 Hour Directional Volume Count

PO Box 1178
Corona, CA 92878
Phone: 951-268-6268
email: counts@countsunlimited.com

MEN002
Site Code: 051-17839

Start Time	07-Dec-17 Thu	Eastbound		Hour Totals		Westbound		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		0	0			0	3				
12:15		1	4			0	5				
12:30		0	2			0	2				
12:45		0	0	1	6	0	5	0	15	1	21
01:00		0	3			0	4				
01:15		0	0			0	6				
01:30		0	3			0	1				
01:45		0	0	0	6	0	4	0	15	0	21
02:00		0	5			0	2				
02:15		0	3			0	3				
02:30		0	2			0	3				
02:45		0	2	0	12	0	5	0	13	0	25
03:00		0	2			0	1				
03:15		0	1			0	3				
03:30		1	1			0	3				
03:45		1	3	2	7	0	4	0	11	2	18
04:00		0	4			0	1				
04:15		0	3			1	5				
04:30		0	3			0	3				
04:45		0	0	0	10	0	3	1	12	1	22
05:00		0	0			0	4				
05:15		0	4			0	7				
05:30		1	1			0	2				
05:45		0	2	1	7	0	4	0	17	1	24
06:00		2	0			0	1				
06:15		0	1			0	4				
06:30		0	2			1	4				
06:45		2	5	4	8	1	3	2	12	6	20
07:00		1	0			2	0				
07:15		1	3			0	5				
07:30		1	1			2	4				
07:45		2	1	5	5	1	3	5	12	10	17
08:00		1	3			1	2				
08:15		0	2			2	3				
08:30		4	0			2	3				
08:45		1	1	6	6	2	1	7	9	13	15
09:00		1	1			0	0				
09:15		1	0			1	1				
09:30		2	3			3	1				
09:45		2	0	6	4	0	2	4	4	10	8
10:00		1	1			1	0				
10:15		2	0			2	1				
10:30		2	1			1	0				
10:45		0	0	5	2	2	3	6	4	11	6
11:00		0	1			0	0				
11:15		0	1			1	0				
11:30		0	0			1	0				
11:45		1	0	1	2	3	1	5	1	6	3
Total		31	75	31	75	30	125	30	125	61	200
Combined Total		106		106		155		155		261	
AM Peak	-	07:45	-	-	-	08:00	-	-	-	-	-
Vol.	-	7	-	-	-	7	-	-	-	-	-
P.H.F.		0.438				0.875					
PM Peak	-	-	03:45	-	-	-	00:30	-	-	-	-
Vol.	-	-	13	-	-	-	17	-	-	-	-
P.H.F.			0.813				0.708				
Percentage		29.2%	70.8%			19.4%	80.6%				
ADT/AADT		ADT 261		AADT 261							

Counts Unlimited, Inc.

City of Menifee
Chambers Avenue
W/ Murrieta Road
24 Hour Directional Volume Count

PO Box 1178
Corona, CA 92878
Phone: 951-268-6268
email: counts@countsunlimited.com

MEN003
Site Code: 051-17839

Start Time	07-Dec-17 Thu	Eastbound		Hour Totals		Westbound		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		1	10			5	14				
12:15		3	15			6	18				
12:30		2	17			1	18				
12:45		2	18	8	60	2	18	14	68	22	128
01:00		3	8			3	20				
01:15		0	12			1	20				
01:30		4	25			3	12				
01:45		1	22	8	67	0	19	7	71	15	138
02:00		0	32			1	28				
02:15		1	18			1	30				
02:30		1	25			0	22				
02:45		1	25	3	100	0	29	2	109	5	209
03:00		0	16			3	24				
03:15		4	19			0	30				
03:30		5	19			1	23				
03:45		4	15	13	69	0	32	4	109	17	178
04:00		10	29			3	28				
04:15		7	19			3	31				
04:30		6	29			0	29				
04:45		8	16	31	93	1	23	7	111	38	204
05:00		9	15			3	32				
05:15		9	14			0	39				
05:30		16	15			4	36				
05:45		15	17	49	61	1	26	8	133	57	194
06:00		17	16			4	25				
06:15		18	14			5	20				
06:30		21	10			9	25				
06:45		19	12	75	52	4	14	22	84	97	136
07:00		24	9			6	18				
07:15		45	11			7	15				
07:30		33	8			22	13				
07:45		20	7	122	35	20	23	55	69	177	104
08:00		25	9			10	10				
08:15		26	9			14	12				
08:30		22	5			24	18				
08:45		14	5	87	28	9	9	57	49	144	77
09:00		14	5			13	8				
09:15		18	8			11	13				
09:30		21	8			14	14				
09:45		12	7	65	28	3	16	41	51	106	79
10:00		26	5			13	7				
10:15		18	4			6	8				
10:30		18	2			14	5				
10:45		24	2	86	13	12	5	45	25	131	38
11:00		11	1			14	8				
11:15		14	2			25	3				
11:30		12	2			17	7				
11:45		16	4	53	9	13	3	69	21	122	30
Total		600	615	600	615	331	900	331	900	931	1515
Combined Total		1215		1215		1231		1231		2446	
AM Peak	-	07:15	-	-	-	11:00	-	-	-	-	-
Vol.	-	123	-	-	-	69	-	-	-	-	-
P.H.F.		0.683				0.690					
PM Peak	-	-	02:00	-	-	-	05:00	-	-	-	-
Vol.	-	-	100	-	-	-	133	-	-	-	-
P.H.F.			0.781				0.853				
Percentage		49.4%	50.6%			26.9%	73.1%				
ADT/AADT		ADT 2,446		AADT 2,446							

Counts Unlimited, Inc.

City of Menifee
Murrieta Road
N/ McCall Boulevard
24 Hour Directional Volume Count

PO Box 1178
Corona, CA 92878
Phone: 951-268-6268
email: counts@countsunlimited.com

MEN004
Site Code: 051-17839

Start Time	07-Dec-17 Thu	Northbound		Hour Totals		Southbound		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		6	54			5	96				
12:15		4	74			5	75				
12:30		7	79			5	91				
12:45		3	83	20	290	2	100	17	362	37	652
01:00		1	94			4	70				
01:15		3	94			1	81				
01:30		6	83			3	86				
01:45		2	78	12	349	5	103	13	340	25	689
02:00		3	109			3	105				
02:15		2	104			6	74				
02:30		3	96			4	114				
02:45		1	95	9	404	2	111	15	404	24	808
03:00		6	116			5	89				
03:15		4	112			4	89				
03:30		2	131			13	97				
03:45		3	94	15	453	16	104	38	379	53	832
04:00		6	124			14	110				
04:15		4	120			16	85				
04:30		8	98			26	104				
04:45		8	104	26	446	14	70	70	369	96	815
05:00		6	92			16	103				
05:15		14	100			15	132				
05:30		22	97			25	120				
05:45		33	69	75	358	33	80	89	435	164	793
06:00		25	84			38	71				
06:15		36	75			49	60				
06:30		55	75			62	48				
06:45		81	72	197	306	79	45	228	224	425	530
07:00		68	60			82	51				
07:15		83	42			116	35				
07:30		124	43			88	30				
07:45		102	53	377	198	74	56	360	172	737	370
08:00		100	37			78	39				
08:15		77	37			90	28				
08:30		64	34			111	31				
08:45		61	27	302	135	78	23	357	121	659	256
09:00		64	49			84	23				
09:15		69	27			82	23				
09:30		75	40			91	15				
09:45		66	33	274	149	70	20	327	81	601	230
10:00		78	21			80	18				
10:15		86	17			105	9				
10:30		89	15			86	11				
10:45		64	10	317	63	96	9	367	47	684	110
11:00		76	12			104	8				
11:15		70	11			73	4				
11:30		74	7			78	6				
11:45		78	7	298	37	77	8	332	26	630	63
Total		1922	3188	1922	3188	2213	2960	2213	2960	4135	6148
Combined Total		5110		5110		5173		5173		10283	
AM Peak	-	07:15	-	-	-	10:15	-	-	-	-	-
Vol.	-	409	-	-	-	391	-	-	-	-	-
P.H.F.		0.825				0.931					
PM Peak	-	-	03:30	-	-	-	05:00	-	-	-	-
Vol.	-	-	469	-	-	-	435	-	-	-	-
P.H.F.			0.895				0.824				
Percentage		37.6%	62.4%			42.8%	57.2%				
ADT/AADT		ADT 10,283		AADT 10,283							

Counts Unlimited, Inc.

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City of Menifee
Valley Boulevard
S/ Chambers Avenue
24 Hour Directional Volume Count

PO Box 1178
Corona, CA 92878
Phone: 951-268-6268
email: counts@countsunlimited.com

MEN001
Site Code: 051-17839

Start Time	07-Dec-17 Thu	Northbound		Hour Totals		Southbound		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		0	0			0	3				
12:15		1	3			0	3				
12:30		0	2			0	1				
12:45		0	0	1	5	0	4	0	11	1	16
01:00		0	1			0	0				
01:15		0	0			0	2				
01:30		0	2			0	1				
01:45		0	1	0	4	0	3	0	6	0	10
02:00		0	3			0	2				
02:15		0	2			0	3				
02:30		0	3			0	3				
02:45		0	2	0	10	0	5	0	13	0	23
03:00		0	1			0	3				
03:15		0	1			0	2				
03:30		1	2			0	2				
03:45		1	3	2	7	0	7	0	14	2	21
04:00		0	3			0	0				
04:15		0	3			1	4				
04:30		0	3			0	2				
04:45		0	1	0	10	0	3	1	9	1	19
05:00		0	1			0	5				
05:15		1	3			0	7				
05:30		1	0			0	1				
05:45		0	2	2	6	0	4	0	17	2	23
06:00		3	0			0	1				
06:15		0	0			1	4				
06:30		0	3			1	4				
06:45		3	3	6	6	1	3	3	12	9	18
07:00		0	1			0	0				
07:15		1	2			1	5				
07:30		1	1			1	4				
07:45		1	2	3	6	0	3	2	12	5	18
08:00		1	2			0	1				
08:15		0	2			2	3				
08:30		5	0			2	3				
08:45		0	1	6	5	1	1	5	8	11	13
09:00		0	1			0	0				
09:15		1	0			1	1				
09:30		2	2			2	1				
09:45		1	0	4	3	1	2	4	4	8	7
10:00		1	0			0	0				
10:15		1	0			2	1				
10:30		1	1			2	0				
10:45		0	0	3	1	2	3	6	4	9	5
11:00		0	2			0	0				
11:15		0	0			0	0				
11:30		0	0			2	0				
11:45		1	0	1	2	3	1	5	1	6	3
Total		28	65	28	65	26	111	26	111	54	176
Combined Total		93		93		137		137		230	
AM Peak	-	07:45	-	-	-	10:00	-	-	-	-	-
Vol.	-	7	-	-	-	6	-	-	-	-	-
P.H.F.		0.350				0.750					
PM Peak	-	-	03:45	-	-	-	04:30	-	-	-	-
Vol.	-	-	12	-	-	-	17	-	-	-	-
P.H.F.			1.000				0.607				
Percentage		30.1%	69.9%			19.0%	81.0%				
ADT/AADT		ADT 230		AADT 230							

APPENDIX 3.2:

EXISTING (2018) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection

Intersection Delay, s/veh	7.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	6	0	1	0	0	7	0	0	0
Future Vol, veh/h	0	0	0	6	0	1	0	0	7	0	0	0
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	9	0	1	0	0	10	0	0	0
Number of Lanes	0	0	0	1	0	1	0	1	1	0	1	0

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	7.6	6.6	0
HCM LOS	A	A	-

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	0%
Vol Thru, %	100%	0%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	0	7	6	1	0
LT Vol	0	0	6	0	0
Through Vol	0	0	0	0	0
RT Vol	0	7	0	1	0
Lane Flow Rate	0	10	9	1	0
Geometry Grp	7	7	7	7	6
Degree of Util (X)	0	0.011	0.012	0.002	0
Departure Headway (Hd)	4.552	3.851	5.052	3.852	4.559
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	0	933	712	934	0
Service Time	2.261	1.561	2.756	1.556	2.571
HCM Lane V/C Ratio	0	0.011	0.013	0.001	0
HCM Control Delay	7.3	6.6	7.8	6.6	7.6
HCM Lane LOS	N	A	A	A	N
HCM 95th-tile Q	0	0	0	0	0

Intersection

Intersection Delay, s/veh 13.5

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	37	68	12	10	18	40	315	14	44	267	9
Future Vol, veh/h	19	37	68	12	10	18	40	315	14	44	267	9
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	44	80	14	12	21	47	371	16	52	314	11
Number of Lanes	0	1	0	1	1	1	1	2	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	1	2	3
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	3	1	3
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	3	2	3	1
HCM Control Delay	12.1	9.8	12.3	15.9
HCM LOS	B	A	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	15%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	88%	30%	0%	100%	0%	0%	97%
Vol Right, %	0%	0%	12%	55%	0%	0%	100%	0%	3%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	210	119	124	12	10	18	44	276
LT Vol	40	0	0	19	12	0	0	44	0
Through Vol	0	210	105	37	0	10	0	0	267
RT Vol	0	0	14	68	0	0	18	0	9
Lane Flow Rate	47	247	140	146	14	12	21	52	325
Geometry Grp	8	8	8	8	7	7	7	8	8
Degree of Util (X)	0.088	0.426	0.238	0.273	0.029	0.023	0.037	0.097	0.562
Departure Headway (Hd)	6.717	6.212	6.129	6.749	7.521	7.013	6.302	6.764	6.236
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	533	578	585	531	474	508	565	529	578
Service Time	4.469	3.964	3.881	4.514	5.293	4.785	4.073	4.515	3.988
HCM Lane V/C Ratio	0.088	0.427	0.239	0.275	0.03	0.024	0.037	0.098	0.562
HCM Control Delay	10.1	13.5	10.8	12.1	10.5	10	9.3	10.2	16.8
HCM Lane LOS	B	B	B	B	B	A	A	B	C
HCM 95th-tile Q	0.3	2.1	0.9	1.1	0.1	0.1	0.1	0.3	3.5

Timings

4: Murrieta Rd. & McCall Bl.

TTM No. 36911 (JN 11338)

03/19/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	107	126	3	153	83	81	2	237	70	206
Future Volume (vph)	107	126	3	153	83	81	2	237	70	206
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Prot	NA
Protected Phases	2	2		6	6		3	8	7	4
Permitted Phases			2			6				
Detector Phase	2	2	2	6	6	6	3	8	7	4
Switch Phase										
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	8.0	5.0	8.0
Minimum Split (s)	25.4	25.4	25.4	26.1	26.1	26.1	10.4	30.4	10.4	28.4
Total Split (s)	25.5	25.5	25.5	26.1	26.1	26.1	10.4	30.4	13.0	33.0
Total Split (%)	26.8%	26.8%	26.8%	27.5%	27.5%	27.5%	10.9%	32.0%	13.7%	34.7%
Yellow Time (s)	4.4	4.4	4.4	4.1	4.1	4.1	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.1	5.1	5.1	5.4	5.4	5.4	5.4
Lead/Lag							Lead	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	Min
Act Effect Green (s)	11.1	11.1	11.1	12.7	12.7	12.7	5.5	13.6	7.2	21.7
Actuated g/C Ratio	0.17	0.17	0.17	0.20	0.20	0.20	0.09	0.21	0.11	0.34
v/c Ratio	0.42	0.25	0.01	0.53	0.14	0.20	0.01	0.60	0.43	0.29
Control Delay	32.1	27.5	0.0	32.6	25.4	1.0	37.5	17.9	40.8	15.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.1	27.5	0.0	32.6	25.4	1.0	37.5	17.9	40.8	15.0
LOS	C	C	A	C	C	A	D	B	D	B
Approach Delay		29.2			22.6			17.9		20.1
Approach LOS		C			C			B		C

Intersection Summary

Cycle Length: 95

Actuated Cycle Length: 64.3

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 21.6

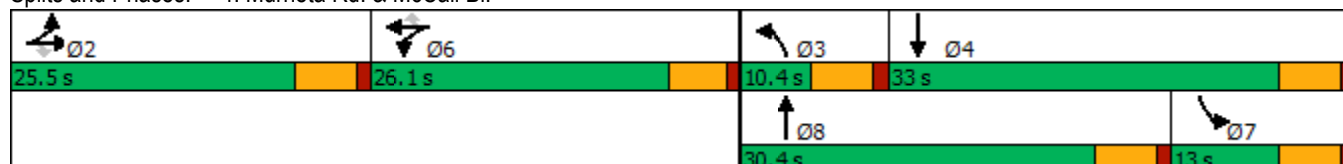
Intersection LOS: C

Intersection Capacity Utilization 48.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 4: Murrieta Rd. & McCall Bl.



HCM 6th Signalized Intersection Summary
4: Murrieta Rd. & McCall Bl.

TTM No. 36911 (JN 11338)

03/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	107	126	3	153	83	81	2	237	190	70	206	77
Future Volume (veh/h)	107	126	3	153	83	81	2	237	190	70	206	77
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		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	129	152	4	184	100	98	2	286	229	84	248	93
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	229	457	203	282	563	248	5	443	344	121	756	275
Arrive On Green	0.13	0.13	0.13	0.16	0.16	0.16	0.00	0.23	0.23	0.07	0.30	0.30
Sat Flow, veh/h	1781	3554	1578	1781	3554	1564	1781	1903	1479	1781	2540	925
Grp Volume(v), veh/h	129	152	4	184	100	98	2	267	248	84	171	170
Grp Sat Flow(s),veh/h/ln	1781	1777	1578	1781	1777	1564	1781	1777	1604	1781	1777	1689
Q Serve(g_s), s	3.5	2.0	0.1	5.0	1.3	2.9	0.1	7.0	7.3	2.4	3.9	4.1
Cycle Q Clear(g_c), s	3.5	2.0	0.1	5.0	1.3	2.9	0.1	7.0	7.3	2.4	3.9	4.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.92	1.00		0.55
Lane Grp Cap(c), veh/h	229	457	203	282	563	248	5	413	373	121	529	503
V/C Ratio(X)	0.56	0.33	0.02	0.65	0.18	0.40	0.41	0.64	0.67	0.70	0.32	0.34
Avail Cap(c_a), veh/h	693	1383	614	724	1444	636	172	860	776	262	949	902
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	21.1	20.5	19.7	20.4	18.8	19.5	25.7	17.9	18.0	23.6	14.1	14.2
Incr Delay (d2), s/veh	2.2	0.4	0.0	2.5	0.1	1.0	19.2	1.7	2.0	2.7	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	1.4	0.8	0.0	2.0	0.5	1.0	0.0	2.6	2.5	1.0	1.3	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.3	20.9	19.7	22.9	19.0	20.5	44.9	19.6	20.0	26.2	14.5	14.6
LnGrp LOS	C	C	B	C	B	C	D	B	C	C	B	B
Approach Vol, veh/h		285			382			517			425	
Approach Delay, s/veh		22.0			21.3			19.9			16.8	
Approach LOS		C			C			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		12.1	5.5	20.8		13.3	8.9	17.4				
Change Period (Y+Rc), s		5.4	5.4	5.4		5.1	5.4	5.4				
Max Green Setting (Gmax), s		20.1	5.0	27.6		21.0	7.6	25.0				
Max Q Clear Time (g_c+I1), s		5.5	2.1	6.1		7.0	4.4	9.3				
Green Ext Time (p_c), s		1.0	0.0	1.8		1.2	0.0	2.7				
Intersection Summary												
HCM 6th Ctrl Delay			19.8									
HCM 6th LOS			B									

Intersection

Intersection Delay, s/veh	7.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	12	0	4	0	5	4	1	3	0
Future Vol, veh/h	0	0	0	12	0	4	0	5	4	1	3	0
Peak Hour Factor	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	23	0	8	0	10	8	2	6	0
Number of Lanes	0	0	0	1	0	1	0	1	1	0	1	0

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	7.7	7.1	7.7
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	25%
Vol Thru, %	100%	0%	0%	0%	75%
Vol Right, %	0%	100%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	5	4	12	4	4
LT Vol	0	0	12	0	1
Through Vol	5	0	0	0	3
RT Vol	0	4	0	4	0
Lane Flow Rate	10	8	23	8	8
Geometry Grp	7	7	7	7	6
Degree of Util (X)	0.012	0.008	0.033	0.008	0.01
Departure Headway (Hd)	4.592	3.892	5.078	3.878	4.652
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	779	919	707	925	769
Service Time	2.32	1.619	2.792	1.592	2.681
HCM Lane V/C Ratio	0.013	0.009	0.033	0.009	0.01
HCM Control Delay	7.4	6.7	8	6.6	7.7
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0	0	0.1	0	0

Intersection

Intersection Delay, s/veh 14.8

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕	↕	↕	↕		↕	↕	
Traffic Vol, veh/h	23	18	53	14	20	62	62	294	12	47	325	30
Future Vol, veh/h	23	18	53	14	20	62	62	294	12	47	325	30
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	25	20	58	15	22	67	67	320	13	51	353	33
Number of Lanes	0	1	0	1	1	1	1	2	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	1	2	3
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	3	1	3
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	3	2	3	1
HCM Control Delay	11.6	10	12	19.2
HCM LOS	B	A	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	24%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	89%	19%	0%	100%	0%	0%	92%
Vol Right, %	0%	0%	11%	56%	0%	0%	100%	0%	8%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	62	196	110	94	14	20	62	47	355
LT Vol	62	0	0	23	14	0	0	47	0
Through Vol	0	196	98	18	0	20	0	0	325
RT Vol	0	0	12	53	0	0	62	0	30
Lane Flow Rate	67	213	120	102	15	22	67	51	386
Geometry Grp	8	8	8	8	7	7	7	8	8
Degree of Util (X)	0.129	0.379	0.21	0.2	0.032	0.042	0.118	0.096	0.664
Departure Headway (Hd)	6.905	6.399	6.322	7.05	7.515	7.008	6.297	6.759	6.195
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	518	560	566	506	474	508	566	529	583
Service Time	4.672	4.166	4.089	4.834	5.293	4.785	4.074	4.519	3.955
HCM Lane V/C Ratio	0.129	0.38	0.212	0.202	0.032	0.043	0.118	0.096	0.662
HCM Control Delay	10.7	13.1	10.8	11.6	10.5	10.1	9.9	10.2	20.4
HCM Lane LOS	B	B	B	B	B	B	A	B	C
HCM 95th-tile Q	0.4	1.8	0.8	0.7	0.1	0.1	0.4	0.3	4.9

Timings

4: Murrieta Rd. & McCall Bl.

TTM No. 36911 (JN 11338)

03/19/2019

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	
Lane Configurations											
Traffic Volume (vph)	30	66	3	268	112	114	1	264	137	261	
Future Volume (vph)	30	66	3	268	112	114	1	264	137	261	
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Prot	NA	
Protected Phases	2	2		6	6		3	8	7	4	
Permitted Phases			2			6					
Detector Phase	2	2	2	6	6	6	3	8	7	4	
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	8.0	5.0	8.0	
Minimum Split (s)	25.4	25.4	25.4	26.1	26.1	26.1	10.4	30.4	10.4	28.4	
Total Split (s)	25.5	25.5	25.5	26.1	26.1	26.1	10.4	30.4	13.0	33.0	
Total Split (%)	26.8%	26.8%	26.8%	27.5%	27.5%	27.5%	10.9%	32.0%	13.7%	34.7%	
Yellow Time (s)	4.4	4.4	4.4	4.1	4.1	4.1	4.4	4.4	4.4	4.4	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.4	5.4	5.4	5.1	5.1	5.1	5.4	5.4	5.4	5.4	
Lead/Lag							Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	Min	None	Min	
Act Effect Green (s)	8.9	8.9	8.9	16.6	16.6	16.6	5.4	13.6	8.2	26.2	
Actuated g/C Ratio	0.13	0.13	0.13	0.25	0.25	0.25	0.08	0.20	0.12	0.39	
v/c Ratio	0.14	0.15	0.01	0.67	0.14	0.23	0.01	0.61	0.70	0.24	
Control Delay	30.7	29.7	0.0	34.4	23.2	1.1	38.0	19.3	54.3	17.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	30.7	29.7	0.0	34.4	23.2	1.1	38.0	19.3	54.3	17.0	
LOS	C	C	A	C	C	A	D	B	D	B	
Approach Delay		29.2			24.2			19.4		28.7	
Approach LOS		C			C			B		C	

Intersection Summary

Cycle Length: 95

Actuated Cycle Length: 66.6

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 24.3

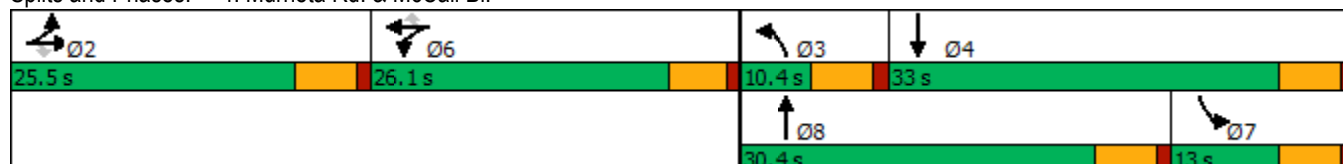
Intersection LOS: C

Intersection Capacity Utilization 55.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 4: Murrieta Rd. & McCall Bl.



HCM 6th Signalized Intersection Summary
4: Murrieta Rd. & McCall Bl.

TTM No. 36911 (JN 11338)

03/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	66	3	268	112	114	1	264	191	137	261	39
Future Volume (veh/h)	30	66	3	268	112	114	1	264	191	137	261	39
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	73	3	298	124	127	1	293	212	152	290	43
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	152	303	135	393	785	349	3	439	309	192	1015	149
Arrive On Green	0.09	0.09	0.09	0.22	0.22	0.22	0.00	0.22	0.22	0.11	0.33	0.33
Sat Flow, veh/h	1781	3554	1585	1781	3554	1579	1781	1993	1402	1781	3108	456
Grp Volume(v), veh/h	33	73	3	298	124	127	1	260	245	152	164	169
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1579	1781	1777	1618	1781	1777	1787
Q Serve(g_s), s	1.0	1.1	0.1	9.1	1.6	4.0	0.0	7.8	8.1	4.8	4.0	4.1
Cycle Q Clear(g_c), s	1.0	1.1	0.1	9.1	1.6	4.0	0.0	7.8	8.1	4.8	4.0	4.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.87	1.00		0.26
Lane Grp Cap(c), veh/h	152	303	135	393	785	349	3	391	356	192	580	584
V/C Ratio(X)	0.22	0.24	0.02	0.76	0.16	0.36	0.33	0.67	0.69	0.79	0.28	0.29
Avail Cap(c_a), veh/h	615	1227	547	642	1281	569	153	763	695	232	842	847
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	24.8	24.9	24.4	21.2	18.3	19.2	29.0	20.7	20.9	25.3	14.5	14.6
Incr Delay (d2), s/veh	0.7	0.4	0.1	3.0	0.1	0.6	21.4	1.9	2.4	11.5	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	0.4	0.5	0.0	3.7	0.6	1.3	0.0	3.0	2.9	2.5	1.4	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.5	25.3	24.5	24.2	18.4	19.9	50.5	22.7	23.2	36.9	14.8	14.8
LnGrp LOS	C	C	C	C	B	B	D	C	C	D	B	B
Approach Vol, veh/h		109			549			506			485	
Approach Delay, s/veh		25.3			21.9			23.0			21.7	
Approach LOS		C			C			C			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		10.4	5.5	24.4		18.0	11.7	18.2				
Change Period (Y+Rc), s		5.4	5.4	5.4		5.1	5.4	5.4				
Max Green Setting (Gmax), s		20.1	5.0	27.6		21.0	7.6	25.0				
Max Q Clear Time (g_c+l1), s		3.1	2.0	6.1		11.1	6.8	10.1				
Green Ext Time (p_c), s		0.4	0.0	1.7		1.5	0.0	2.5				
Intersection Summary												
HCM 6th Ctrl Delay			22.4									
HCM 6th LOS			C									

APPENDIX 3.3:

EXISTING (2018) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Existing (2018) Conditions - Weekday PM Peak Hour**

Major Street Name = **Chambers Av.**

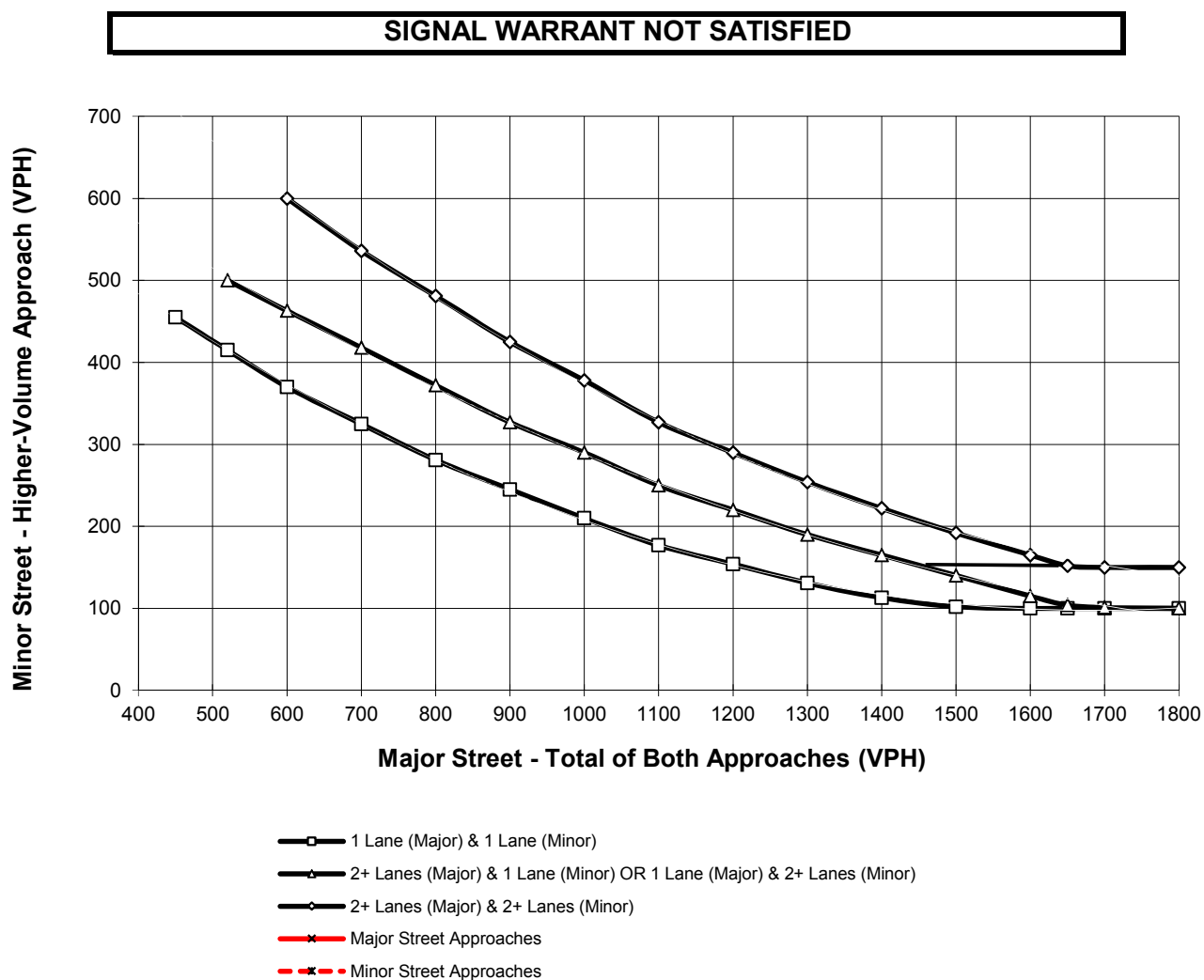
Total of Both Approaches (VPH) = **16**

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

Minor Street Name = **Valley Bl.**

High Volume Approach (VPH) = **9**

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



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Existing (2018) Conditions - Weekday AM Peak Hour**

Major Street Name = **Murrieta Rd.**

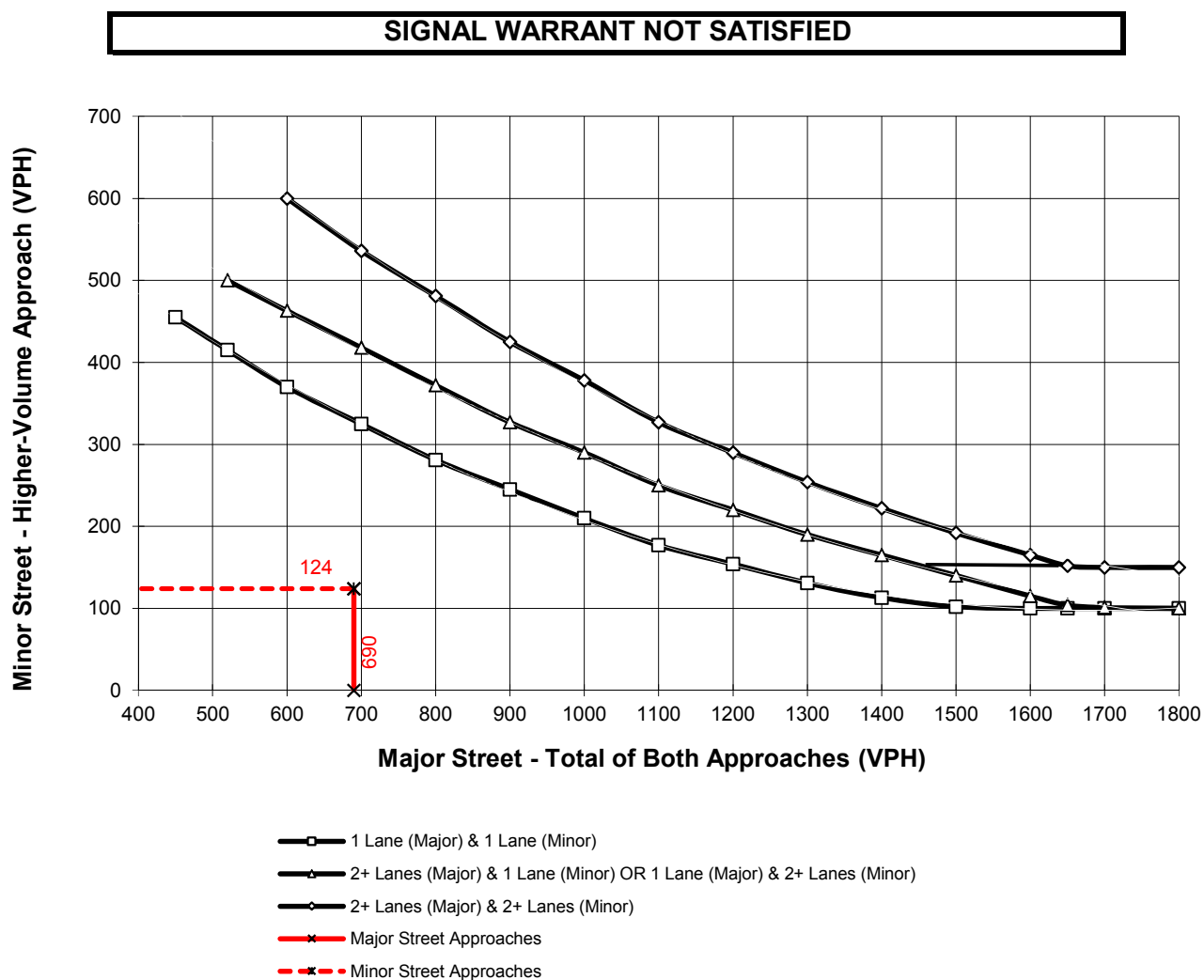
Total of Both Approaches (VPH) = **690**

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

Minor Street Name = **Chambers Av.**

High Volume Approach (VPH) = **124**

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



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

APPENDIX 5.1:

E+P CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection

Intersection Delay, s/veh	7.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔		↔	↔		↔	
Traffic Vol, veh/h	0	21	0	13	7	1	0	0	28	0	0	0
Future Vol, veh/h	0	21	0	13	7	1	0	0	28	0	0	0
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	30	0	19	10	1	0	0	40	0	0	0
Number of Lanes	0	1	0	0	1	1	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	1
HCM Control Delay	7.8	7.8	6.9	0
HCM LOS	A	A	A	-

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	0%	65%	0%	0%
Vol Thru, %	100%	0%	100%	35%	0%	100%
Vol Right, %	0%	100%	0%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	0	28	21	20	1	0
LT Vol	0	0	0	13	0	0
Through Vol	0	0	21	7	0	0
RT Vol	0	28	0	0	1	0
Lane Flow Rate	0	40	30	29	1	0
Geometry Grp	7	7	6	7	7	6
Degree of Util (X)	0	0.044	0.039	0.039	0.002	0
Departure Headway (Hd)	4.636	3.936	4.628	4.946	3.92	4.668
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	0	904	774	725	913	0
Service Time	2.388	1.687	2.656	2.669	1.643	2.727
HCM Lane V/C Ratio	0	0.044	0.039	0.04	0.001	0
HCM Control Delay	7.4	6.9	7.8	7.9	6.7	7.7
HCM Lane LOS	N	A	A	A	A	N
HCM 95th-tile Q	0	0.1	0.1	0.1	0	0

Intersection												
Int Delay, s/veh	3.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	21	0	0	0	0	7	0	0	0	6	0	7
Future Vol, veh/h	21	0	0	0	0	7	0	0	0	6	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	50	50	50	50	50	50	50	50	50	50	50
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	42	0	0	0	0	14	0	0	0	12	0	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	14	0	0	0	0	0	98	98	0	91	91	7
Stage 1	-	-	-	-	-	-	84	84	-	7	7	-
Stage 2	-	-	-	-	-	-	14	14	-	84	84	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1604	-	-	-	-	-	884	792	-	893	799	1075
Stage 1	-	-	-	-	-	-	924	825	-	1015	890	-
Stage 2	-	-	-	-	-	-	1006	884	-	924	825	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1604	-	-	-	-	-	855	771	-	-	778	1075
Mov Cap-2 Maneuver	-	-	-	-	-	-	855	771	-	-	778	-
Stage 1	-	-	-	-	-	-	900	804	-	989	890	-
Stage 2	-	-	-	-	-	-	993	884	-	900	804	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	7.3	0	0	
HCM LOS			A	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1604	-	-	-	-	-	-
HCM Lane V/C Ratio	-	0.026	-	-	-	-	-	-
HCM Control Delay (s)	0	7.3	0	-	0	-	-	-
HCM Lane LOS	A	A	A	-	A	-	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-	-	-	-	-

Intersection

Intersection Delay, s/veh	14.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	37	97	12	10	18	50	315	14	44	267	13
Future Vol, veh/h	32	37	97	12	10	18	50	315	14	44	267	13
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	38	44	114	14	12	21	59	371	16	52	314	15
Number of Lanes	0	1	0	1	1	1	1	2	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	3	1
HCM Control Delay	13.7	10.1	12.9	17.3
HCM LOS	B	B	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	19%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	88%	22%	0%	100%	0%	0%	95%
Vol Right, %	0%	0%	12%	58%	0%	0%	100%	0%	5%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	50	210	119	166	12	10	18	44	280
LT Vol	50	0	0	32	12	0	0	44	0
Through Vol	0	210	105	37	0	10	0	0	267
RT Vol	0	0	14	97	0	0	18	0	13
Lane Flow Rate	59	247	140	195	14	12	21	52	329
Geometry Grp	8	8	8	8	7	7	7	8	8
Degree of Util (X)	0.114	0.443	0.248	0.372	0.031	0.024	0.038	0.101	0.593
Departure Headway (Hd)	6.963	6.457	6.373	6.849	7.857	7.347	6.533	7.018	6.48
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	512	556	560	521	458	490	543	508	553
Service Time	4.74	4.234	4.15	4.636	5.557	5.047	4.333	4.796	4.257
HCM Lane V/C Ratio	0.115	0.444	0.25	0.374	0.031	0.024	0.039	0.102	0.595
HCM Control Delay	10.6	14.3	11.3	13.7	10.8	10.2	9.6	10.6	18.4
HCM Lane LOS	B	B	B	B	B	B	A	B	C
HCM 95th-tile Q	0.4	2.3	1	1.7	0.1	0.1	0.1	0.3	3.8

Timings

4: Murrieta Rd. & McCall Bl.

TTM No. 36911 (JN 11338)

03/19/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	107	126	3	153	83	89	2	238	95	210
Future Volume (vph)	107	126	3	153	83	89	2	238	95	210
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Prot	NA
Protected Phases	2	2		6	6		3	8	7	4
Permitted Phases			2			6				
Detector Phase	2	2	2	6	6	6	3	8	7	4
Switch Phase										
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	8.0	5.0	8.0
Minimum Split (s)	25.4	25.4	25.4	26.1	26.1	26.1	10.4	30.4	10.4	28.4
Total Split (s)	25.5	25.5	25.5	26.1	26.1	26.1	10.4	30.4	13.0	33.0
Total Split (%)	26.8%	26.8%	26.8%	27.5%	27.5%	27.5%	10.9%	32.0%	13.7%	34.7%
Yellow Time (s)	4.4	4.4	4.4	4.1	4.1	4.1	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.1	5.1	5.1	5.4	5.4	5.4	5.4
Lead/Lag							Lead	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	Min
Act Effect Green (s)	11.0	11.0	11.0	12.7	12.7	12.7	5.2	13.4	7.7	25.2
Actuated g/C Ratio	0.16	0.16	0.16	0.19	0.19	0.19	0.08	0.20	0.11	0.38
v/c Ratio	0.44	0.26	0.01	0.55	0.15	0.23	0.01	0.63	0.56	0.26
Control Delay	32.8	27.5	0.0	33.4	25.5	1.1	37.5	18.6	46.1	14.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.8	27.5	0.0	33.4	25.5	1.1	37.5	18.6	46.1	14.9
LOS	C	C	A	C	C	A	D	B	D	B
Approach Delay		29.5			22.5			18.7		22.6
Approach LOS		C			C			B		C

Intersection Summary

Cycle Length: 95

Actuated Cycle Length: 67.1

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 22.6

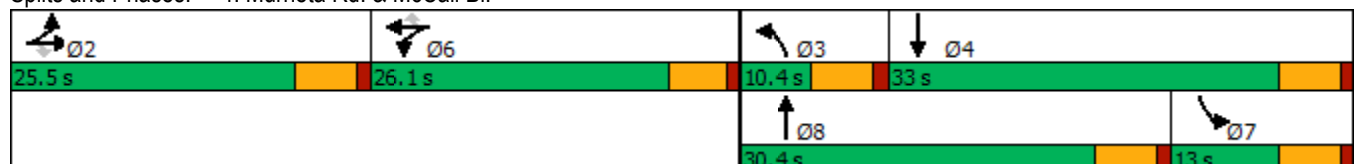
Intersection LOS: C

Intersection Capacity Utilization 49.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 4: Murrieta Rd. & McCall Bl.



HCM 6th Signalized Intersection Summary
4: Murrieta Rd. & McCall Bl.

TTM No. 36911 (JN 11338)

03/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	107	126	3	153	83	89	2	238	190	95	210	77
Future Volume (veh/h)	107	126	3	153	83	89	2	238	190	95	210	77
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		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	129	152	4	184	100	107	2	287	229	114	253	93
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	227	453	201	281	560	247	5	440	341	146	793	283
Arrive On Green	0.13	0.13	0.13	0.16	0.16	0.16	0.00	0.23	0.23	0.08	0.31	0.31
Sat Flow, veh/h	1781	3554	1578	1781	3554	1564	1781	1906	1476	1781	2555	913
Grp Volume(v), veh/h	129	152	4	184	100	107	2	267	249	114	174	172
Grp Sat Flow(s),veh/h/ln	1781	1777	1578	1781	1777	1564	1781	1777	1605	1781	1777	1691
Q Serve(g_s), s	3.6	2.1	0.1	5.1	1.3	3.3	0.1	7.2	7.5	3.3	4.0	4.1
Cycle Q Clear(g_c), s	3.6	2.1	0.1	5.1	1.3	3.3	0.1	7.2	7.5	3.3	4.0	4.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.92	1.00		0.54
Lane Grp Cap(c), veh/h	227	453	201	281	560	247	5	410	370	146	551	525
V/C Ratio(X)	0.57	0.34	0.02	0.65	0.18	0.43	0.41	0.65	0.67	0.78	0.32	0.33
Avail Cap(c_a), veh/h	676	1348	598	706	1408	620	168	838	757	255	925	881
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	21.8	21.1	20.2	21.0	19.3	20.2	26.4	18.5	18.6	23.9	14.0	14.0
Incr Delay (d2), s/veh	2.2	0.4	0.0	2.6	0.2	1.2	19.2	1.8	2.1	3.4	0.3	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	1.5	0.8	0.0	2.1	0.5	1.1	0.0	2.7	2.6	1.4	1.4	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.0	21.5	20.3	23.6	19.5	21.4	45.6	20.2	20.7	27.2	14.3	14.4
LnGrp LOS	C	C	C	C	B	C	D	C	C	C	B	B
Approach Vol, veh/h		285			391			518			460	
Approach Delay, s/veh		22.6			21.9			20.5			17.5	
Approach LOS		C			C			C			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		12.2	5.5	21.8		13.5	9.8	17.6				
Change Period (Y+Rc), s		5.4	5.4	5.4		5.1	5.4	5.4				
Max Green Setting (Gmax), s		20.1	5.0	27.6		21.0	7.6	25.0				
Max Q Clear Time (g_c+I1), s		5.6	2.1	6.1		7.1	5.3	9.5				
Green Ext Time (p_c), s		1.0	0.0	1.8		1.2	0.0	2.7				
Intersection Summary												
HCM 6th Ctrl Delay			20.4									
HCM 6th LOS			C									

Intersection

Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔		↔	↔		↔	
Traffic Vol, veh/h	0	14	0	35	24	4	0	5	17	1	3	0
Future Vol, veh/h	0	14	0	35	24	4	0	5	17	1	3	0
Peak Hour Factor	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	27	0	67	46	8	0	10	33	2	6	0
Number of Lanes	0	1	0	0	1	1	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	1
HCM Control Delay	8	8.5	7.2	8.1
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	0%	59%	0%	25%
Vol Thru, %	100%	0%	100%	41%	0%	75%
Vol Right, %	0%	100%	0%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	5	17	14	59	4	4
LT Vol	0	0	0	35	0	1
Through Vol	5	0	14	24	0	3
RT Vol	0	17	0	0	4	0
Lane Flow Rate	10	33	27	113	8	8
Geometry Grp	7	7	6	7	7	6
Degree of Util (X)	0.013	0.038	0.035	0.155	0.008	0.011
Departure Headway (Hd)	4.92	4.218	4.712	4.931	3.934	5.011
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	732	854	752	726	906	718
Service Time	2.621	1.919	2.792	2.671	1.673	3.012
HCM Lane V/C Ratio	0.014	0.039	0.036	0.156	0.009	0.011
HCM Control Delay	7.7	7.1	8	8.6	6.7	8.1
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0	0.1	0.1	0.5	0	0

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	13	0	0	0	0	9	0	0	0	15	0	23
Future Vol, veh/h	13	0	0	0	0	9	0	0	0	15	0	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	69	69	69	69	69	69	69	69	69	69	69	69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	0	0	0	0	13	0	0	0	22	0	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	13	0	0	0	0	0	61	51	0	45	45	7
Stage 1	-	-	-	-	-	-	38	38	-	7	7	-
Stage 2	-	-	-	-	-	-	23	13	-	38	38	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1606	-	-	-	-	-	934	840	-	957	847	1075
Stage 1	-	-	-	-	-	-	977	863	-	1015	890	-
Stage 2	-	-	-	-	-	-	995	885	-	977	863	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1606	-	-	-	-	-	897	830	-	-	837	1075
Mov Cap-2 Maneuver	-	-	-	-	-	-	897	830	-	-	837	-
Stage 1	-	-	-	-	-	-	965	853	-	1003	890	-
Stage 2	-	-	-	-	-	-	964	885	-	965	853	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	7.3	0	0	
HCM LOS			A	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1606	-	-	-	-	-	-
HCM Lane V/C Ratio	-	0.012	-	-	-	-	-	-
HCM Control Delay (s)	0	7.3	0	-	0	-	-	-
HCM Lane LOS	A	A	A	-	A	-	-	-
HCM 95th %tile Q(veh)	-	0	-	-	-	-	-	-

Intersection

Intersection Delay, s/veh	16.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	31	18	72	14	20	62	95	294	12	47	325	44
Future Vol, veh/h	31	18	72	14	20	62	95	294	12	47	325	44
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	34	20	78	15	22	67	103	320	13	51	353	48
Number of Lanes	0	1	0	1	1	1	1	2	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	3	1
HCM Control Delay	12.7	10.4	12.6	22.3
HCM LOS	B	B	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	26%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	89%	15%	0%	100%	0%	0%	88%
Vol Right, %	0%	0%	11%	60%	0%	0%	100%	0%	12%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	95	196	110	121	14	20	62	47	369
LT Vol	95	0	0	31	14	0	0	47	0
Through Vol	0	196	98	18	0	20	0	0	325
RT Vol	0	0	12	72	0	0	62	0	44
Lane Flow Rate	103	213	120	132	15	22	67	51	401
Geometry Grp	8	8	8	8	7	7	7	8	8
Degree of Util (X)	0.207	0.397	0.22	0.268	0.033	0.044	0.125	0.099	0.714
Departure Headway (Hd)	7.216	6.708	6.631	7.333	7.874	7.365	6.651	7.105	6.515
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	501	539	545	492	456	488	540	507	558
Service Time	4.916	4.408	4.331	5.051	5.594	5.084	4.37	4.805	4.215
HCM Lane V/C Ratio	0.206	0.395	0.22	0.268	0.033	0.045	0.124	0.101	0.719
HCM Control Delay	11.8	13.8	11.2	12.7	10.9	10.4	10.3	10.6	23.8
HCM Lane LOS	B	B	B	B	B	B	B	B	C
HCM 95th-tile Q	0.8	1.9	0.8	1.1	0.1	0.1	0.4	0.3	5.8

Timings

4: Murrieta Rd. & McCall Bl.

TTM No. 36911 (JN 11338)

03/19/2019

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	
Lane Configurations											
Traffic Volume (vph)	30	66	3	268	112	142	1	269	153	264	
Future Volume (vph)	30	66	3	268	112	142	1	269	153	264	
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Prot	NA	
Protected Phases	2	2		6	6		3	8	7	4	
Permitted Phases			2			6					
Detector Phase	2	2	2	6	6	6	3	8	7	4	
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	8.0	5.0	8.0	
Minimum Split (s)	25.4	25.4	25.4	26.1	26.1	26.1	10.4	30.4	10.4	28.4	
Total Split (s)	25.5	25.5	25.5	26.1	26.1	26.1	10.4	30.4	13.0	33.0	
Total Split (%)	26.8%	26.8%	26.8%	27.5%	27.5%	27.5%	10.9%	32.0%	13.7%	34.7%	
Yellow Time (s)	4.4	4.4	4.4	4.1	4.1	4.1	4.4	4.4	4.4	4.4	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.4	5.4	5.4	5.1	5.1	5.1	5.4	5.4	5.4	5.4	
Lead/Lag							Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	Min	None	Min	
Act Effect Green (s)	8.9	8.9	8.9	16.7	16.7	16.7	5.4	13.8	8.2	26.3	
Actuated g/C Ratio	0.13	0.13	0.13	0.25	0.25	0.25	0.08	0.21	0.12	0.39	
v/c Ratio	0.14	0.15	0.01	0.67	0.14	0.29	0.01	0.62	0.78	0.24	
Control Delay	30.7	29.8	0.0	34.4	23.3	3.1	38.0	19.7	62.0	17.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	30.7	29.8	0.0	34.4	23.3	3.1	38.0	19.7	62.0	17.0	
LOS	C	C	A	C	C	A	D	B	E	B	
Approach Delay		29.2			23.5			19.7		32.1	
Approach LOS		C			C			B		C	

Intersection Summary

Cycle Length: 95

Actuated Cycle Length: 66.8

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 25.3

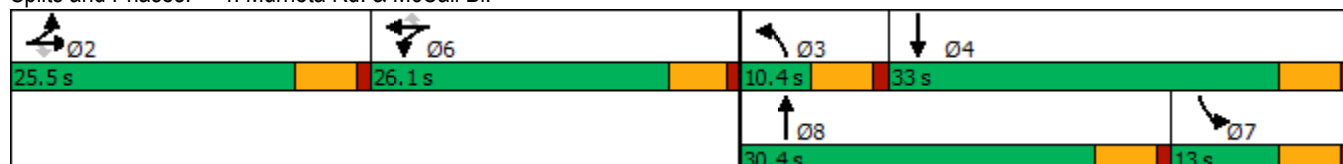
Intersection LOS: C

Intersection Capacity Utilization 56.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 4: Murrieta Rd. & McCall Bl.



HCM 6th Signalized Intersection Summary
4: Murrieta Rd. & McCall Bl.

TTM No. 36911 (JN 11338)

03/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	66	3	268	112	142	1	269	191	153	264	39
Future Volume (veh/h)	30	66	3	268	112	142	1	269	191	153	264	39
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	73	3	298	124	158	1	299	212	170	293	43
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	150	298	133	393	784	348	3	442	305	212	1051	153
Arrive On Green	0.08	0.08	0.08	0.22	0.22	0.22	0.00	0.22	0.22	0.12	0.34	0.34
Sat Flow, veh/h	1781	3554	1585	1781	3554	1579	1781	2010	1387	1781	3113	452
Grp Volume(v), veh/h	33	73	3	298	124	158	1	263	248	170	166	170
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1579	1781	1777	1621	1781	1777	1788
Q Serve(g_s), s	1.0	1.1	0.1	9.4	1.7	5.2	0.0	8.1	8.4	5.6	4.1	4.2
Cycle Q Clear(g_c), s	1.0	1.1	0.1	9.4	1.7	5.2	0.0	8.1	8.4	5.6	4.1	4.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.86	1.00		0.25
Lane Grp Cap(c), veh/h	150	298	133	393	784	348	3	391	357	212	600	604
V/C Ratio(X)	0.22	0.24	0.02	0.76	0.16	0.45	0.34	0.67	0.69	0.80	0.28	0.28
Avail Cap(c_a), veh/h	599	1196	533	626	1249	555	149	743	678	227	821	826
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	25.5	25.6	25.1	21.8	18.8	20.2	29.8	21.3	21.4	25.6	14.5	14.5
Incr Delay (d2), s/veh	0.7	0.4	0.1	3.0	0.1	0.9	22.7	2.0	2.4	15.8	0.2	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	0.4	0.5	0.0	3.8	0.6	1.8	0.0	3.2	3.0	3.0	1.4	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.3	26.0	25.2	24.8	18.9	21.1	52.5	23.4	23.9	41.5	14.7	14.7
LnGrp LOS	C	C	C	C	B	C	D	C	C	D	B	B
Approach Vol, veh/h		109			580			512			506	
Approach Delay, s/veh		26.1			22.5			23.7			23.7	
Approach LOS		C			C			C			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		10.4	5.5	25.6		18.3	12.5	18.6				
Change Period (Y+Rc), s		5.4	5.4	5.4		5.1	5.4	5.4				
Max Green Setting (Gmax), s		20.1	5.0	27.6		21.0	7.6	25.0				
Max Q Clear Time (g_c+l1), s		3.1	2.0	6.2		11.4	7.6	10.4				
Green Ext Time (p_c), s		0.4	0.0	1.7		1.6	0.0	2.5				
Intersection Summary												
HCM 6th Ctrl Delay			23.5									
HCM 6th LOS			C									

APPENDIX 5.2:

E+P CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **E+P Conditions - Weekday PM Peak Hour**

Major Street Name = **Chambers Av.**

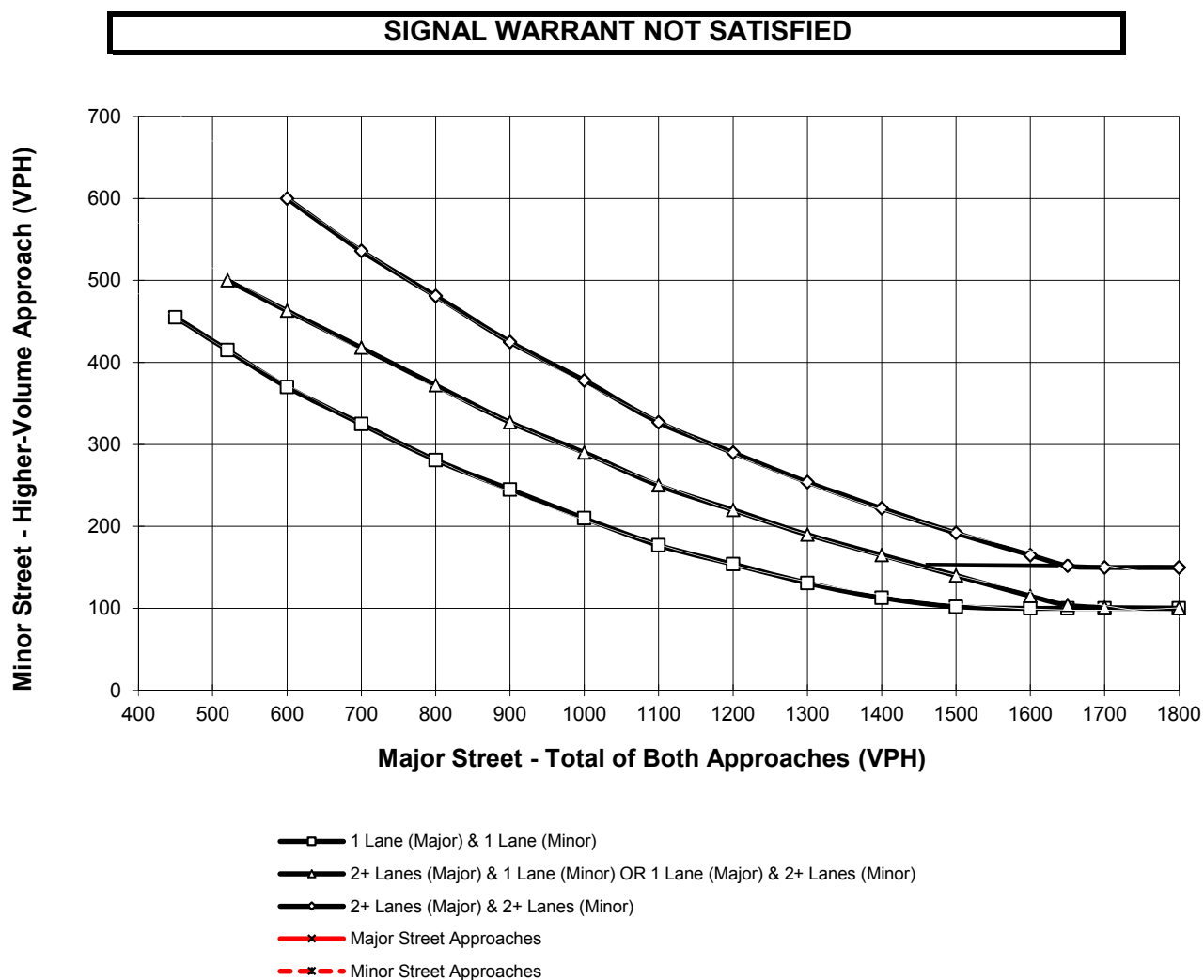
Total of Both Approaches (VPH) = **77**

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

Minor Street Name = **Valley Bl.**

High Volume Approach (VPH) = **22**

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



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **E+P Conditions - Weekday PM Peak Hour**

Major Street Name = **Valley Bl.**

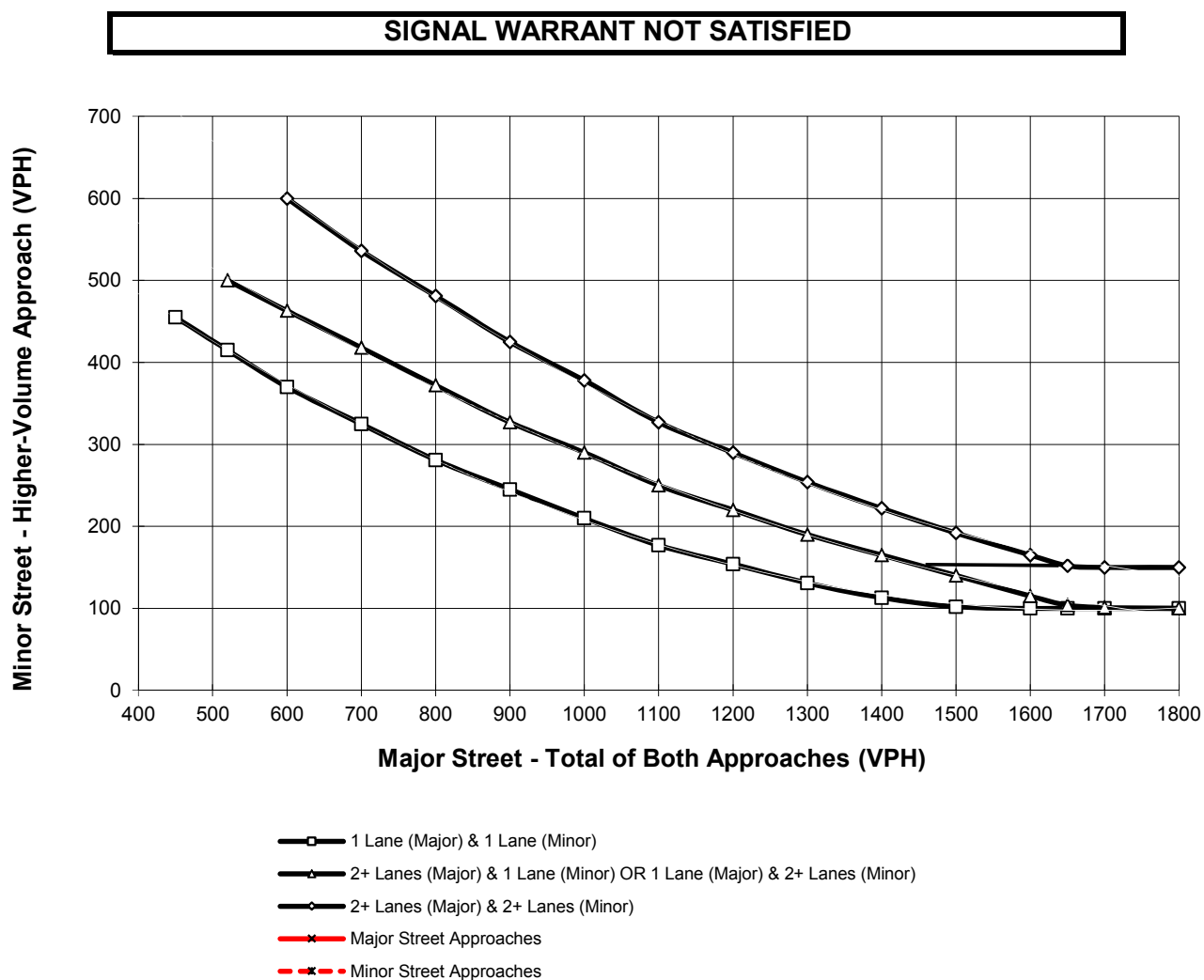
Total of Both Approaches (VPH) = **38**

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

Minor Street Name = **Connie Wy.**

High Volume Approach (VPH) = **13**

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



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **E+P Conditions - Weekday AM Peak Hour**

Major Street Name = **Murrieta Rd.**

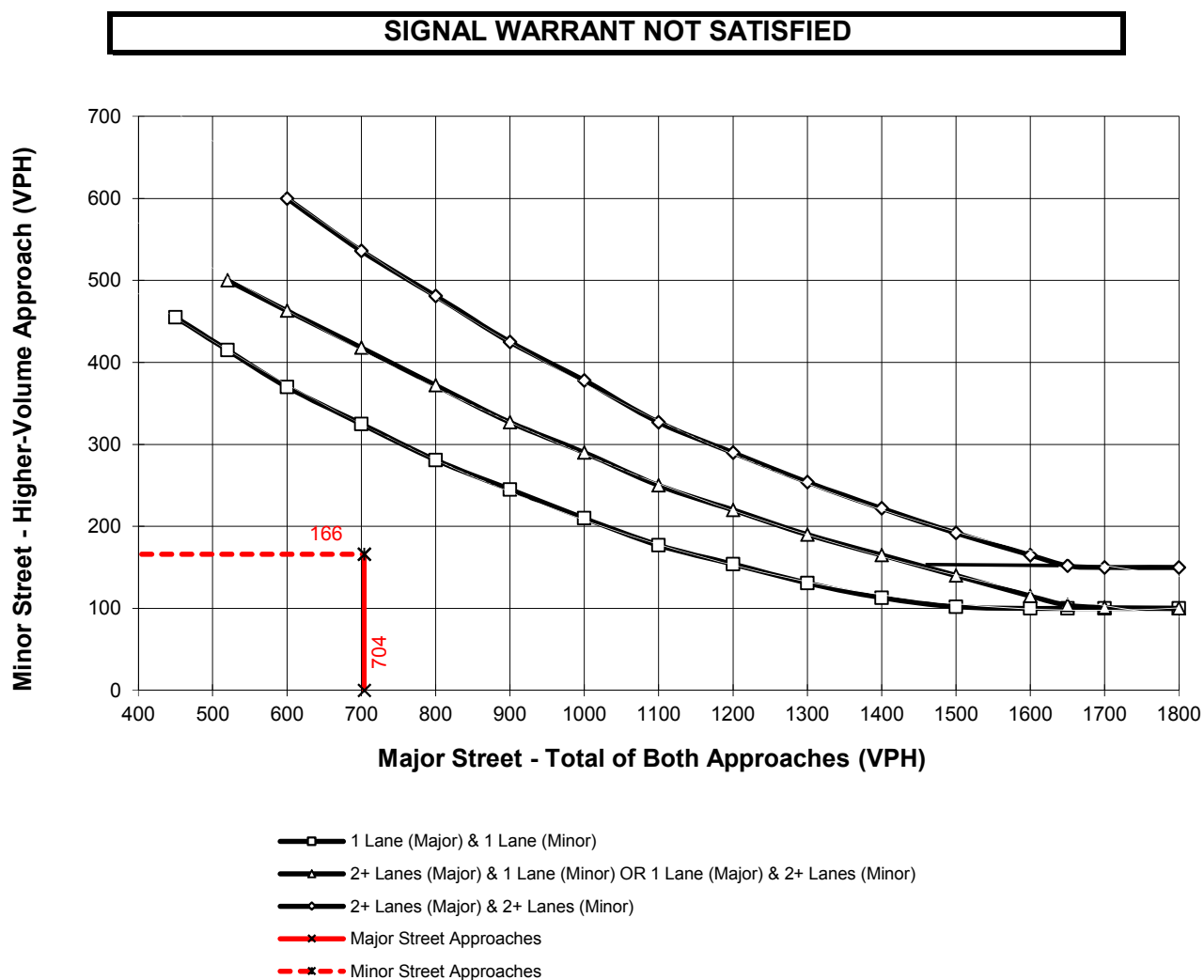
Total of Both Approaches (VPH) = **704**

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

Minor Street Name = **Chambers Av.**

High Volume Approach (VPH) = **166**

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



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 6.1:

EAP (2020) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection

Intersection Delay, s/veh	7.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕	↕		↕	
Traffic Vol, veh/h	0	21	0	13	7	1	0	0	28	0	0	0
Future Vol, veh/h	0	21	0	13	7	1	0	0	28	0	0	0
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	30	0	19	10	1	0	0	40	0	0	0
Number of Lanes	0	1	0	0	1	1	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	1
HCM Control Delay	7.8	7.8	6.9	0
HCM LOS	A	A	A	-

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	0%	65%	0%	0%
Vol Thru, %	100%	0%	100%	35%	0%	100%
Vol Right, %	0%	100%	0%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	0	28	21	20	1	0
LT Vol	0	0	0	13	0	0
Through Vol	0	0	21	7	0	0
RT Vol	0	28	0	0	1	0
Lane Flow Rate	0	40	30	29	1	0
Geometry Grp	7	7	6	7	7	6
Degree of Util (X)	0	0.044	0.039	0.039	0.002	0
Departure Headway (Hd)	4.636	3.936	4.628	4.946	3.92	4.668
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	0	904	774	725	913	0
Service Time	2.388	1.687	2.656	2.669	1.643	2.727
HCM Lane V/C Ratio	0	0.044	0.039	0.04	0.001	0
HCM Control Delay	7.4	6.9	7.8	7.9	6.7	7.7
HCM Lane LOS	N	A	A	A	A	N
HCM 95th-tile Q	0	0.1	0.1	0.1	0	0

Intersection												
Int Delay, s/veh	3.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	21	0	0	0	0	7	0	0	0	6	0	7
Future Vol, veh/h	21	0	0	0	0	7	0	0	0	6	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	50	50	50	50	50	50	50	50	50	50	50
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	42	0	0	0	0	14	0	0	0	12	0	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	14	0	0	0	0	0	98	98	0	91	91	7
Stage 1	-	-	-	-	-	-	84	84	-	7	7	-
Stage 2	-	-	-	-	-	-	14	14	-	84	84	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1604	-	-	-	-	-	884	792	-	893	799	1075
Stage 1	-	-	-	-	-	-	924	825	-	1015	890	-
Stage 2	-	-	-	-	-	-	1006	884	-	924	825	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1604	-	-	-	-	-	855	771	-	-	778	1075
Mov Cap-2 Maneuver	-	-	-	-	-	-	855	771	-	-	778	-
Stage 1	-	-	-	-	-	-	900	804	-	989	890	-
Stage 2	-	-	-	-	-	-	993	884	-	900	804	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	7.3	0	0	
HCM LOS			A	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1604	-	-	-	-	-	-
HCM Lane V/C Ratio	-	0.026	-	-	-	-	-	-
HCM Control Delay (s)	0	7.3	0	-	0	-	-	-
HCM Lane LOS	A	A	A	-	A	-	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-	-	-	-	-

Intersection												
Intersection Delay, s/veh	15.3											
Intersection LOS	C											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↑	↔	↔	↑		↔	↔	
Traffic Vol, veh/h	33	38	100	13	11	19	51	328	15	46	278	14
Future Vol, veh/h	33	38	100	13	11	19	51	328	15	46	278	14
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	39	45	118	15	13	22	60	386	18	54	327	16
Number of Lanes	0	1	0	1	1	1	1	2	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	3	1
HCM Control Delay	14.3	10.3	13.4	18.7
HCM LOS	B	B	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	19%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	88%	22%	0%	100%	0%	0%	95%
Vol Right, %	0%	0%	12%	58%	0%	0%	100%	0%	5%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	51	219	124	171	13	11	19	46	292
LT Vol	51	0	0	33	13	0	0	46	0
Through Vol	0	219	109	38	0	11	0	0	278
RT Vol	0	0	15	100	0	0	19	0	14
Lane Flow Rate	60	257	146	201	15	13	22	54	344
Geometry Grp	8	8	8	8	7	7	7	8	8
Degree of Util (X)	0.118	0.469	0.263	0.395	0.034	0.027	0.042	0.107	0.628
Departure Headway (Hd)	7.168	6.561	6.576	7.074	8.004	7.493	6.777	7.219	6.679
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	503	545	550	511	450	480	531	500	543
Service Time	4.868	4.361	4.276	4.774	5.711	5.2	4.485	4.919	4.379
HCM Lane V/C Ratio	0.119	0.472	0.265	0.393	0.033	0.027	0.041	0.108	0.634
HCM Control Delay	10.8	15.1	11.6	14.3	11	10.4	9.8	10.8	20
HCM Lane LOS	B	C	B	B	B	B	A	B	C
HCM 95th-tile Q	0.4	2.5	1	1.9	0.1	0.1	0.1	0.4	4.3

Timings
4: Murrieta Rd. & McCall Bl.

TTM No. 36911 (JN 11338)

03/19/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	111	132	3	159	86	92	2	247	98	218
Future Volume (vph)	111	132	3	159	86	92	2	247	98	218
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Prot	NA
Protected Phases	2	2		6	6		3	8	7	4
Permitted Phases			2			6				
Detector Phase	2	2	2	6	6	6	3	8	7	4
Switch Phase										
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	8.0	5.0	8.0
Minimum Split (s)	25.4	25.4	25.4	26.1	26.1	26.1	10.4	30.4	10.4	28.4
Total Split (s)	25.5	25.5	25.5	26.1	26.1	26.1	10.4	30.4	13.0	33.0
Total Split (%)	26.8%	26.8%	26.8%	27.5%	27.5%	27.5%	10.9%	32.0%	13.7%	34.7%
Yellow Time (s)	4.4	4.4	4.4	4.1	4.1	4.1	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.1	5.1	5.1	5.4	5.4	5.4	5.4
Lead/Lag							Lead	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	Min
Act Effect Green (s)	11.3	11.3	11.3	13.2	13.2	13.2	5.2	13.9	7.7	25.8
Actuated g/C Ratio	0.16	0.16	0.16	0.19	0.19	0.19	0.08	0.20	0.11	0.38
v/c Ratio	0.46	0.27	0.01	0.56	0.15	0.23	0.01	0.64	0.59	0.27
Control Delay	33.6	28.1	0.0	34.0	25.7	1.2	38.0	19.3	48.2	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.6	28.1	0.0	34.0	25.7	1.2	38.0	19.3	48.2	15.3
LOS	C	C	A	C	C	A	D	B	D	B
Approach Delay		30.2			22.9			19.4		23.4
Approach LOS		C			C			B		C

Intersection Summary

Cycle Length: 95

Actuated Cycle Length: 68.5

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 23.2

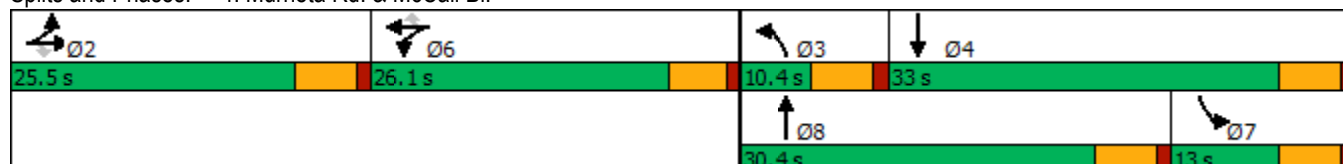
Intersection LOS: C

Intersection Capacity Utilization 50.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 4: Murrieta Rd. & McCall Bl.



HCM 6th Signalized Intersection Summary
4: Murrieta Rd. & McCall Bl.

TTM No. 36911 (JN 11338)

03/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	132	3	159	86	92	2	247	197	98	218	80
Future Volume (veh/h)	111	132	3	159	86	92	2	247	197	98	218	80
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		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	134	159	4	192	104	111	2	298	237	118	263	96
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	231	461	205	287	573	252	5	447	346	151	811	288
Arrive On Green	0.13	0.13	0.13	0.16	0.16	0.16	0.00	0.23	0.23	0.08	0.32	0.32
Sat Flow, veh/h	1781	3554	1578	1781	3554	1564	1781	1906	1475	1781	2559	909
Grp Volume(v), veh/h	134	159	4	192	104	111	2	277	258	118	180	179
Grp Sat Flow(s),veh/h/ln	1781	1777	1578	1781	1777	1564	1781	1777	1605	1781	1777	1692
Q Serve(g_s), s	3.9	2.2	0.1	5.5	1.4	3.5	0.1	7.7	8.0	3.5	4.2	4.4
Cycle Q Clear(g_c), s	3.9	2.2	0.1	5.5	1.4	3.5	0.1	7.7	8.0	3.5	4.2	4.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.92	1.00		0.54
Lane Grp Cap(c), veh/h	231	461	205	287	573	252	5	417	377	151	563	536
V/C Ratio(X)	0.58	0.35	0.02	0.67	0.18	0.44	0.41	0.66	0.68	0.78	0.32	0.33
Avail Cap(c_a), veh/h	655	1307	580	684	1365	601	163	813	734	248	897	854
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	22.4	21.7	20.8	21.6	19.8	20.7	27.2	19.0	19.1	24.5	14.2	14.3
Incr Delay (d2), s/veh	2.3	0.4	0.0	2.7	0.2	1.2	19.2	1.8	2.2	3.3	0.3	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	1.6	0.9	0.0	2.3	0.5	1.2	0.0	2.9	2.8	1.5	1.5	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.7	22.1	20.8	24.2	20.0	21.9	46.4	20.8	21.3	27.8	14.5	14.6
LnGrp LOS	C	C	C	C	B	C	D	C	C	C	B	B
Approach Vol, veh/h		297			407			537			477	
Approach Delay, s/veh		23.3			22.5			21.1			17.8	
Approach LOS		C			C			C			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		12.5	5.5	22.7		13.9	10.0	18.2				
Change Period (Y+Rc), s		5.4	5.4	5.4		5.1	5.4	5.4				
Max Green Setting (Gmax), s		20.1	5.0	27.6		21.0	7.6	25.0				
Max Q Clear Time (g_c+I1), s		5.9	2.1	6.4		7.5	5.5	10.0				
Green Ext Time (p_c), s		1.1	0.0	1.9		1.3	0.0	2.7				
Intersection Summary												
HCM 6th Ctrl Delay			20.9									
HCM 6th LOS			C									

Intersection

Intersection Delay, s/veh 8.1

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	14	0	36	24	4	0	5	17	1	3	0
Future Vol, veh/h	0	14	0	36	24	4	0	5	17	1	3	0
Peak Hour Factor	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	27	0	69	46	8	0	10	33	2	6	0
Number of Lanes	0	1	0	0	1	1	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	1
HCM Control Delay	8	8.5	7.2	8.1
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	0%	60%	0%	25%
Vol Thru, %	100%	0%	100%	40%	0%	75%
Vol Right, %	0%	100%	0%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	5	17	14	60	4	4
LT Vol	0	0	0	36	0	1
Through Vol	5	0	14	24	0	3
RT Vol	0	17	0	0	4	0
Lane Flow Rate	10	33	27	115	8	8
Geometry Grp	7	7	6	7	7	6
Degree of Util (X)	0.013	0.038	0.035	0.158	0.008	0.011
Departure Headway (Hd)	4.926	4.224	4.714	4.935	3.934	5.017
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	731	853	751	726	906	718
Service Time	2.627	1.925	2.794	2.674	1.673	3.018
HCM Lane V/C Ratio	0.014	0.039	0.036	0.158	0.009	0.011
HCM Control Delay	7.7	7.1	8	8.6	6.7	8.1
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0	0.1	0.1	0.6	0	0

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	13	0	0	0	0	10	0	0	0	16	0	23
Future Vol, veh/h	13	0	0	0	0	10	0	0	0	16	0	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	69	69	69	69	69	69	69	69	69	69	69	69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	0	0	0	0	14	0	0	0	23	0	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	14	0	0	0	0	0	62	52	0	45	45	7
Stage 1	-	-	-	-	-	-	38	38	-	7	7	-
Stage 2	-	-	-	-	-	-	24	14	-	38	38	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1604	-	-	-	-	-	933	839	-	957	847	1075
Stage 1	-	-	-	-	-	-	977	863	-	1015	890	-
Stage 2	-	-	-	-	-	-	994	884	-	977	863	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1604	-	-	-	-	-	896	829	-	-	837	1075
Mov Cap-2 Maneuver	-	-	-	-	-	-	896	829	-	-	837	-
Stage 1	-	-	-	-	-	-	965	853	-	1003	890	-
Stage 2	-	-	-	-	-	-	963	884	-	965	853	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	7.3	0	0	
HCM LOS			A	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1604	-	-	-	-	-	-
HCM Lane V/C Ratio	-	0.012	-	-	-	-	-	-
HCM Control Delay (s)	0	7.3	0	-	0	-	-	-
HCM Lane LOS	A	A	A	-	A	-	-	-
HCM 95th %tile Q(veh)	-	0	-	-	-	-	-	-

Intersection												
Intersection Delay, s/veh	18.1											
Intersection LOS	C											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↑	↔	↔	↑		↔	↔	
Traffic Vol, veh/h	32	19	74	15	21	65	98	306	13	49	339	45
Future Vol, veh/h	32	19	74	15	21	65	98	306	13	49	339	45
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	35	21	80	16	23	71	107	333	14	53	368	49
Number of Lanes	0	1	0	1	1	1	1	2	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	3	1
HCM Control Delay	13.2	10.7	13.1	26
HCM LOS	B	B	B	D

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	26%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	89%	15%	0%	100%	0%	0%	88%
Vol Right, %	0%	0%	11%	59%	0%	0%	100%	0%	12%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	98	204	115	125	15	21	65	49	384
LT Vol	98	0	0	32	15	0	0	49	0
Through Vol	0	204	102	19	0	21	0	0	339
RT Vol	0	0	13	74	0	0	65	0	45
Lane Flow Rate	107	222	125	136	16	23	71	53	417
Geometry Grp	8	8	8	8	7	7	7	8	8
Degree of Util (X)	0.217	0.421	0.235	0.283	0.036	0.048	0.133	0.107	0.767
Departure Headway (Hd)	7.345	6.837	6.757	7.491	8.017	7.507	6.792	7.207	6.618
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	490	528	533	480	447	477	528	499	547
Service Time	5.065	4.557	4.477	5.235	5.761	5.25	4.535	4.924	4.335
HCM Lane V/C Ratio	0.218	0.42	0.235	0.283	0.036	0.048	0.134	0.106	0.762
HCM Control Delay	12.1	14.5	11.5	13.2	11.1	10.6	10.6	10.8	27.9
HCM Lane LOS	B	B	B	B	B	B	B	B	D
HCM 95th-tile Q	0.8	2.1	0.9	1.2	0.1	0.2	0.5	0.4	6.9

Timings
4: Murrieta Rd. & McCall Bl.

TTM No. 36911 (JN 11338)

03/19/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	31	69	3	279	117	147	1	280	158	275
Future Volume (vph)	31	69	3	279	117	147	1	280	158	275
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Prot	NA
Protected Phases	2	2		6	6		3	8	7	4
Permitted Phases			2			6				
Detector Phase	2	2	2	6	6	6	3	8	7	4
Switch Phase										
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	8.0	5.0	8.0
Minimum Split (s)	25.4	25.4	25.4	26.1	26.1	26.1	10.4	30.4	10.4	28.4
Total Split (s)	25.5	25.5	25.5	26.1	26.1	26.1	10.4	30.4	13.0	33.0
Total Split (%)	26.8%	26.8%	26.8%	27.5%	27.5%	27.5%	10.9%	32.0%	13.7%	34.7%
Yellow Time (s)	4.4	4.4	4.4	4.1	4.1	4.1	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.1	5.1	5.1	5.4	5.4	5.4	5.4
Lead/Lag							Lead	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	Min
Act Effect Green (s)	9.0	9.0	9.0	17.2	17.2	17.2	5.4	14.3	8.2	26.8
Actuated g/C Ratio	0.13	0.13	0.13	0.25	0.25	0.25	0.08	0.21	0.12	0.39
v/c Ratio	0.14	0.16	0.01	0.69	0.14	0.29	0.01	0.63	0.83	0.25
Control Delay	31.2	30.2	0.0	35.4	23.5	3.3	38.0	20.4	68.0	17.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.2	30.2	0.0	35.4	23.5	3.3	38.0	20.4	68.0	17.1
LOS	C	C	A	D	C	A	D	C	E	B
Approach Delay		29.7			24.2			20.5		34.2
Approach LOS		C			C			C		C

Intersection Summary

Cycle Length: 95

Actuated Cycle Length: 67.9

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 26.4

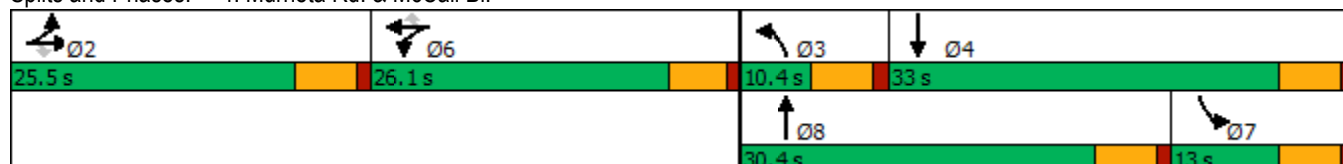
Intersection LOS: C

Intersection Capacity Utilization 58.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 4: Murrieta Rd. & McCall Bl.



HCM 6th Signalized Intersection Summary
4: Murrieta Rd. & McCall Bl.

TTM No. 36911 (JN 11338)

03/19/2019

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	31	69	3	279	117	147	1	280	198	158	275	40	
Future Volume (veh/h)	31	69	3	279	117	147	1	280	198	158	275	40	
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	
Work Zone On Approach	No			No			No			No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	34	77	3	310	130	163	1	311	220	176	306	44	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	
Cap, veh/h	149	297	132	401	800	355	3	450	311	218	1077	153	
Arrive On Green	0.08	0.08	0.08	0.23	0.23	0.23	0.00	0.22	0.22	0.12	0.35	0.35	
Sat Flow, veh/h	1781	3554	1585	1781	3554	1579	1781	2010	1387	1781	3122	444	
Grp Volume(v), veh/h	34	77	3	310	130	163	1	274	257	176	173	177	
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1579	1781	1777	1621	1781	1777	1789	
Q Serve(g_s), s	1.1	1.3	0.1	10.1	1.8	5.5	0.0	8.7	9.0	5.9	4.4	4.4	
Cycle Q Clear(g_c), s	1.1	1.3	0.1	10.1	1.8	5.5	0.0	8.7	9.0	5.9	4.4	4.4	
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.86	1.00		0.25	
Lane Grp Cap(c), veh/h	149	297	132	401	800	355	3	398	363	218	613	617	
V/C Ratio(X)	0.23	0.26	0.02	0.77	0.16	0.46	0.35	0.69	0.71	0.81	0.28	0.29	
Avail Cap(c_a), veh/h	580	1157	516	606	1209	537	144	720	656	219	794	800	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	26.4	26.5	26.0	22.4	19.2	20.7	30.8	22.0	22.1	26.4	14.7	14.7	
Incr Delay (d2), s/veh	0.8	0.5	0.1	3.5	0.1	0.9	24.5	2.1	2.5	18.2	0.2	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	0.5	0.5	0.0	4.2	0.7	1.9	0.0	3.5	3.3	3.4	1.5	1.6	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	27.2	27.0	26.0	25.9	19.3	21.6	55.3	24.1	24.6	44.6	14.9	14.9	
LnGrp LOS	C	C	C	C	B	C	E	C	C	D	B	B	
Approach Vol, veh/h	114			603				532				526	
Approach Delay, s/veh	27.0			23.3				24.4				24.9	
Approach LOS	C			C				C				C	
Timer - Assigned Phs	2		3	4		6		7	8				
Phs Duration (G+Y+Rc), s	10.6		5.5	26.7		19.0		13.0	19.2				
Change Period (Y+Rc), s	5.4		5.4	5.4		5.1		5.4	5.4				
Max Green Setting (Gmax), s	20.1		5.0	27.6		21.0		7.6	25.0				
Max Q Clear Time (g_c+I1), s	3.3		2.0	6.4		12.1		7.9	11.0				
Green Ext Time (p_c), s	0.4		0.0	1.8		1.6		0.0	2.6				
Intersection Summary													
HCM 6th Ctrl Delay	24.3												
HCM 6th LOS	C												

APPENDIX 6.2:

EAP (2020) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **EAP (2020) Conditions - Weekday PM Peak Hour**

Major Street Name = **Chambers Av.**

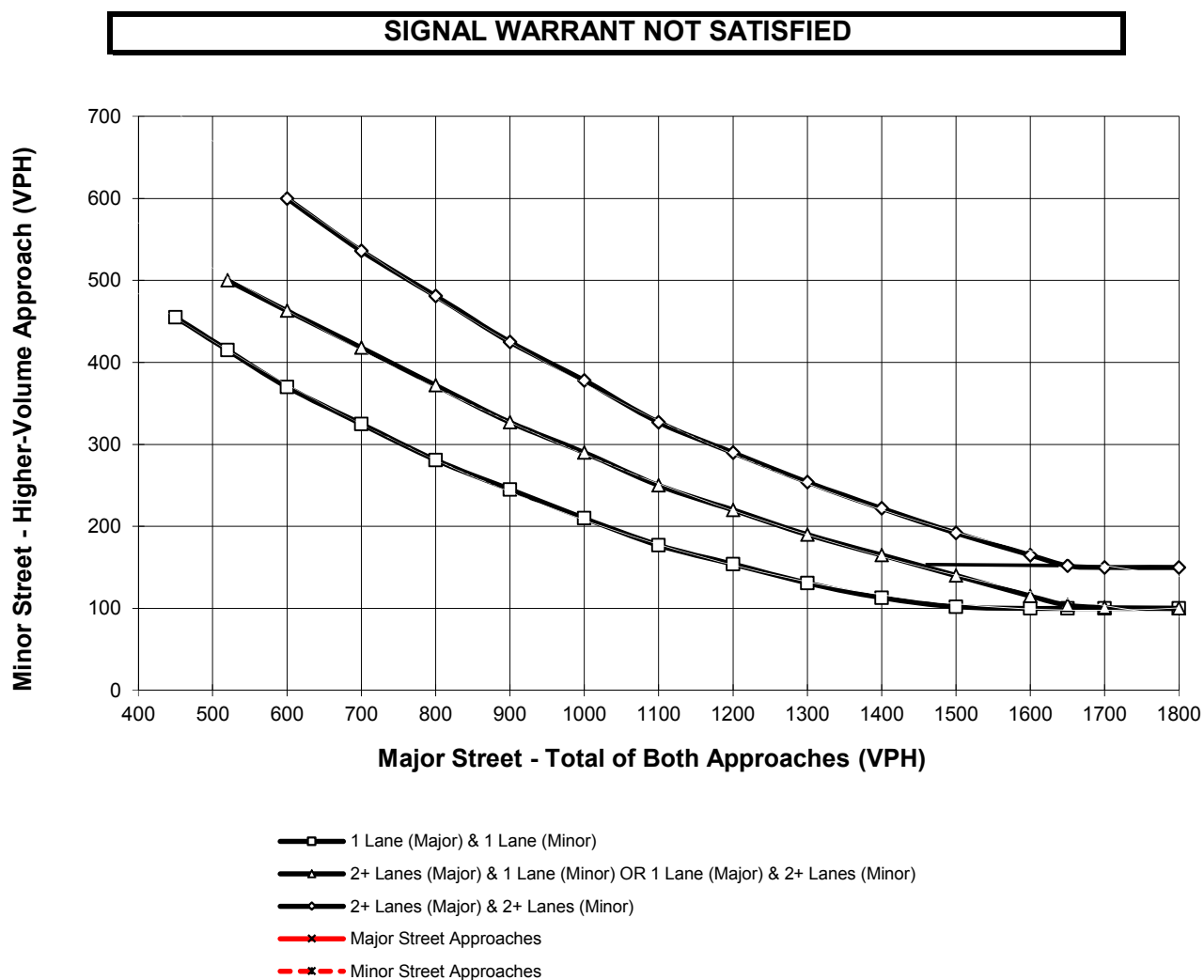
Total of Both Approaches (VPH) = **78**

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

Minor Street Name = **Valley Bl.**

High Volume Approach (VPH) = **22**

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



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **EAP (2020) Conditions - Weekday PM Peak Hour**

Major Street Name = **Valley Bl.**

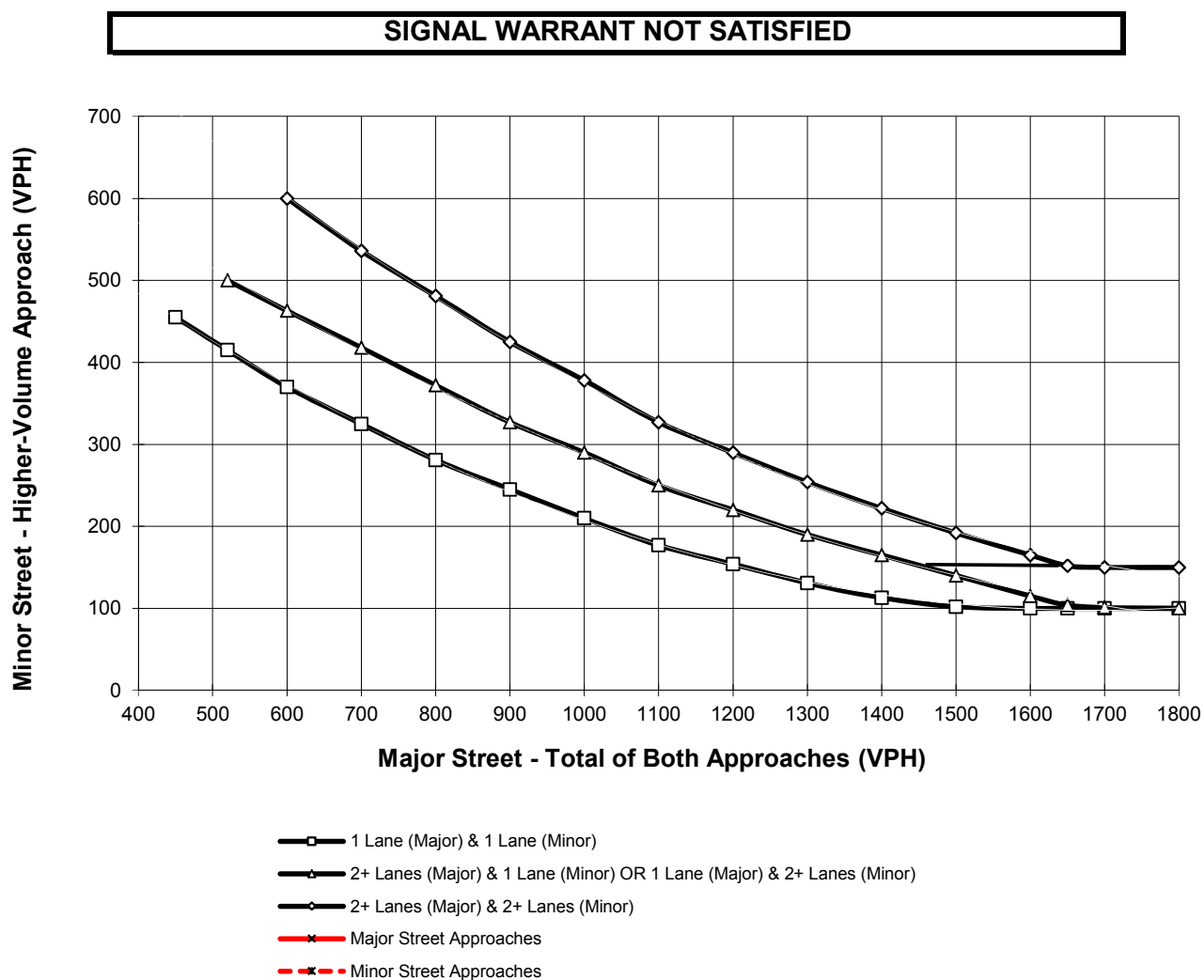
Total of Both Approaches (VPH) = **39**

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

Minor Street Name = **Connie Wy.**

High Volume Approach (VPH) = **13**

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



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-3. Warrant 3, Peak Hour

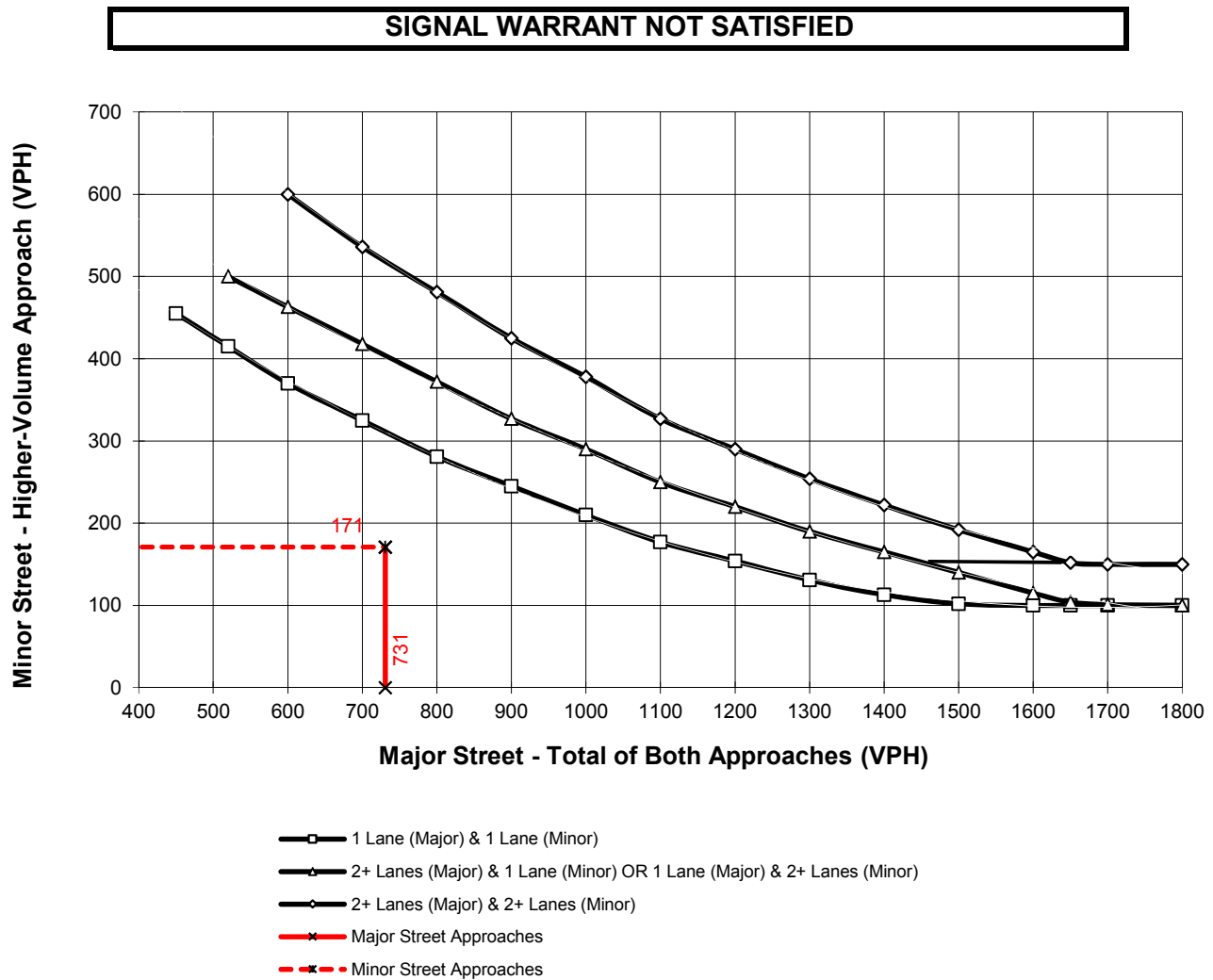
Traffic Conditions = **EAP (2020) Conditions - Weekday AM Peak Hour**

Major Street Name = **Murrieta Rd.**

Total of Both Approaches (VPH) = **731**
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Chambers Av.**

High Volume Approach (VPH) = **171**
Number of Approach Lanes On Minor Street = **1**



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 7.1:

**OPENING YEAR CUMULATIVE (2020) WITHOUT PROJECT CONDITIONS INTERSECTION
OPERATIONS ANALYSIS WORKSHEETS**

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Intersection

Intersection Delay, s/veh	7.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	6	0	14	0	0	7	22	0	0
Future Vol, veh/h	0	0	0	6	0	14	0	0	7	22	0	0
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	9	0	20	0	0	10	31	0	0
Number of Lanes	0	0	0	1	0	1	0	1	1	0	1	0

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	7.1	6.7	8
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	100%
Vol Thru, %	100%	0%	0%	0%	0%
Vol Right, %	0%	100%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	0	7	6	14	22
LT Vol	0	0	6	0	22
Through Vol	0	0	0	0	0
RT Vol	0	7	0	14	0
Lane Flow Rate	0	10	9	20	31
Geometry Grp	7	7	7	7	6
Degree of Util (X)	0	0.011	0.012	0.022	0.042
Departure Headway (Hd)	4.6	3.9	5.107	3.906	4.792
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	0	918	701	915	749
Service Time	2.324	1.623	2.838	1.637	2.81
HCM Lane V/C Ratio	0	0.011	0.013	0.022	0.041
HCM Control Delay	7.3	6.7	7.9	6.7	8
HCM Lane LOS	N	A	A	A	A
HCM 95th-tile Q	0	0	0	0.1	0.1

Intersection

Intersection Delay, s/veh 24.9

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕	↕	↕	↕		↕	↕	
Traffic Vol, veh/h	42	53	86	21	24	33	49	376	19	52	348	21
Future Vol, veh/h	42	53	86	21	24	33	49	376	19	52	348	21
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	49	62	101	25	28	39	58	442	22	61	409	25
Number of Lanes	0	1	0	1	1	1	1	2	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	1	2	3
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	3	1	3
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	3	2	3	1
HCM Control Delay	17.7	11.4	17.5	38.3
HCM LOS	C	B	C	E

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	23%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	87%	29%	0%	100%	0%	0%	94%
Vol Right, %	0%	0%	13%	48%	0%	0%	100%	0%	6%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	49	251	144	181	21	24	33	52	369
LT Vol	49	0	0	42	21	0	0	52	0
Through Vol	0	251	125	53	0	24	0	0	348
RT Vol	0	0	19	86	0	0	33	0	21
Lane Flow Rate	58	295	170	213	25	28	39	61	434
Geometry Grp	8	8	8	8	7	7	7	8	8
Degree of Util (X)	0.126	0.603	0.343	0.471	0.06	0.064	0.081	0.132	0.873
Departure Headway (Hd)	7.867	7.357	7.263	7.965	8.731	8.216	7.494	7.786	7.237
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	455	490	494	451	409	435	476	460	499
Service Time	5.626	5.115	5.021	5.731	6.504	5.989	5.267	5.544	4.994
HCM Lane V/C Ratio	0.127	0.602	0.344	0.472	0.061	0.064	0.082	0.133	0.87
HCM Control Delay	11.8	20.7	13.8	17.7	12.1	11.6	10.9	11.7	42.1
HCM Lane LOS	B	C	B	C	B	B	B	B	E
HCM 95th-tile Q	0.4	3.9	1.5	2.5	0.2	0.2	0.3	0.5	9.4

Timings

4: Murrieta Rd. & McCall Bl.

TTM No. 36911 (JN 11338)

03/19/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	115	190	3	217	117	127	2	270	126	261
Future Volume (vph)	115	190	3	217	117	127	2	270	126	261
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Prot	NA
Protected Phases	2	2		6	6		3	8	7	4
Permitted Phases			2			6				
Detector Phase	2	2	2	6	6	6	3	8	7	4
Switch Phase										
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	8.0	5.0	8.0
Minimum Split (s)	25.4	25.4	25.4	26.1	26.1	26.1	10.4	30.4	10.4	28.4
Total Split (s)	25.5	25.5	25.5	26.1	26.1	26.1	10.4	30.4	13.0	33.0
Total Split (%)	26.8%	26.8%	26.8%	27.5%	27.5%	27.5%	10.9%	32.0%	13.7%	34.7%
Yellow Time (s)	4.4	4.4	4.4	4.1	4.1	4.1	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.1	5.1	5.1	5.4	5.4	5.4	5.4
Lead/Lag							Lead	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	Min
Act Effect Green (s)	11.9	11.9	11.9	15.9	15.9	15.9	5.2	15.8	7.9	27.6
Actuated g/C Ratio	0.16	0.16	0.16	0.22	0.22	0.22	0.07	0.21	0.11	0.38
v/c Ratio	0.49	0.40	0.01	0.68	0.18	0.30	0.02	0.71	0.80	0.32
Control Delay	36.3	31.3	0.0	38.1	26.0	3.0	40.0	21.4	68.7	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.3	31.3	0.0	38.1	26.0	3.0	40.0	21.4	68.7	17.2
LOS	D	C	A	D	C	A	D	C	E	B
Approach Delay		32.8			25.4			21.4		31.0
Approach LOS		C			C			C		C

Intersection Summary

Cycle Length: 95

Actuated Cycle Length: 73.5

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 27.0

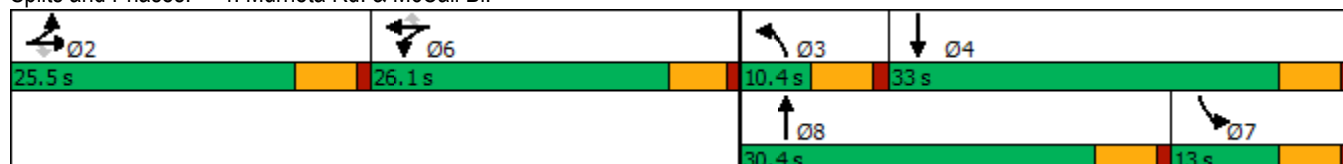
Intersection LOS: C

Intersection Capacity Utilization 58.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 4: Murrieta Rd. & McCall Bl.



HCM 6th Signalized Intersection Summary
4: Murrieta Rd. & McCall Bl.

TTM No. 36911 (JN 11338)

03/19/2019

																	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR					
Lane Configurations																	
Traffic Volume (veh/h)	115	190	3	217	117	127	2	270	256	126	261	85					
Future Volume (veh/h)	115	190	3	217	117	127	2	270	256	126	261	85					
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		0.99	1.00		1.00	1.00		0.99					
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00					
Work Zone On Approach	No			No			No			No							
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870					
Adj Flow Rate, veh/h	139	229	4	261	141	153	2	325	308	152	314	102					
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83					
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2					
Cap, veh/h	229	457	203	343	684	301	5	451	402	190	944	301					
Arrive On Green	0.13	0.13	0.13	0.19	0.19	0.19	0.00	0.25	0.25	0.11	0.36	0.36					
Sat Flow, veh/h	1781	3554	1578	1781	3554	1564	1781	1777	1585	1781	2641	841					
Grp Volume(v), veh/h	139	229	4	261	141	153	2	325	308	152	209	207					
Grp Sat Flow(s),veh/h/ln	1781	1777	1578	1781	1777	1564	1781	1777	1585	1781	1777	1705					
Q Serve(g_s), s	4.9	4.0	0.1	9.3	2.2	5.9	0.1	11.2	12.0	5.6	5.7	5.9					
Cycle Q Clear(g_c), s	4.9	4.0	0.1	9.3	2.2	5.9	0.1	11.2	12.0	5.6	5.7	5.9					
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.49					
Lane Grp Cap(c), veh/h	229	457	203	343	684	301	5	451	402	190	635	610					
V/C Ratio(X)	0.61	0.50	0.02	0.76	0.21	0.51	0.41	0.72	0.77	0.80	0.33	0.34					
Avail Cap(c_a), veh/h	536	1069	475	560	1117	492	133	665	593	203	734	705					
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	27.5	27.1	25.4	25.5	22.7	24.2	33.3	22.8	23.1	29.2	15.6	15.7					
Incr Delay (d2), s/veh	2.6	0.9	0.0	3.5	0.1	1.3	19.4	2.2	3.5	17.3	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	2.1	1.7	0.1	4.0	0.9	2.1	0.1	4.4	4.4	3.1	2.1	2.1					
Unsig. Movement Delay, s/veh																	
LnGrp Delay(d),s/veh	30.1	28.0	25.5	29.0	22.8	25.5	52.7	25.0	26.6	46.4	15.9	16.0					
LnGrp LOS	C	C	C	C	C	C	D	C	C	D	B	B					
Approach Vol, veh/h	372			555			635			568							
Approach Delay, s/veh	28.7			26.5			25.8			24.1							
Approach LOS	C			C			C			C							
Timer - Assigned Phs	2		3	4		6	7	8									
Phs Duration (G+Y+Rc), s	14.0		5.6	29.3		18.0	12.5	22.4									
Change Period (Y+Rc), s	5.4		5.4	5.4		5.1	5.4	5.4									
Max Green Setting (Gmax), s	20.1		5.0	27.6		21.0	7.6	25.0									
Max Q Clear Time (g_c+I1), s	6.9		2.1	7.9		11.3	7.6	14.0									
Green Ext Time (p_c), s	1.5		0.0	2.2		1.6	0.0	2.8									
Intersection Summary																	
HCM 6th Ctrl Delay	26.1																
HCM 6th LOS	C																

Intersection

Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	13	0	35	0	5	4	28	3	0
Future Vol, veh/h	0	0	0	13	0	35	0	5	4	28	3	0
Peak Hour Factor	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	25	0	67	0	10	8	54	6	0
Number of Lanes	0	0	0	1	0	1	0	1	1	0	1	0

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	7.4	7.2	8.4
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	90%
Vol Thru, %	100%	0%	0%	0%	10%
Vol Right, %	0%	100%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	5	4	13	35	31
LT Vol	0	0	13	0	28
Through Vol	5	0	0	0	3
RT Vol	0	4	0	35	0
Lane Flow Rate	10	8	25	67	60
Geometry Grp	7	7	7	7	6
Degree of Util (X)	0.013	0.009	0.036	0.074	0.081
Departure Headway (Hd)	4.725	4.023	5.167	3.966	4.888
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	751	879	688	894	728
Service Time	2.496	1.794	2.933	1.731	2.946
HCM Lane V/C Ratio	0.013	0.009	0.036	0.075	0.082
HCM Control Delay	7.6	6.8	8.1	7.1	8.4
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0	0	0.1	0.2	0.3

Intersection

Intersection Delay, s/veh 42.9

Intersection LOS E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕	↕	↕	↕		↕	↕	
Traffic Vol, veh/h	41	41	75	22	45	82	83	405	21	59	418	58
Future Vol, veh/h	41	41	75	22	45	82	83	405	21	59	418	58
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	45	45	82	24	49	89	90	440	23	64	454	63
Number of Lanes	0	1	0	1	1	1	1	2	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	1	2	3
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	3	1	3
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	3	2	3	1
HCM Control Delay	17.2	12.3	18.6	82
HCM LOS	C	B	C	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	26%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	87%	26%	0%	100%	0%	0%	88%
Vol Right, %	0%	0%	13%	48%	0%	0%	100%	0%	12%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	83	270	156	157	22	45	82	59	476
LT Vol	83	0	0	41	22	0	0	59	0
Through Vol	0	270	135	41	0	45	0	0	418
RT Vol	0	0	21	75	0	0	82	0	58
Lane Flow Rate	90	293	170	171	24	49	89	64	517
Geometry Grp	8	8	8	8	7	7	7	8	8
Degree of Util (X)	0.204	0.621	0.354	0.402	0.058	0.113	0.187	0.144	1.078
Departure Headway (Hd)	8.394	7.881	7.785	8.767	9.079	8.562	7.837	8.101	7.503
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	430	461	465	413	397	421	461	445	486
Service Time	6.094	5.581	5.485	6.467	6.779	6.262	5.537	5.801	5.203
HCM Lane V/C Ratio	0.209	0.636	0.366	0.414	0.06	0.116	0.193	0.144	1.064
HCM Control Delay	13.2	22.6	14.7	17.2	12.3	12.3	12.3	12.2	90.6
HCM Lane LOS	B	C	B	C	B	B	B	B	F
HCM 95th-tile Q	0.8	4.1	1.6	1.9	0.2	0.4	0.7	0.5	16.5

Timings

4: Murrieta Rd. & McCall Bl.

TTM No. 36911 (JN 11338)

03/19/2019

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	
Lane Configurations											
Traffic Volume (vph)	39	127	3	361	192	194	1	338	210	316	
Future Volume (vph)	39	127	3	361	192	194	1	338	210	316	
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Prot	NA	
Protected Phases	2	2		6	6		3	8	7	4	
Permitted Phases			2			6					
Detector Phase	2	2	2	6	6	6	3	8	7	4	
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	8.0	5.0	8.0	
Minimum Split (s)	25.4	25.4	25.4	26.1	26.1	26.1	10.4	30.4	10.4	28.4	
Total Split (s)	25.5	25.5	25.5	26.1	26.1	26.1	10.4	30.4	13.0	33.0	
Total Split (%)	26.8%	26.8%	26.8%	27.5%	27.5%	27.5%	10.9%	32.0%	13.7%	34.7%	
Yellow Time (s)	4.4	4.4	4.4	4.1	4.1	4.1	4.4	4.4	4.4	4.4	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.4	5.4	5.4	5.1	5.1	5.1	5.4	5.4	5.4	5.4	
Lead/Lag							Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	Min	None	Min	
Act Effect Green (s)	10.0	10.0	10.0	21.3	21.3	21.3	5.1	17.7	7.7	29.1	
Actuated g/C Ratio	0.13	0.13	0.13	0.27	0.27	0.27	0.07	0.23	0.10	0.37	
v/c Ratio	0.19	0.31	0.01	0.83	0.22	0.37	0.01	0.76	1.34	0.31	
Control Delay	33.2	33.3	0.0	46.0	25.0	6.4	40.0	25.2	219.3	18.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	33.2	33.3	0.0	46.0	25.0	6.4	40.0	25.2	219.3	18.7	
LOS	C	C	A	D	C	A	D	C	F	B	
Approach Delay		32.8			30.3			25.2		92.3	
Approach LOS		C			C			C		F	

Intersection Summary

Cycle Length: 95

Actuated Cycle Length: 78.2

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.34

Intersection Signal Delay: 45.8

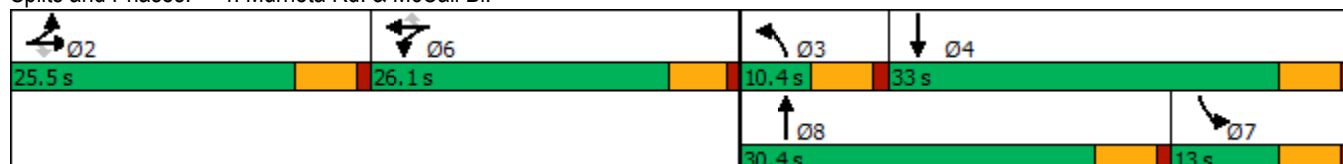
Intersection LOS: D

Intersection Capacity Utilization 72.7%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 4: Murrieta Rd. & McCall Bl.



HCM 6th Signalized Intersection Summary
4: Murrieta Rd. & McCall Bl.

TTM No. 36911 (JN 11338)

03/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	127	3	361	192	194	1	338	281	210	316	46
Future Volume (veh/h)	39	127	3	361	192	194	1	338	281	210	316	46
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	141	3	401	213	216	1	376	312	233	351	51
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	144	288	128	464	926	411	2	481	394	187	1131	163
Arrive On Green	0.08	0.08	0.08	0.26	0.26	0.26	0.00	0.26	0.26	0.10	0.36	0.36
Sat Flow, veh/h	1781	3554	1585	1781	3554	1580	1781	1854	1520	1781	3117	449
Grp Volume(v), veh/h	43	141	3	401	213	216	1	360	328	233	199	203
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1580	1781	1777	1597	1781	1777	1789
Q Serve(g_s), s	1.6	2.7	0.1	15.6	3.4	8.5	0.0	13.6	13.9	7.6	5.8	5.9
Cycle Q Clear(g_c), s	1.6	2.7	0.1	15.6	3.4	8.5	0.0	13.6	13.9	7.6	5.8	5.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.95	1.00		0.25
Lane Grp Cap(c), veh/h	144	288	128	464	926	411	2	461	414	187	645	649
V/C Ratio(X)	0.30	0.49	0.02	0.86	0.23	0.52	0.41	0.78	0.79	1.25	0.31	0.31
Avail Cap(c_a), veh/h	495	987	440	517	1031	458	123	614	551	187	677	682
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	31.3	31.8	30.6	25.5	21.1	22.9	36.1	24.9	25.0	32.4	16.5	16.6
Incr Delay (d2), s/veh	1.1	1.3	0.1	13.2	0.1	1.0	35.5	4.7	5.7	147.4	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	0.7	1.2	0.0	7.8	1.4	3.0	0.0	5.8	5.4	10.7	2.2	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.5	33.1	30.7	38.7	21.2	24.0	71.6	29.6	30.6	179.8	16.8	16.8
LnGrp LOS	C	C	C	D	C	C	E	C	C	F	B	B
Approach Vol, veh/h	187			830			689			635		
Approach Delay, s/veh	32.9			30.4			30.2			76.6		
Approach LOS	C			C			C			E		
Timer - Assigned Phs	2		3	4		6		7	8			
Phs Duration (G+Y+Rc), s	11.3		5.5	31.7		24.0		13.0	24.2			
Change Period (Y+Rc), s	5.4		5.4	5.4		5.1		5.4	5.4			
Max Green Setting (Gmax), s	20.1		5.0	27.6		21.0		7.6	25.0			
Max Q Clear Time (g_c+I1), s	4.7		2.0	7.9		17.6		9.6	15.9			
Green Ext Time (p_c), s	0.8		0.0	2.1		1.2		0.0	2.8			
Intersection Summary												
HCM 6th Ctrl Delay	43.1											
HCM 6th LOS	D											

APPENDIX 7.2:

OPENING YEAR CUMULATIVE (2020) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection

Intersection Delay, s/veh	7.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	21	0	13	7	14	0	0	28	22	0	0
Future Vol, veh/h	0	21	0	13	7	14	0	0	28	22	0	0
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	30	0	19	10	20	0	0	40	31	0	0
Number of Lanes	0	1	0	0	1	1	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	1
HCM Control Delay	8	7.5	6.9	8.2
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	0%	65%	0%	100%
Vol Thru, %	100%	0%	100%	35%	0%	0%
Vol Right, %	0%	100%	0%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	0	28	21	20	14	22
LT Vol	0	0	0	13	0	22
Through Vol	0	0	21	7	0	0
RT Vol	0	28	0	0	14	0
Lane Flow Rate	0	40	30	29	20	31
Geometry Grp	7	7	6	7	7	6
Degree of Util (X)	0	0.044	0.039	0.04	0.022	0.043
Departure Headway (Hd)	4.685	3.984	4.697	5.001	3.974	4.9
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	0	889	757	713	894	725
Service Time	2.454	1.753	2.758	2.753	1.726	2.966
HCM Lane V/C Ratio	0	0.045	0.04	0.041	0.022	0.043
HCM Control Delay	7.5	6.9	8	8	6.8	8.2
HCM Lane LOS	N	A	A	A	A	A
HCM 95th-tile Q	0	0.1	0.1	0.1	0.1	0.1

Intersection												
Int Delay, s/veh	3.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	21	0	0	0	0	7	0	0	0	6	0	7
Future Vol, veh/h	21	0	0	0	0	7	0	0	0	6	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	50	50	50	50	50	50	50	50	50	50	50
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	42	0	0	0	0	14	0	0	0	12	0	14
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	14	0	0	0	0	0	98	98	0	91	91	7
Stage 1	-	-	-	-	-	-	84	84	-	7	7	-
Stage 2	-	-	-	-	-	-	14	14	-	84	84	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1604	-	-	-	-	-	884	792	-	893	799	1075
Stage 1	-	-	-	-	-	-	924	825	-	1015	890	-
Stage 2	-	-	-	-	-	-	1006	884	-	924	825	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1604	-	-	-	-	-	855	771	-	-	778	1075
Mov Cap-2 Maneuver	-	-	-	-	-	-	855	771	-	-	778	-
Stage 1	-	-	-	-	-	-	900	804	-	989	890	-
Stage 2	-	-	-	-	-	-	993	884	-	900	804	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	7.3			0			0					
HCM LOS							A			-		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	-	1604	-	-	-	-	-	-				
HCM Lane V/C Ratio	-	0.026	-	-	-	-	-	-				
HCM Control Delay (s)	0	7.3	0	-	0	-	-	-				
HCM Lane LOS	A	A	A	-	A	-	-	-				
HCM 95th %tile Q(veh)	-	0.1	-	-	-	-	-	-				

Intersection

Intersection Delay, s/veh	29.1
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↑	↕	↕	↕		↕	↕	
Traffic Vol, veh/h	55	53	115	21	24	33	59	376	19	52	348	25
Future Vol, veh/h	55	53	115	21	24	33	59	376	19	52	348	25
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	65	62	135	25	28	39	69	442	22	61	409	29
Number of Lanes	0	1	0	1	1	1	1	2	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	3	1
HCM Control Delay	22	11.9	18.9	47
HCM LOS	C	B	C	E

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	25%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	87%	24%	0%	100%	0%	0%	93%
Vol Right, %	0%	0%	13%	52%	0%	0%	100%	0%	7%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	59	251	144	223	21	24	33	52	373
LT Vol	59	0	0	55	21	0	0	52	0
Through Vol	0	251	125	53	0	24	0	0	348
RT Vol	0	0	19	115	0	0	33	0	25
Lane Flow Rate	69	295	170	262	25	28	39	61	439
Geometry Grp	8	8	8	8	7	7	7	8	8
Degree of Util (X)	0.158	0.63	0.358	0.591	0.062	0.067	0.085	0.138	0.922
Departure Headway (Hd)	8.201	7.689	7.595	8.106	9.08	8.562	7.838	8.121	7.563
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	436	469	472	443	393	416	455	440	478
Service Time	5.983	5.471	5.376	5.888	6.876	6.358	5.632	5.898	5.338
HCM Lane V/C Ratio	0.158	0.629	0.36	0.591	0.064	0.067	0.086	0.139	0.918
HCM Control Delay	12.5	22.8	14.6	22	12.5	12	11.4	12.2	51.8
HCM Lane LOS	B	C	B	C	B	B	B	B	F
HCM 95th-tile Q	0.6	4.3	1.6	3.7	0.2	0.2	0.3	0.5	10.7

Timings
4: Murrieta Rd. & McCall Bl.

TTM No. 36911 (JN 11338)

03/19/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	115	190	3	217	117	135	2	271	151	265
Future Volume (vph)	115	190	3	217	117	135	2	271	151	265
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Prot	NA
Protected Phases	2	2		6	6		3	8	7	4
Permitted Phases			2			6				
Detector Phase	2	2	2	6	6	6	3	8	7	4
Switch Phase										
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	8.0	5.0	8.0
Minimum Split (s)	25.4	25.4	25.4	26.1	26.1	26.1	10.4	30.4	10.4	28.4
Total Split (s)	25.5	25.5	25.5	26.1	26.1	26.1	10.4	30.4	13.0	33.0
Total Split (%)	26.8%	26.8%	26.8%	27.5%	27.5%	27.5%	10.9%	32.0%	13.7%	34.7%
Yellow Time (s)	4.4	4.4	4.4	4.1	4.1	4.1	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.1	5.1	5.1	5.4	5.4	5.4	5.4
Lead/Lag							Lead	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	Min
Act Effect Green (s)	11.9	11.9	11.9	16.0	16.0	16.0	5.2	15.8	7.9	27.7
Actuated g/C Ratio	0.16	0.16	0.16	0.22	0.22	0.22	0.07	0.21	0.11	0.38
v/c Ratio	0.49	0.40	0.01	0.68	0.18	0.32	0.02	0.71	0.96	0.32
Control Delay	36.4	31.4	0.0	38.0	26.0	3.6	40.0	21.5	97.5	17.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.4	31.4	0.0	38.0	26.0	3.6	40.0	21.5	97.5	17.4
LOS	D	C	A	D	C	A	D	C	F	B
Approach Delay		33.0			25.1			21.5		41.6
Approach LOS		C			C			C		D

Intersection Summary

Cycle Length: 95

Actuated Cycle Length: 73.7

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 30.0

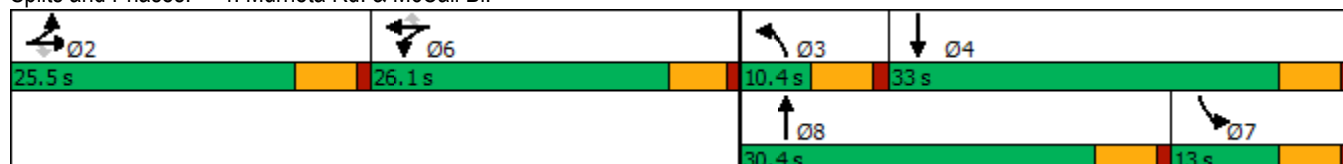
Intersection LOS: C

Intersection Capacity Utilization 59.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 4: Murrieta Rd. & McCall Bl.



HCM 6th Signalized Intersection Summary
4: Murrieta Rd. & McCall Bl.

TTM No. 36911 (JN 11338)

03/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	190	3	217	117	135	2	271	256	151	265	85
Future Volume (veh/h)	115	190	3	217	117	135	2	271	256	151	265	85
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		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	139	229	4	261	141	163	2	327	308	182	319	102
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	228	455	202	342	682	300	5	449	401	200	961	302
Arrive On Green	0.13	0.13	0.13	0.19	0.19	0.19	0.00	0.25	0.25	0.11	0.36	0.36
Sat Flow, veh/h	1781	3554	1578	1781	3554	1564	1781	1777	1585	1781	2652	832
Grp Volume(v), veh/h	139	229	4	261	141	163	2	327	308	182	212	209
Grp Sat Flow(s),veh/h/ln	1781	1777	1578	1781	1777	1564	1781	1777	1585	1781	1777	1707
Q Serve(g_s), s	5.0	4.1	0.1	9.4	2.3	6.4	0.1	11.4	12.2	6.8	5.8	6.0
Cycle Q Clear(g_c), s	5.0	4.1	0.1	9.4	2.3	6.4	0.1	11.4	12.2	6.8	5.8	6.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.49
Lane Grp Cap(c), veh/h	228	455	202	342	682	300	5	449	401	200	644	619
V/C Ratio(X)	0.61	0.50	0.02	0.76	0.21	0.54	0.41	0.73	0.77	0.91	0.33	0.34
Avail Cap(c_a), veh/h	529	1056	469	553	1103	486	132	657	586	200	725	697
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	27.9	27.5	25.8	25.9	23.0	24.6	33.7	23.1	23.4	29.7	15.6	15.7
Incr Delay (d2), s/veh	2.6	0.9	0.0	3.5	0.1	1.5	19.4	2.3	3.7	38.6	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	2.2	1.7	0.1	4.0	0.9	2.3	0.1	4.6	4.5	4.8	2.1	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.5	28.4	25.8	29.4	23.1	26.2	53.1	25.4	27.1	68.3	15.9	16.0
LnGrp LOS	C	C	C	C	C	C	D	C	C	E	B	B
Approach Vol, veh/h		372			565			637			603	
Approach Delay, s/veh		29.1			26.9			26.3			31.8	
Approach LOS		C			C			C			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		14.1	5.6	29.9		18.1	13.0	22.5				
Change Period (Y+Rc), s		5.4	5.4	5.4		5.1	5.4	5.4				
Max Green Setting (Gmax), s		20.1	5.0	27.6		21.0	7.6	25.0				
Max Q Clear Time (g_c+I1), s		7.0	2.1	8.0		11.4	8.8	14.2				
Green Ext Time (p_c), s		1.4	0.0	2.2		1.6	0.0	2.8				
Intersection Summary												
HCM 6th Ctrl Delay			28.5									
HCM 6th LOS			C									

Intersection

Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	14	0	36	24	35	0	5	17	28	3	0
Future Vol, veh/h	0	14	0	36	24	35	0	5	17	28	3	0
Peak Hour Factor	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	27	0	69	46	67	0	10	33	54	6	0
Number of Lanes	0	1	0	0	1	1	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	1
HCM Control Delay	8.2	8.2	7.4	8.8
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	0%	60%	0%	90%
Vol Thru, %	100%	0%	100%	40%	0%	10%
Vol Right, %	0%	100%	0%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	5	17	14	60	35	31
LT Vol	0	0	0	36	0	28
Through Vol	5	0	14	24	0	3
RT Vol	0	17	0	0	35	0
Lane Flow Rate	10	33	27	115	67	60
Geometry Grp	7	7	6	7	7	6
Degree of Util (X)	0.014	0.04	0.037	0.164	0.077	0.087
Departure Headway (Hd)	5.104	4.401	4.994	5.129	4.126	5.267
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	704	816	719	704	874	683
Service Time	2.818	2.114	3.01	2.829	1.826	3.281
HCM Lane V/C Ratio	0.014	0.04	0.038	0.163	0.077	0.088
HCM Control Delay	7.9	7.3	8.2	8.8	7.2	8.8
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0	0.1	0.1	0.6	0.2	0.3

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	13	0	0	0	0	10	0	0	0	16	0	23
Future Vol, veh/h	13	0	0	0	0	10	0	0	0	16	0	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	69	69	69	69	69	69	69	69	69	69	69	69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	0	0	0	0	14	0	0	0	23	0	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	14	0	0	0	0	0	62	52	0	45	45	7
Stage 1	-	-	-	-	-	-	38	38	-	7	7	-
Stage 2	-	-	-	-	-	-	24	14	-	38	38	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1604	-	-	-	-	-	933	839	-	957	847	1075
Stage 1	-	-	-	-	-	-	977	863	-	1015	890	-
Stage 2	-	-	-	-	-	-	994	884	-	977	863	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1604	-	-	-	-	-	896	829	-	-	837	1075
Mov Cap-2 Maneuver	-	-	-	-	-	-	896	829	-	-	837	-
Stage 1	-	-	-	-	-	-	965	853	-	1003	890	-
Stage 2	-	-	-	-	-	-	963	884	-	965	853	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	7.3	0	0	
HCM LOS			A	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1604	-	-	-	-	-	-
HCM Lane V/C Ratio	-	0.012	-	-	-	-	-	-
HCM Control Delay (s)	0	7.3	0	-	0	-	-	-
HCM Lane LOS	A	A	A	-	A	-	-	-
HCM 95th %tile Q(veh)	-	0	-	-	-	-	-	-

Intersection

Intersection Delay, s/veh	51.1
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↑	↔	↔	↑		↔	↔	
Traffic Vol, veh/h	49	41	94	22	45	82	116	405	21	59	418	72
Future Vol, veh/h	49	41	94	22	45	82	116	405	21	59	418	72
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	53	45	102	24	49	89	126	440	23	64	454	78
Number of Lanes	0	1	0	1	1	1	1	2	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	1	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	1	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	3	1
HCM Control Delay	19.7	12.8	19.6	103.1
HCM LOS	C	B	C	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	27%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	87%	22%	0%	100%	0%	0%	85%
Vol Right, %	0%	0%	13%	51%	0%	0%	100%	0%	15%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	116	270	156	184	22	45	82	59	490
LT Vol	116	0	0	49	22	0	0	59	0
Through Vol	0	270	135	41	0	45	0	0	418
RT Vol	0	0	21	94	0	0	82	0	72
Lane Flow Rate	126	293	170	200	24	49	89	64	533
Geometry Grp	8	8	8	8	7	7	7	8	8
Degree of Util (X)	0.292	0.638	0.364	0.478	0.06	0.115	0.192	0.149	1.144
Departure Headway (Hd)	8.684	8.169	8.072	8.992	9.416	8.896	8.169	8.351	7.734
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	416	446	449	404	383	405	442	430	469
Service Time	6.384	5.869	5.772	6.692	7.116	6.596	5.869	6.096	5.479
HCM Lane V/C Ratio	0.303	0.657	0.379	0.495	0.063	0.121	0.201	0.149	1.136
HCM Control Delay	14.9	24.2	15.3	19.7	12.7	12.7	12.8	12.6	114
HCM Lane LOS	B	C	C	C	B	B	B	B	F
HCM 95th-tile Q	1.2	4.3	1.6	2.5	0.2	0.4	0.7	0.5	18.9

Timings

4: Murrieta Rd. & McCall Bl.

TTM No. 36911 (JN 11338)

03/19/2019

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	39	127	3	361	192	222	1	343	226	319
Future Volume (vph)	39	127	3	361	192	222	1	343	226	319
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Prot	NA
Protected Phases	2	2		6	6		3	8	7	4
Permitted Phases			2			6				
Detector Phase	2	2	2	6	6	6	3	8	7	4
Switch Phase										
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	8.0	5.0	8.0
Minimum Split (s)	25.4	25.4	25.4	26.1	26.1	26.1	10.4	30.4	10.4	28.4
Total Split (s)	25.5	25.5	25.5	26.1	26.1	26.1	10.4	30.4	13.0	33.0
Total Split (%)	26.8%	26.8%	26.8%	27.5%	27.5%	27.5%	10.9%	32.0%	13.7%	34.7%
Yellow Time (s)	4.4	4.4	4.4	4.1	4.1	4.1	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.1	5.1	5.1	5.4	5.4	5.4	5.4
Lead/Lag							Lead	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	Min
Act Effect Green (s)	10.0	10.0	10.0	21.3	21.3	21.3	5.1	17.9	7.7	29.3
Actuated g/C Ratio	0.13	0.13	0.13	0.27	0.27	0.27	0.07	0.23	0.10	0.37
v/c Ratio	0.19	0.31	0.01	0.84	0.22	0.41	0.01	0.76	1.45	0.31
Control Delay	33.3	33.4	0.0	46.4	25.1	6.4	40.0	25.4	261.4	18.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.3	33.4	0.0	46.4	25.1	6.4	40.0	25.4	261.4	18.7
LOS	C	C	A	D	C	A	D	C	F	B
Approach Delay		32.8			29.6			25.5		111.6
Approach LOS		C			C			C		F

Intersection Summary

Cycle Length: 95

Actuated Cycle Length: 78.4

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.45

Intersection Signal Delay: 51.1

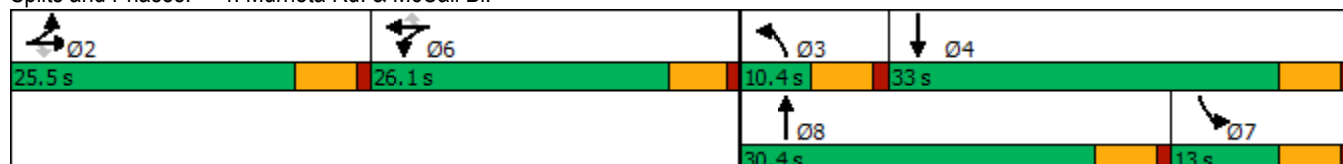
Intersection LOS: D

Intersection Capacity Utilization 73.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 4: Murrieta Rd. & McCall Bl.



HCM 6th Signalized Intersection Summary
4: Murrieta Rd. & McCall Bl.

TTM No. 36911 (JN 11338)

03/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	127	3	361	192	222	1	343	281	226	319	46
Future Volume (veh/h)	39	127	3	361	192	222	1	343	281	226	319	46
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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	141	3	401	213	247	1	381	312	251	354	51
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	144	287	128	464	927	412	2	486	393	186	1135	162
Arrive On Green	0.08	0.08	0.08	0.26	0.26	0.26	0.00	0.26	0.26	0.10	0.36	0.36
Sat Flow, veh/h	1781	3554	1585	1781	3554	1580	1781	1865	1510	1781	3120	446
Grp Volume(v), veh/h	43	141	3	401	213	247	1	363	330	251	200	205
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1580	1781	1777	1599	1781	1777	1789
Q Serve(g_s), s	1.7	2.8	0.1	15.6	3.4	9.9	0.0	13.8	14.0	7.6	5.9	6.0
Cycle Q Clear(g_c), s	1.7	2.8	0.1	15.6	3.4	9.9	0.0	13.8	14.0	7.6	5.9	6.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.94	1.00		0.25
Lane Grp Cap(c), veh/h	144	287	128	464	927	412	2	463	416	186	646	651
V/C Ratio(X)	0.30	0.49	0.02	0.86	0.23	0.60	0.41	0.78	0.79	1.35	0.31	0.31
Avail Cap(c_a), veh/h	493	984	439	515	1028	457	123	612	551	186	676	680
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	31.4	31.9	30.7	25.6	21.1	23.5	36.2	24.9	25.0	32.5	16.6	16.6
Incr Delay (d2), s/veh	1.1	1.3	0.1	13.2	0.1	1.8	35.7	4.9	5.8	187.0	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	0.7	1.2	0.0	7.8	1.4	3.6	0.0	5.9	5.5	12.7	2.2	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.6	33.2	30.8	38.8	21.2	25.3	71.9	29.8	30.8	219.4	16.8	16.9
LnGrp LOS	C	C	C	D	C	C	E	C	C	F	B	B
Approach Vol, veh/h	187			861			694			656		
Approach Delay, s/veh	33.1			30.6			30.4			94.4		
Approach LOS	C			C			C			F		
Timer - Assigned Phs	2		3	4		6	7	8				
Phs Duration (G+Y+Rc), s	11.3		5.5	31.8		24.0	13.0	24.3				
Change Period (Y+Rc), s	5.4		5.4	5.4		5.1	5.4	5.4				
Max Green Setting (Gmax), s	20.1		5.0	27.6		21.0	7.6	25.0				
Max Q Clear Time (g_c+I1), s	4.8		2.0	8.0		17.6	9.6	16.0				
Green Ext Time (p_c), s	0.8		0.0	2.1		1.3	0.0	2.8				
Intersection Summary												
HCM 6th Ctrl Delay	48.2											
HCM 6th LOS	D											

APPENDIX 7.3:

**OPENING YEAR CUMULATIVE (2020) WITHOUT PROJECT CONDITIONS TRAFFIC
SIGNAL WARRANT ANALYSIS WORKSHEETS**

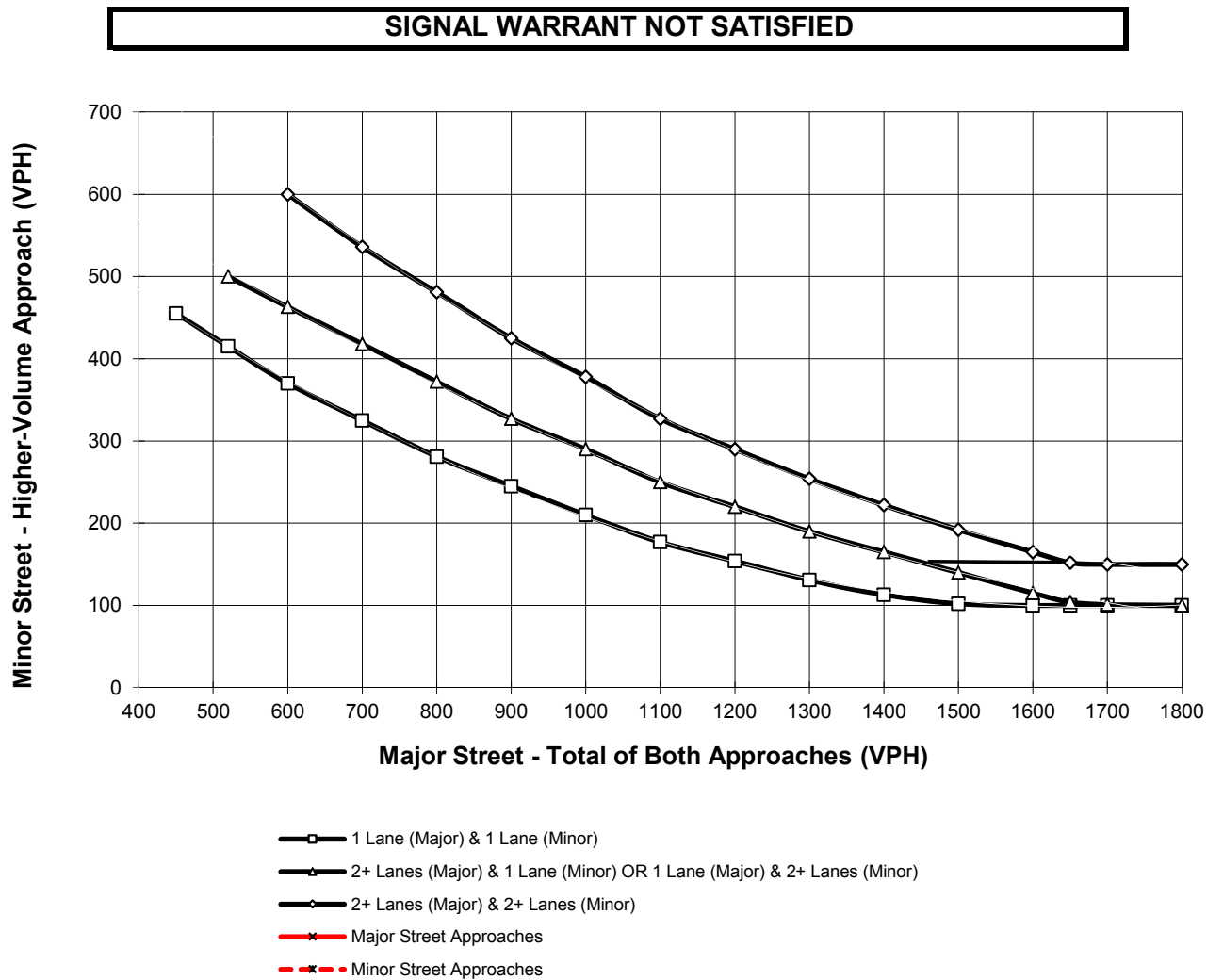
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Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = Opening Year Cumulative (2020) Without Project Conditions - Weekday PM Peak Hour

Major Street Name = Chambers Av.
Total of Both Approaches (VPH) = 48
Number of Approach Lanes on Major Street = 1

Minor Street Name = Valley Bl.
High Volume Approach (VPH) = 31
Number of Approach Lanes On Minor Street = 1



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-3. Warrant 3, Peak Hour

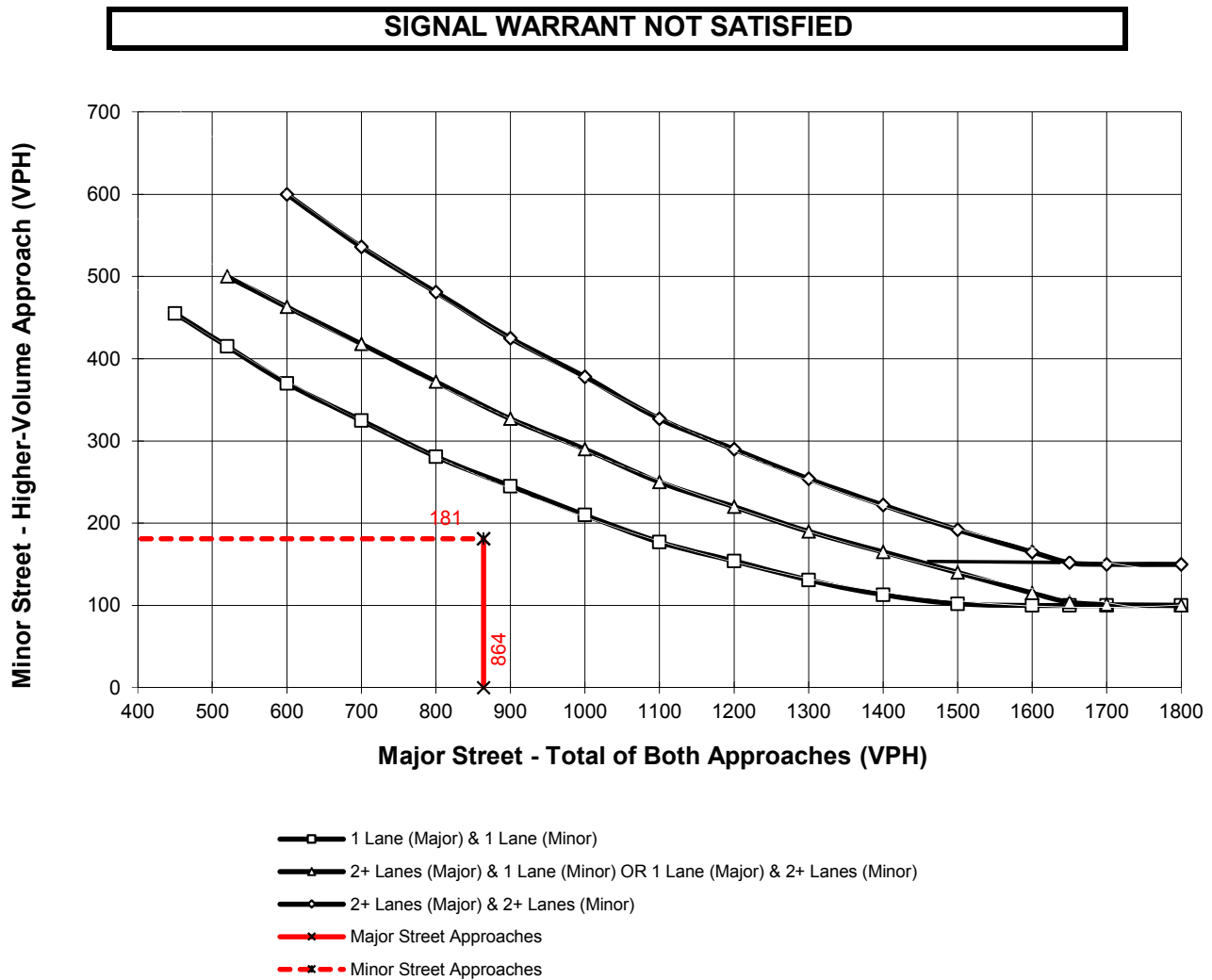
Traffic Conditions = **Opening Year Cumulative (2020) Without Project Conditions - Weekday AM Peak Hour**

Major Street Name = **Murrieta Rd.**

Total of Both Approaches (VPH) = **864**
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Chambers Av.**

High Volume Approach (VPH) = **181**
Number of Approach Lanes On Minor Street = **1**



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

APPENDIX 7.4:

**OPENING YEAR CUMULATIVE (2020) WITH PROJECT CONDITIONS TRAFFIC SIGNAL
WARRANT ANALYSIS WORKSHEETS**

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Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Opening Year Cumulative (2020) With Project Conditions - Weekday PM Peak Hour**

Major Street Name = **Chambers Av.**

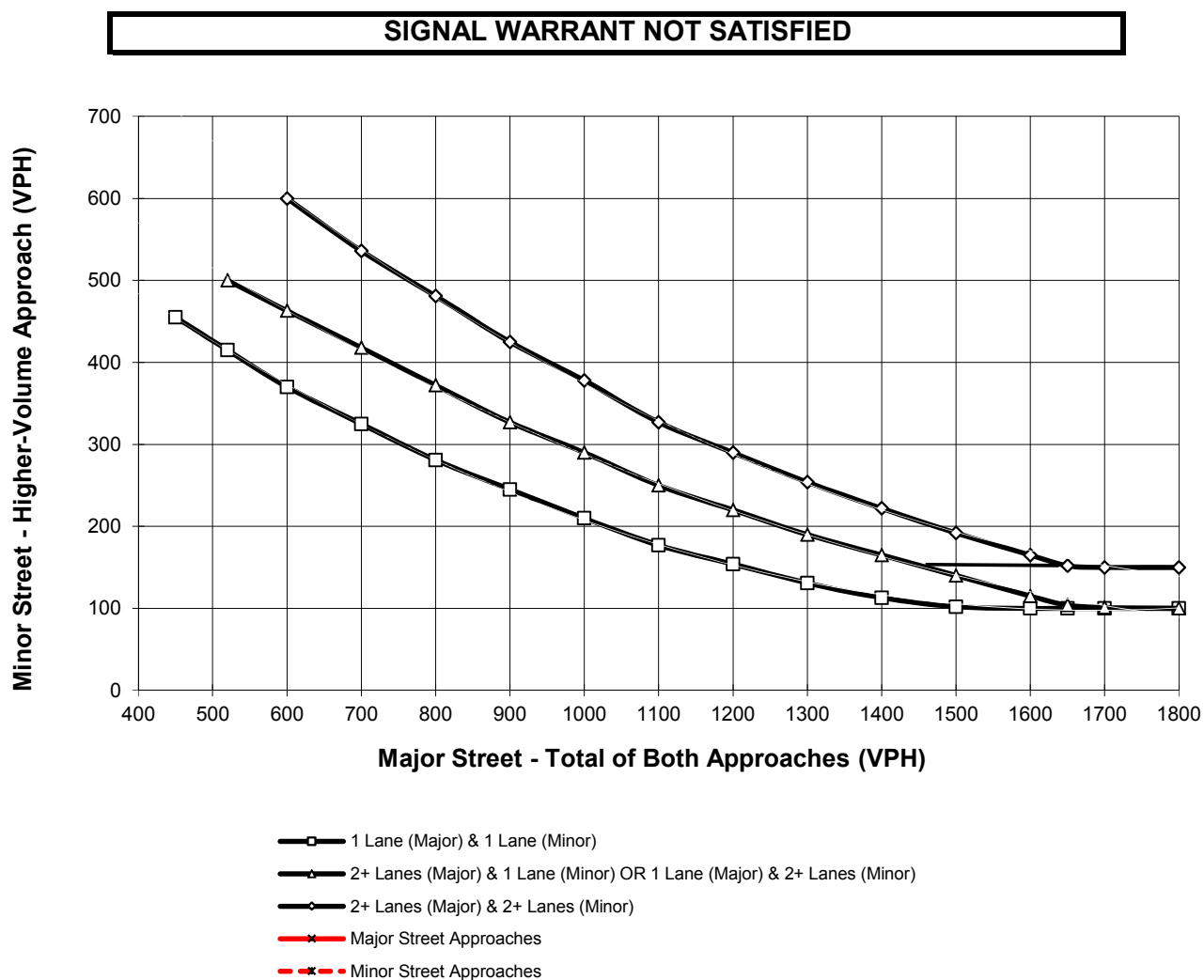
Total of Both Approaches (VPH) = **109**

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

Minor Street Name = **Valley Bl.**

High Volume Approach (VPH) = **31**

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



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Opening Year Cumulative (2020) With Project Conditions - Weekday PM Peak Hour**

Major Street Name = **Valley Bl.**

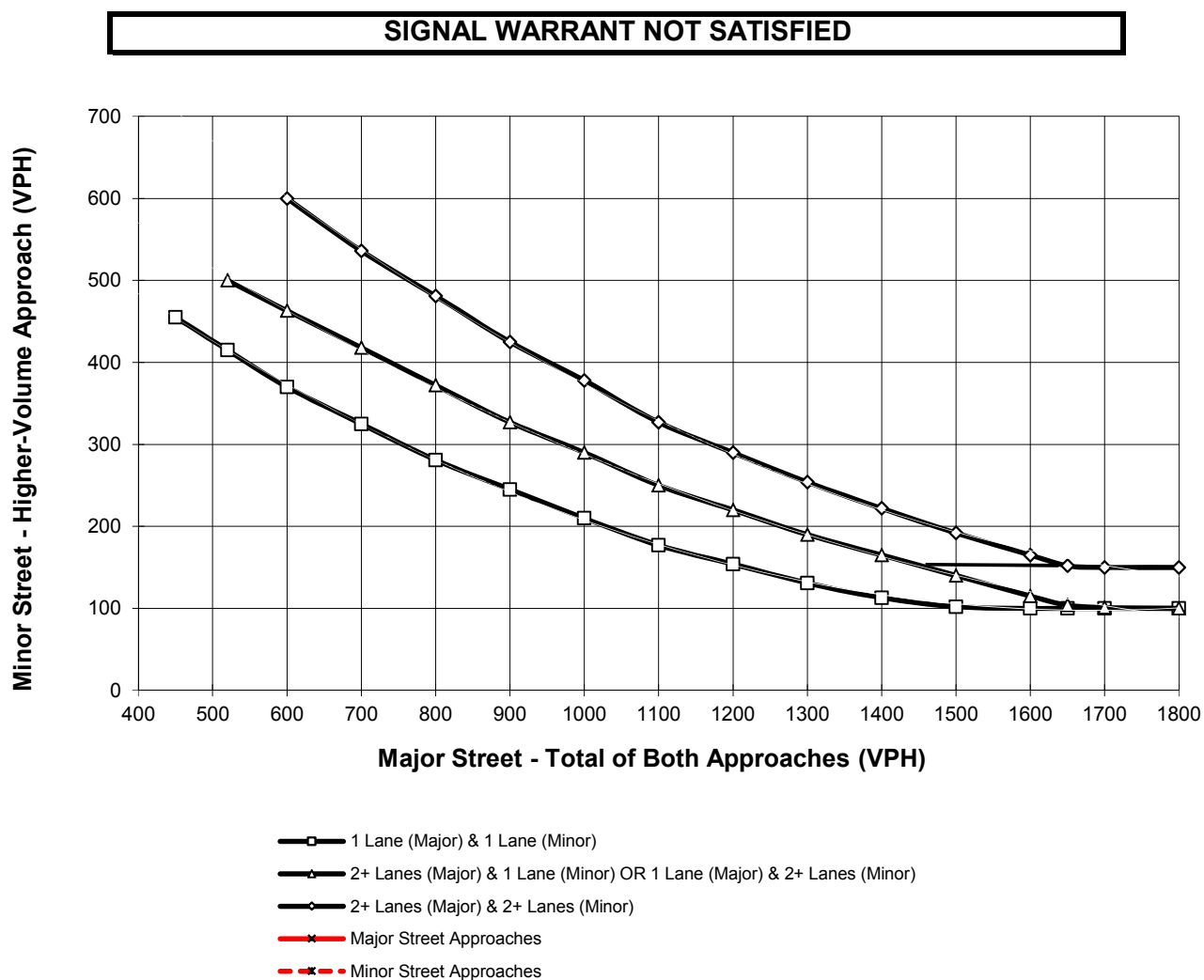
Total of Both Approaches (VPH) = **39**

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

Minor Street Name = **Connie Wy.**

High Volume Approach (VPH) = **13**

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



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Opening Year Cumulative (2020) With Project Conditions - Weekday AM Peak Hour**

Major Street Name = **Murrieta Rd.**

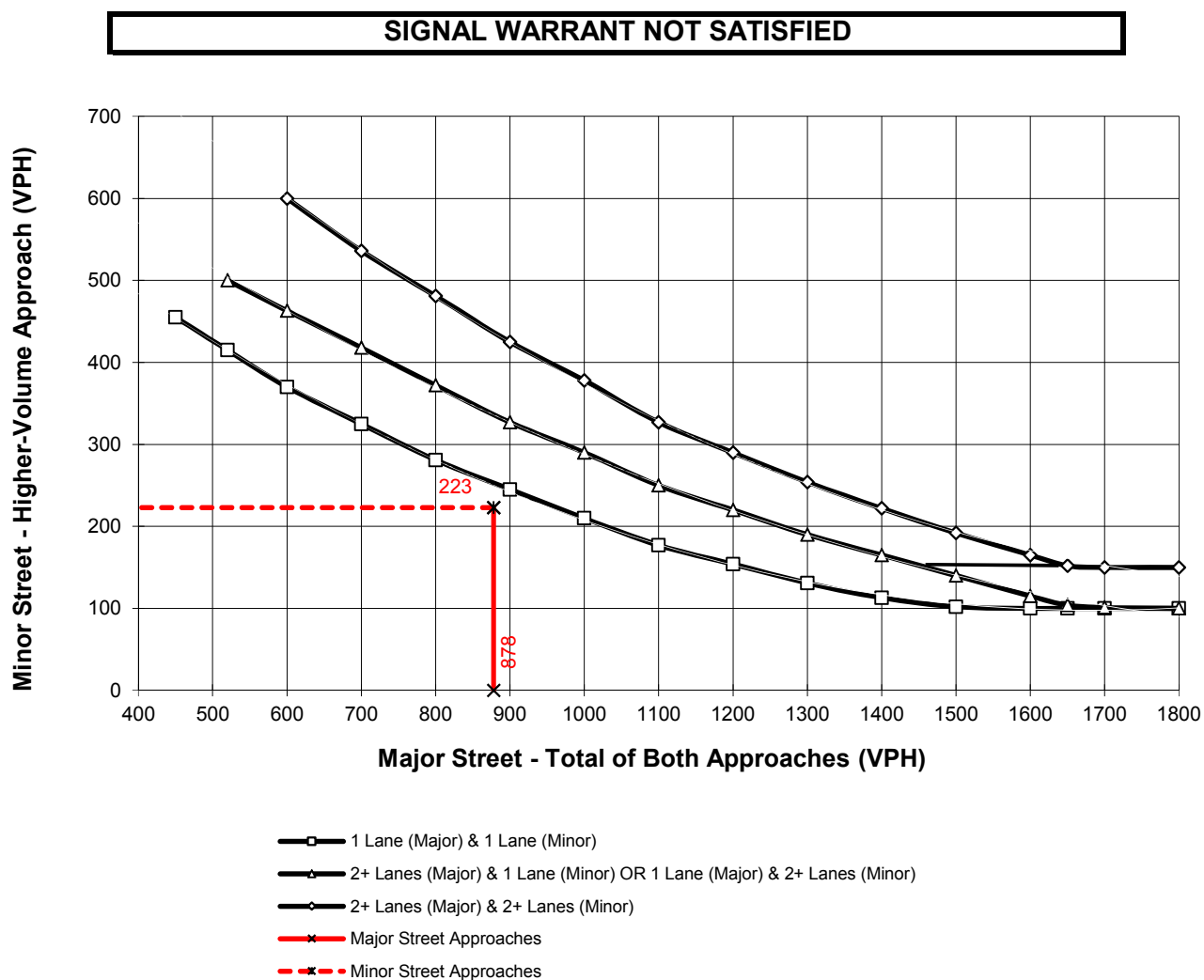
Total of Both Approaches (VPH) = **878**

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

Minor Street Name = **Chambers Av.**

High Volume Approach (VPH) = **223**

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



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 7.5:

**OPENING YEAR CUMULATIVE (2020) WITHOUT PROJECT CONDITIONS INTERSECTION
OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS**

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Timings
3: Murrieta Rd. & Chambers Av.

TTM No. 36911 (JN 11338)

03/19/2019

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	42	53	21	24	33	49	376	52	348
Future Volume (vph)	42	53	21	24	33	49	376	52	348
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4	3	8		5	2	1	6
Permitted Phases					8				
Detector Phase	7	4	3	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	22.6	9.6	26.1	26.1	9.6	23.4	9.6	23.8
Total Split (s)	9.6	26.1	9.6	26.1	26.1	9.6	24.7	9.6	24.7
Total Split (%)	13.7%	37.3%	13.7%	37.3%	37.3%	13.7%	35.3%	13.7%	35.3%
Yellow Time (s)	3.6	3.6	3.6	4.1	4.1	3.6	4.4	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.1	5.1	4.6	5.4	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min
Act Effect Green (s)	5.5	16.4	5.5	12.7	12.7	5.5	23.8	5.5	23.5
Actuated g/C Ratio	0.11	0.32	0.11	0.25	0.25	0.11	0.47	0.11	0.46
v/c Ratio	0.25	0.27	0.13	0.06	0.07	0.30	0.28	0.32	0.51
Control Delay	31.0	8.7	29.7	19.5	0.3	32.0	15.1	32.7	21.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	8.7	29.7	19.5	0.3	32.0	15.1	32.7	21.3
LOS	C	A	C	B	A	C	B	C	C
Approach Delay		13.8		14.1			16.9		22.7
Approach LOS		B		B			B		C

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 50.8

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.51

Intersection Signal Delay: 18.4

Intersection LOS: B

Intersection Capacity Utilization 53.3%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: Murrieta Rd. & Chambers Av.

 Ø1	 Ø2	 Ø3	 Ø4
9.6 s	24.7 s	9.6 s	26.1 s
 Ø5	 Ø6	 Ø7	 Ø8
9.6 s	24.7 s	9.6 s	26.1 s

HCM 6th Signalized Intersection Summary
3: Murrieta Rd. & Chambers Av.

TTM No. 36911 (JN 11338)

03/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	53	86	21	24	33	49	376	19	52	348	21
Future Volume (veh/h)	42	53	86	21	24	33	49	376	19	52	348	21
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	49	62	101	25	28	39	58	442	22	61	409	25
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	88	137	224	52	370	313	99	997	49	102	508	31
Arrive On Green	0.05	0.22	0.22	0.03	0.20	0.20	0.06	0.29	0.29	0.06	0.29	0.29
Sat Flow, veh/h	1781	631	1028	1781	1870	1583	1781	3445	171	1781	1744	107
Grp Volume(v), veh/h	49	0	163	25	28	39	58	227	237	61	0	434
Grp Sat Flow(s),veh/h/ln	1781	0	1658	1781	1870	1583	1781	1777	1839	1781	0	1851
Q Serve(g_s), s	1.3	0.0	4.2	0.7	0.6	1.0	1.6	5.2	5.2	1.7	0.0	10.7
Cycle Q Clear(g_c), s	1.3	0.0	4.2	0.7	0.6	1.0	1.6	5.2	5.2	1.7	0.0	10.7
Prop In Lane	1.00		0.62	1.00		1.00	1.00		0.09	1.00		0.06
Lane Grp Cap(c), veh/h	88	0	361	52	370	313	99	514	532	102	0	539
V/C Ratio(X)	0.56	0.00	0.45	0.48	0.08	0.12	0.59	0.44	0.44	0.60	0.00	0.81
Avail Cap(c_a), veh/h	180	0	721	180	794	672	180	693	717	180	0	707
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.0	0.0	16.8	23.6	16.2	16.3	22.8	14.3	14.3	22.8	0.0	16.2
Incr Delay (d2), s/veh	2.0	0.0	0.9	2.5	0.1	0.2	2.0	0.9	0.8	2.1	0.0	6.0
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	0.6	0.0	1.6	0.3	0.2	0.3	0.6	1.8	1.9	0.7	0.0	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.0	0.0	17.7	26.1	16.3	16.5	24.9	15.2	15.2	24.8	0.0	22.3
LnGrp LOS	C	A	B	C	B	B	C	B	B	C	A	C
Approach Vol, veh/h		212			92			522			495	
Approach Delay, s/veh		19.4			19.0			16.3			22.6	
Approach LOS		B			B			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.4	20.1	6.1	15.9	7.3	20.2	7.1	14.9				
Change Period (Y+Rc), s	4.6	* 5.8	4.6	* 5.1	4.6	5.8	4.6	5.1				
Max Green Setting (Gmax), s	5.0	* 19	5.0	* 22	5.0	18.9	5.0	21.0				
Max Q Clear Time (g_c+I1), s	3.7	7.2	2.7	6.2	3.6	12.7	3.3	3.0				
Green Ext Time (p_c), s	0.0	2.7	0.0	0.8	0.0	1.7	0.0	0.2				

Intersection Summary

HCM 6th Ctrl Delay	19.3
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings
3: Murrieta Rd. & Chambers Av.

TTM No. 36911 (JN 11338)

03/19/2019

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	41	41	22	45	82	83	405	59	418
Future Volume (vph)	41	41	22	45	82	83	405	59	418
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4	3	8		5	2	1	6
Permitted Phases					8				
Detector Phase	7	4	3	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	22.6	9.6	26.1	26.1	9.6	23.4	9.6	23.8
Total Split (s)	9.7	25.9	9.9	26.1	26.1	10.0	27.7	11.5	29.2
Total Split (%)	12.9%	34.5%	13.2%	34.8%	34.8%	13.3%	36.9%	15.3%	38.9%
Yellow Time (s)	3.6	3.6	3.6	4.1	4.1	3.6	4.4	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.1	5.1	4.6	5.4	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min
Act Effect Green (s)	5.5	16.4	5.6	12.6	12.6	5.8	29.6	6.5	27.8
Actuated g/C Ratio	0.10	0.29	0.10	0.22	0.22	0.10	0.52	0.11	0.49
v/c Ratio	0.26	0.23	0.14	0.12	0.19	0.50	0.25	0.32	0.58
Control Delay	34.2	9.6	32.1	22.4	0.9	42.4	14.7	33.1	22.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.2	9.6	32.1	22.4	0.9	42.4	14.7	33.1	22.1
LOS	C	A	C	C	A	D	B	C	C
Approach Delay		16.0		12.0			19.2		23.4
Approach LOS		B		B			B		C

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 57.1

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 19.7

Intersection LOS: B

Intersection Capacity Utilization 52.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: Murrieta Rd. & Chambers Av.

			
Ø1	Ø2	Ø3	Ø4
11.5 s	27.7 s	9.9 s	25.9 s
			
Ø5	Ø6	Ø7	Ø8
10 s	29.2 s	9.7 s	26.1 s

HCM 6th Signalized Intersection Summary
3: Murrieta Rd. & Chambers Av.

TTM No. 36911 (JN 11338)

03/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	41	75	22	45	82	83	405	21	59	418	58
Future Volume (veh/h)	41	41	75	22	45	82	83	405	21	59	418	58
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	45	45	82	24	49	89	90	440	23	64	454	63
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	81	119	216	50	342	289	121	1201	63	101	544	75
Arrive On Green	0.05	0.20	0.20	0.03	0.18	0.18	0.07	0.35	0.35	0.06	0.34	0.34
Sat Flow, veh/h	1781	594	1082	1781	1870	1580	1781	3436	179	1781	1607	223
Grp Volume(v), veh/h	45	0	127	24	49	89	90	227	236	64	0	517
Grp Sat Flow(s),veh/h/ln	1781	0	1676	1781	1870	1580	1781	1777	1838	1781	0	1830
Q Serve(g_s), s	1.4	0.0	3.6	0.7	1.2	2.7	2.7	5.2	5.3	1.9	0.0	14.3
Cycle Q Clear(g_c), s	1.4	0.0	3.6	0.7	1.2	2.7	2.7	5.2	5.3	1.9	0.0	14.3
Prop In Lane	1.00		0.65	1.00		1.00	1.00		0.10	1.00		0.12
Lane Grp Cap(c), veh/h	81	0	335	50	342	289	121	621	643	101	0	619
V/C Ratio(X)	0.56	0.00	0.38	0.48	0.14	0.31	0.74	0.37	0.37	0.63	0.00	0.83
Avail Cap(c_a), veh/h	165	0	649	172	714	603	175	721	746	224	0	779
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.7	0.0	19.0	26.3	18.9	19.5	25.2	13.3	13.3	25.4	0.0	16.8
Incr Delay (d2), s/veh	2.2	0.0	0.7	2.7	0.2	0.6	4.4	0.5	0.5	2.4	0.0	7.1
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	0.6	0.0	1.4	0.3	0.5	0.9	1.2	1.8	1.9	0.8	0.0	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.0	0.0	19.7	29.0	19.0	20.1	29.6	13.8	13.8	27.8	0.0	23.9
LnGrp LOS	C	A	B	C	B	C	C	B	B	C	A	C
Approach Vol, veh/h		172			162			553			581	
Approach Delay, s/veh		21.9			21.1			16.4			24.3	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.7	25.0	6.1	16.1	8.3	24.4	7.1	15.2				
Change Period (Y+Rc), s	4.6	* 5.8	4.6	* 5.1	4.6	5.8	4.6	5.1				
Max Green Setting (Gmax), s	6.9	* 22	5.3	* 21	5.4	23.4	5.1	21.0				
Max Q Clear Time (g_c+I1), s	3.9	7.3	2.7	5.6	4.7	16.3	3.4	4.7				
Green Ext Time (p_c), s	0.0	3.1	0.0	0.6	0.0	2.3	0.0	0.4				

Intersection Summary

HCM 6th Ctrl Delay	20.7
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX 7.6:

**OPENING YEAR CUMULATIVE (2020) WITH PROJECT CONDITIONS INTERSECTION
OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS**

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Timings
3: Murrieta Rd. & Chambers Av.

TTM No. 36911 (JN 11338)

03/19/2019

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	55	53	21	24	33	59	376	52	348
Future Volume (vph)	55	53	21	24	33	59	376	52	348
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4	3	8		5	2	1	6
Permitted Phases					8				
Detector Phase	7	4	3	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	22.6	9.6	26.1	26.1	9.6	23.4	9.6	23.8
Total Split (s)	9.6	26.1	9.6	26.1	26.1	9.6	24.7	9.6	24.7
Total Split (%)	13.7%	37.3%	13.7%	37.3%	37.3%	13.7%	35.3%	13.7%	35.3%
Yellow Time (s)	3.6	3.6	3.6	4.1	4.1	3.6	4.4	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.1	5.1	4.6	5.4	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min
Act Effect Green (s)	5.2	16.3	5.2	12.2	12.2	5.2	21.4	5.2	21.0
Actuated g/C Ratio	0.10	0.30	0.10	0.22	0.22	0.10	0.39	0.10	0.38
v/c Ratio	0.38	0.34	0.15	0.07	0.08	0.41	0.34	0.36	0.62
Control Delay	35.4	8.1	30.2	19.5	0.3	36.4	15.5	34.4	23.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.4	8.1	30.2	19.5	0.3	36.4	15.5	34.4	23.4
LOS	D	A	C	B	A	D	B	C	C
Approach Delay		14.9		14.3			18.2		24.8
Approach LOS		B		B			B		C

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 54.7

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.62

Intersection Signal Delay: 19.7

Intersection LOS: B

Intersection Capacity Utilization 54.4%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: Murrieta Rd. & Chambers Av.

 Ø1	 Ø2	 Ø3	 Ø4
9.6 s	24.7 s	9.6 s	26.1 s
 Ø5	 Ø6	 Ø7	 Ø8
9.6 s	24.7 s	9.6 s	26.1 s

HCM 6th Signalized Intersection Summary
3: Murrieta Rd. & Chambers Av.

TTM No. 36911 (JN 11338)

03/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	53	115	21	24	33	59	376	19	52	348	25
Future Volume (veh/h)	55	53	115	21	24	33	59	376	19	52	348	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	62	135	25	28	39	69	442	22	61	409	29
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	105	116	252	52	364	308	109	1017	50	101	502	36
Arrive On Green	0.06	0.22	0.22	0.03	0.19	0.19	0.06	0.30	0.30	0.06	0.29	0.29
Sat Flow, veh/h	1781	516	1123	1781	1870	1583	1781	3445	171	1781	1726	122
Grp Volume(v), veh/h	65	0	197	25	28	39	69	227	237	61	0	438
Grp Sat Flow(s),veh/h/ln	1781	0	1639	1781	1870	1583	1781	1777	1839	1781	0	1848
Q Serve(g_s), s	1.8	0.0	5.4	0.7	0.6	1.0	1.9	5.3	5.3	1.7	0.0	11.2
Cycle Q Clear(g_c), s	1.8	0.0	5.4	0.7	0.6	1.0	1.9	5.3	5.3	1.7	0.0	11.2
Prop In Lane	1.00		0.69	1.00		1.00	1.00		0.09	1.00		0.07
Lane Grp Cap(c), veh/h	105	0	368	52	364	308	109	524	543	101	0	537
V/C Ratio(X)	0.62	0.00	0.54	0.48	0.08	0.13	0.63	0.43	0.44	0.60	0.00	0.82
Avail Cap(c_a), veh/h	175	0	692	175	771	652	175	673	697	175	0	686
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.4	0.0	17.4	24.3	16.8	16.9	23.4	14.5	14.5	23.5	0.0	16.8
Incr Delay (d2), s/veh	2.2	0.0	1.2	2.5	0.1	0.2	2.3	0.8	0.8	2.1	0.0	6.8
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	0.8	0.0	2.0	0.3	0.2	0.3	0.8	1.8	1.9	0.7	0.0	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.6	0.0	18.6	26.9	16.9	17.1	25.6	15.3	15.3	25.6	0.0	23.6
LnGrp LOS	C	A	B	C	B	B	C	B	B	C	A	C
Approach Vol, veh/h	262				92				533			
Approach Delay, s/veh	20.4				19.7				16.6			
Approach LOS	C				B				B			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.5	20.8	6.1	16.5	7.7	20.6	7.6	15.0				
Change Period (Y+Rc), s	4.6	* 5.8	4.6	* 5.1	4.6	5.8	4.6	5.1				
Max Green Setting (Gmax), s	5.0	* 19	5.0	* 22	5.0	18.9	5.0	21.0				
Max Q Clear Time (g_c+I1), s	3.7	7.3	2.7	7.4	3.9	13.2	3.8	3.0				
Green Ext Time (p_c), s	0.0	2.7	0.0	1.0	0.0	1.6	0.0	0.2				

Intersection Summary

HCM 6th Ctrl Delay	20.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings
3: Murrieta Rd. & Chambers Av.

TTM No. 36911 (JN 11338)

03/19/2019

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	49	41	22	45	82	116	405	59	418
Future Volume (vph)	49	41	22	45	82	116	405	59	418
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4	3	8		5	2	1	6
Permitted Phases					8				
Detector Phase	7	4	3	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	22.6	9.6	26.1	26.1	9.6	23.4	9.6	23.8
Total Split (s)	9.7	25.9	9.9	26.1	26.1	10.0	27.7	11.5	29.2
Total Split (%)	12.9%	34.5%	13.2%	34.8%	34.8%	13.3%	36.9%	15.3%	38.9%
Yellow Time (s)	3.6	3.6	3.6	4.1	4.1	3.6	4.4	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.1	5.1	4.6	5.4	4.6	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min
Act Effect Green (s)	5.2	16.1	5.3	12.1	12.1	5.6	31.3	6.3	25.2
Actuated g/C Ratio	0.09	0.27	0.09	0.20	0.20	0.09	0.52	0.10	0.42
v/c Ratio	0.34	0.28	0.15	0.13	0.20	0.77	0.25	0.35	0.69
Control Delay	36.6	9.1	32.5	22.6	1.0	64.1	14.6	34.2	24.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.6	9.1	32.5	22.6	1.0	64.1	14.6	34.2	24.8
LOS	D	A	C	C	A	E	B	C	C
Approach Delay		16.4		12.2			25.2		25.8
Approach LOS		B		B			C		C

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 60

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 22.9

Intersection LOS: C

Intersection Capacity Utilization 62.6%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: Murrieta Rd. & Chambers Av.

 Ø1	 Ø2	 Ø3	 Ø4
11.5 s	27.7 s	9.9 s	25.9 s
 Ø5	 Ø6	 Ø7	 Ø8
10 s	29.2 s	9.7 s	26.1 s

HCM 6th Signalized Intersection Summary
3: Murrieta Rd. & Chambers Av.

TTM No. 36911 (JN 11338)

03/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	41	94	22	45	82	116	405	21	59	418	72
Future Volume (veh/h)	49	41	94	22	45	82	116	405	21	59	418	72
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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	53	45	102	24	49	89	126	440	23	64	454	78
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	88	100	226	49	326	275	161	1289	67	99	529	91
Arrive On Green	0.05	0.20	0.20	0.03	0.17	0.17	0.09	0.38	0.38	0.06	0.34	0.34
Sat Flow, veh/h	1781	509	1154	1781	1870	1580	1781	3436	179	1781	1555	267
Grp Volume(v), veh/h	53	0	147	24	49	89	126	227	236	64	0	532
Grp Sat Flow(s),veh/h/ln	1781	0	1663	1781	1870	1580	1781	1777	1838	1781	0	1822
Q Serve(g_s), s	1.7	0.0	4.5	0.8	1.3	2.9	4.0	5.3	5.3	2.0	0.0	15.8
Cycle Q Clear(g_c), s	1.7	0.0	4.5	0.8	1.3	2.9	4.0	5.3	5.3	2.0	0.0	15.8
Prop In Lane	1.00		0.69	1.00		1.00	1.00		0.10	1.00		0.15
Lane Grp Cap(c), veh/h	88	0	326	49	326	275	161	667	690	99	0	620
V/C Ratio(X)	0.60	0.00	0.45	0.49	0.15	0.32	0.78	0.34	0.34	0.65	0.00	0.86
Avail Cap(c_a), veh/h	156	0	609	162	676	571	166	682	705	212	0	734
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.1	0.0	20.6	27.8	20.4	21.0	25.9	13.0	13.0	26.9	0.0	17.8
Incr Delay (d2), s/veh	2.4	0.0	1.0	2.8	0.2	0.7	19.2	0.4	0.4	2.7	0.0	9.4
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	0.8	0.0	1.8	0.3	0.5	1.0	2.4	1.8	1.9	0.8	0.0	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.5	0.0	21.6	30.6	20.6	21.7	45.0	13.4	13.4	29.5	0.0	27.3
LnGrp LOS	C	A	C	C	C	C	D	B	B	C	A	C
Approach Vol, veh/h		200			162			589			596	
Approach Delay, s/veh		23.7			22.7			20.2			27.5	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.8	27.6	6.2	16.5	9.8	25.6	7.5	15.2				
Change Period (Y+Rc), s	4.6	* 5.8	4.6	* 5.1	4.6	5.8	4.6	5.1				
Max Green Setting (Gmax), s	6.9	* 22	5.3	* 21	5.4	23.4	5.1	21.0				
Max Q Clear Time (g_c+l1), s	4.0	7.3	2.8	6.5	6.0	17.8	3.7	4.9				
Green Ext Time (p_c), s	0.0	3.1	0.0	0.7	0.0	2.0	0.0	0.4				

Intersection Summary

HCM 6th Ctrl Delay	23.7
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX 8.1:

SITE ADJACENT AND SITE ACCESS QUEUING ANALYSIS

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Intersection: 1: Valley Bl. & Driveway 1/Chambers Av.

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	LT	R	R	LTR
Maximum Queue (ft)	27	28	19	50	28
Average Queue (ft)	14	10	6	20	14
95th Queue (ft)	36	29	21	48	37
Link Distance (ft)	430	674	674		827
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				100	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Valley Bl. & Driveway 2/Connie Wy.

Movement	EB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	12	36
Average Queue (ft)	0	11
95th Queue (ft)	6	35
Link Distance (ft)	377	1295
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Intersection: 1: Valley Bl. & Driveway 1/Chambers Av.

Movement	EB	WB	WB	NB	NB	SB
Directions Served	LTR	LT	R	LT	R	LTR
Maximum Queue (ft)	27	42	59	31	35	61
Average Queue (ft)	10	22	13	5	13	20
95th Queue (ft)	32	36	35	24	38	47
Link Distance (ft)	430	674	674	1295		827
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)				100		
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: Valley Bl. & Driveway 2/Connie Wy.

Movement	EB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	6	49
Average Queue (ft)	0	23
95th Queue (ft)	4	47
Link Distance (ft)	377	1295
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0
