

TRANSPORTATION IMPACT ANALYSIS
MURRIETA HOT SPRINGS ROAD WIDENING
Murrieta, California
July 6, 2020

LLG Ref. 3-18-2934

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APPENDIX

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1.0 INTRODUCTION

It is proposed to widen and restripe Murrieta Hot Springs Road between Margarita Road and Winchester Road (SR 79) from four lanes to six lanes. This study will evaluate the transportation impacts due to this widening project. This report includes the following:

- Project Description
- Existing Conditions
- Analysis Approach and Methodology
- Analysis of Existing Conditions
- Cumulative Projects
- Analysis of Existing + Project Scenario
- Analysis of Opening Year 2020 Scenarios
- Analysis of Long-Term Scenarios
- Signal Warrant Analysis
- Future Pedestrian, Bike and Transit Conditions
- Conclusions

2.0 PROJECT DESCRIPTION

2.1 Project Location

Murrieta Hot Springs Road Widening Project is located in the City of Murrieta between east of SR 215 to the west and Winchester Road (SR 79) to the east.

Figure 2-1 depicts the Vicinity Map, while *Figure 2-2* depicts the Project Area.

2.2 Project Description

The project proposes to implement various improvements to Murrieta Hot Springs Road between Margarita Road and Winchester Road. The roadway would be restriped from a 4-lane roadway to a 6-lane roadway between Margarita Road to Via Princesa and widened from a 4-lane roadway to a 6-lane roadway between Via Princesa and Winchester Road.

In addition to the roadway widening, other improvements would occur. Bike lanes would be added in each direction on Murrieta Hot Springs Road and a curbed median would be installed between Margarita Road and Winchester Road (except at the intersections). Lighting poles would be installed along the alignment. The project would also construct curbs, gutters, catch basins, storm drains, and sidewalks along most of the alignment and both sides of the roadway. Curb access ramps would be improved at project intersections.

Additional crosswalks would be painted at the Via Princesa/Murrieta Hot Springs Road and Calle Del Lago/Murrieta Hot Springs Road intersections to accommodate the improvements. Street signs would be installed along the route.

Retaining walls would be constructed along the northern edge of Murrieta Hot Springs Road adjacent to the Ridgeway community, and along the southern edge of Murrieta Hot Springs Road adjacent to the residences near Calle Del Lago. This would require the removal of ornamental landscaping in the area. In addition, power poles, dry utilities, and fire hydrants would be relocated along the alignment.

Construction is anticipated to begin in Fall 2019 and be completed by August 2020. The project would cut 16,630 cubic yards and fill 2,030 cubic yards, for a net export of 14,600 cubic yards. Final staging areas have not been determined; potential staging areas include: the vacant lot between Del Haven Street and Winchester Road; the vacant lot adjacent to the southwest corner of the intersection of Via Princesa and Murrieta Hot Springs Road; and the vacant lot adjacent to the southwest corner of the intersection of Margarita Road and Murrieta Hot Springs Road. City will install a traffic signal at the Murrieta Hot Springs Road / Calle Del Lago intersection as part of the Project. Construction activities would take place during daytime hours between 7 am and 8 pm on weekdays and Saturdays, in accordance with the City's Municipal Code. No construction would take place on Sundays or holidays.

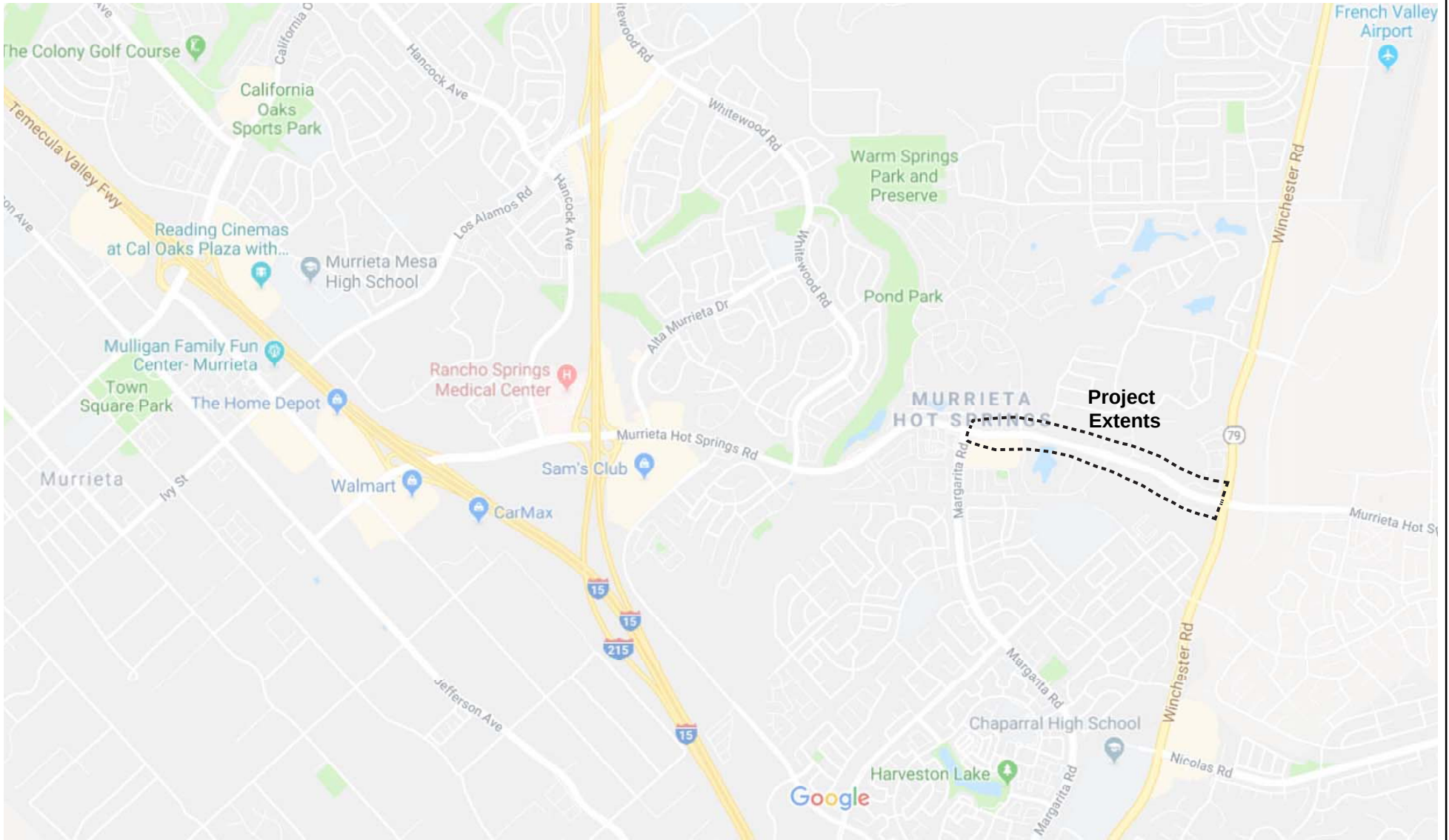


Figure 2-1

Vicinity Map

MURRIETA HOT SPRINGS ROAD WIDENING

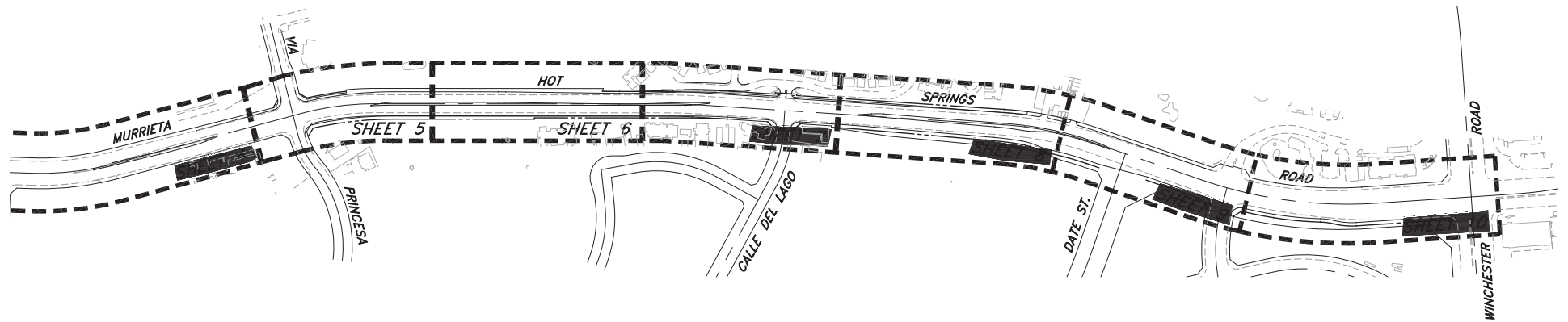


Figure 2-2

Project Area Map

MURRIETA HOT SPRINGS ROAD WIDENING

3.0 EXISTING CONDITIONS

Effective evaluation of the traffic impacts associated with the proposed Project requires an understanding of the existing transportation system within the project area. **Figure 3-1** shows an existing conditions diagram, including signalized intersections and lane configurations.

3.1 Existing Street Network

The following is a description of the existing street network in the study area. The City of Murrieta Circulation Map is included in **Appendix A**.

Murrieta Hot Springs Road is classified as a Multi-Modal Transportation Corridor between I-215 and Winchester Road (Highway 79) per the City of Murrieta Circulation Element. Currently it is built as:

- A 6-Lane divided facility with a painted median between I-215 and Margarita Road. A Class II bike lane currently exists between Alta Murrieta Drive and Margarita Road. The posted speed limit is 45 mph.
- Between Margarita Road and Via Princessa East, it is built as a 4-lane divided road with a raised median. Curb and gutter are provided on both sides, with a sidewalk on the south side only. The posted speed limit is 45 mph. Two driveways to retail businesses are provided in this segment, on the south side.
- Between Via Princessa East and Calle Del Lago, it is built as a 4-lane road with painted median. Curb and gutter are provided, but no sidewalk is provided. The posted speed limit is 45 mph. Two driveways to a business are provided in this segment, on the north side.
- Between Calle Del Lago and Winchester Road (Highway 79), it is built as a 4-lane road with Center Two-Way Left-Turn Lane (TWLTL). Curb and gutter are provided in this segment, but no sidewalk is provided. The posted speed limit is 45 mph. Two driveways to a business are provided in this segment, on the north side.

Margarita Road is classified as a 4-Lane Major Road with a TWLTL in the City of Murrieta Circulation Element. Currently, just south of Murrieta Hot Springs Road, a raised median is provided. Curb, gutter and sidewalk are provided. Currently, a Class II bike lane exists. The posted speed limit is 45 mph.

Date Street is classified as a 4-Lane Major Road with a TWLTL in the City of Murrieta Circulation Element. Currently, it is built between Ynez Road and Winchester Creek Avenue. Curb, gutter and sidewalks are provided. Parking is not permitted. Currently, a Class II bike lane exists. The posted speed limit is 45 mph.

Winchester Road (SR 79) is a State Highway built as a 6-lane, divided road with a raised median in the project vicinity. Curb, gutter and sidewalks are provided. No bike lanes are provided. Parking is not permitted. The posted speed limit is 55 mph.

Via Princesa is a two-lane private road in the City of Murrieta Circulation Element. Curb and gutter are provided. Sidewalks are provided intermittently. Curbside parking is permitted in sections. The posted speed limit is 20 mph.

Calle Del Lago is a two-lane private unclassified road in the City of Murrieta Circulation Element. Curb and gutter are provided. Sidewalks are generally not provided. Curbside parking is permitted in sections.

Delhaven Street is a two-lane unclassified road in the City of Murrieta Circulation Element. Curb and gutter are provided. Sidewalks are generally not provided. Curbside parking is permitted in sections.

3.2 Existing Bicycle Network

Currently, there is a Class II bike lane on Murrieta Hot Springs Road beginning at Alta Murrieta Drive and ending at Margarita Road. There are no other bicycle facilities provided along the street segments within the study area.

3.3 Existing Pedestrian Conditions

Sidewalks are provided along the both sides of Murrieta Hot Springs Road west of Margarita Road and on Margarita Road in the study area. Sidewalks are provided only along the south side of Murrieta Hot Springs Road between Margarita Road and Via Princesa East. Between Via Princesa and Winchester Avenue, no sidewalks are provided. The Project includes providing sidewalks in this section of Murrieta Hot Springs Road.

3.4 Existing Transit Conditions

Currently, the Riverside Transit Agency (RTA) Route 61 currently runs on Murrieta Hot Springs Road west of Margarita Road and on Margarita Road south of Murrieta Hot Springs Road. Route 61 Bus Route provides bus service between the Perris Station Transit Center and the County transit Center via Sun City, Menifee, Murrieta and Temecula. On weekdays, this route operates approximately every 30 to 40 minutes from 5:00 AM through 9:00 PM. On weekends, this route operates approximately once every hour from 7:00 AM through 7:00 PM.

3.5 Existing Traffic Volumes

Table 3–1 is a summary of the most recent available average daily traffic volumes (ADTs) from LLG counts conducted by LLG engineers in August 2018, when area schools were in session and the Clinton Keith extension, east of SR 215 was completed and open to traffic. Manual hand counts at the study area intersections, including bicycle and pedestrian counts, were conducted in August 2018.

Figure 3–2 shows the Existing Traffic Volumes. *Appendix A* contains the manual count sheets.

**TABLE 3-1
EXISTING TRAFFIC VOLUMES**

Street Segment	ADT^a
Murrieta Hot Springs Road	
School House Wy and Via Princessa W.	51,970
Margarita Rd and Via Princessa E.	38,450
Via Princessa E. and Calle Del Lago	34,680
Calle Del Lago and Delhaven St	35,680
Delhaven St and Hwy 79	34,170
Margarita Road	
Murrieta Hot Springs Rd and Torrey Pines Rd	21,870

Footnotes:

- a. Average Daily Traffic Volume counts conducted on August 23, 2018.

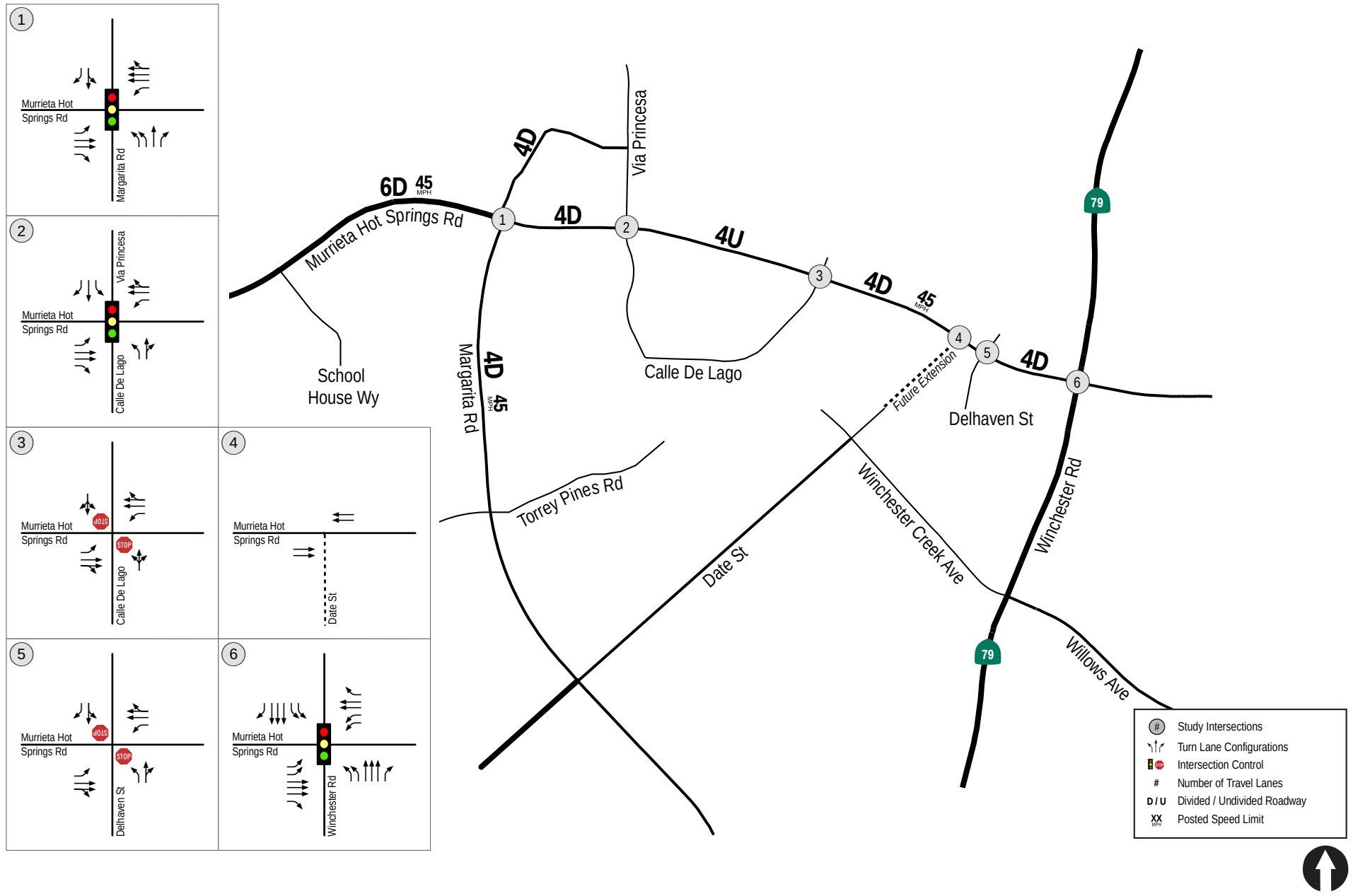


Figure 3-1

Existing Conditions Diagram

MURRIETA HOT SPRINGS ROAD WIDENING

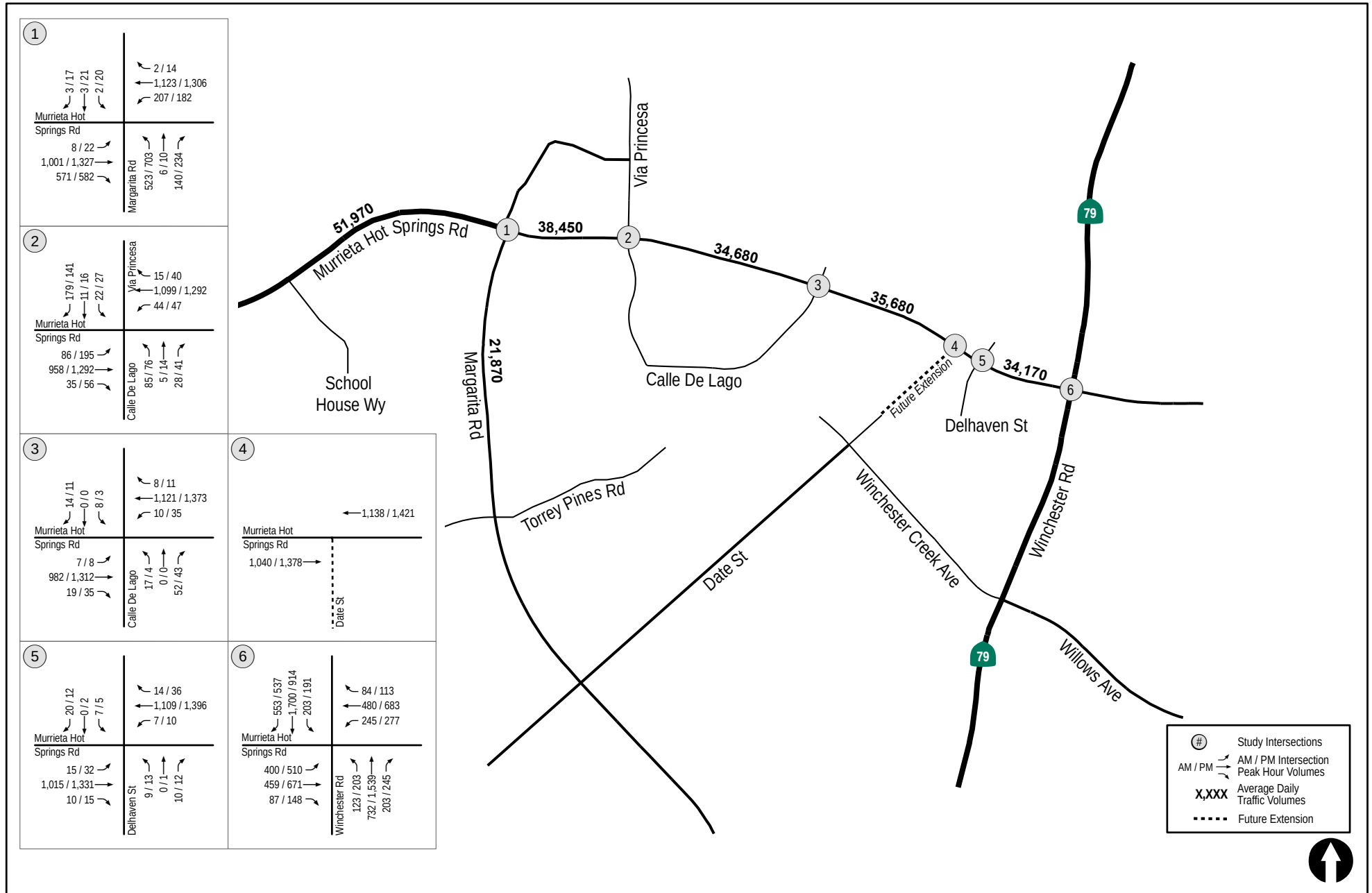


Figure 3-2
Existing Traffic Volumes

4.0 ANALYSIS SCENARIOS, APPROACH AND METHODOLOGY

4.1 Analysis Scenarios

This study includes analysis of the following scenarios:

- Existing
- Existing With Project
- Opening Year 2020 without Project
- Opening Year 2020 with Project
- Year 2035 Without Project
- Year 2035 with Project

4.2 Analysis Approach

Level of service (LOS) is the term used to denote the different operating conditions which occur on a given roadway segment under various traffic volume loads. It is a qualitative measure used to describe a quantitative analysis accounting for factors such as roadway geometries, signal phasing, speed, travel delay, freedom to maneuver, and safety. Level of service provides an index to the operational qualities of a roadway segment or an intersection. Level of service designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. Level of service designation is reported differently for signalized and unsignalized intersections, as well as for roadway segments.

4.3 Intersections

Signalized intersections were analyzed under AM and PM peak hour conditions. Average vehicle delay was determined utilizing the methodology found in Chapter 19 of the *Highway Capacity Manual 6th Edition (HCM)*, with the assistance of the *Synchro* (version 10) computer software. The delay values (represented in seconds) were qualified with a corresponding intersection Level of Service (LOS).

Table 4–1 summarizes the descriptions of the levels of service from A through F.

Signal timing plans were obtained from the corresponding jurisdictions and used in the intersection analysis. *Appendix A* contains the signal timing plans.

Unsignalized intersections were analyzed under AM and PM peak hour conditions. Average vehicle delay and Levels of Service (LOS) was determined based upon the procedures found in Chapters 20 and 21 of the *Highway Capacity Manual 6 (HCM)*, with the assistance of the *Synchro* (version 10) computer software.

Table 4–2 summarizes the Intersection LOS and Delay Ranges for signalized and unsignalized intersections.

TABLE 4-1
INTERSECTION LEVEL OF SERVICE DESCRIPTIONS

Level of Service	Description
A	Occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	Generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.
C	Generally results when there is fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
D	Generally results in noticeable congestion. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	Considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences.
F	Considered to be unacceptable to most drivers. This condition often occurs with over saturation i.e. when arrival flow rates exceed the capacity of the intersection. It may also occur at high volume-to-capacity ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels

TABLE 4-2
INTERSECTION LOS & DELAY RANGES

LOS	Delay (seconds/vehicle)	
	Signalized Intersections	Unsignalized Intersections
A	≤ 10.0	≤ 10.0
B	10.1 to 20.0	10.1 to 15.0
C	20.1 to 35.0	15.1 to 25.0
D	35.1 to 55.0	25.1 to 35.0
E	55.1 to 80.0	35.1 to 50.0
F	≥ 80.1	≥ 50.1

Source: 2010 Highway Capacity Manual

4.4 Street Segments

Street segment analysis is based upon the comparison of daily traffic volumes (ADTs) to the City of Murrieta's *Roadway Classification, Level of Service, and ADT Table*. **Table 4-3** provides segment capacities for different street classifications, based on traffic volumes and roadway characteristics.

**TABLE 4-3
CITY OF MURRIETA
DAILY ROADWAY CAPACITY VALUES**

Facility	Number of Lanes	Maximum Two-Way Volume (ADT)		
		LOS C	LOS D	LOS E
Freeway	4	61,200	68,900	76,500
Freeway	6	94,000	105,800	117,500
Freeway	8	128,400	144,500	160,500
Freeway	10	160,500	180,500	200,600
Expressway	4	32,700	36,800	40,900
Expressway	6	49,000	55,200	61,300
Multi-Modal Corridor	4	28,700	32,300	35,900
Multi-Modal Corridor	6	43,100	48,500	53,900
Augmented Urban Arterial	8	57,400	64,600	71,800
Urban Arterial	6	43,100	48,500	53,900
Arterial	4	28,700	32,300	35,900
Arterial	6	43,100	48,500	53,900
Major	4	27,300	30,700	34,100
Secondary	4	20,700	23,300	25,900
Collector	2	10,400	11,700	13,000

Notes:

1. All capacity figures are based on optimum conditions and are intended as guidelines for planning purposes only.
2. Maximum two-way ADT values are based on the 1999 Modified Highway Capacity Manual Level of Service Tables, as defined in the Riverside County Congestion Management Program.

5.0 ANALYSIS OF EXISTING CONDITIONS

5.1 Peak Hour Intersection Levels of Service

Table 5–1 summarizes the Existing peak hour intersection operations. As seen in *Table 5–1*, the following study area intersections are calculated to currently operate at LOS E or worse:

- Murrieta Hot Springs Road / Calle del Lago – LOS E during the PM peak hour
- Murrieta Hot Springs Road / Delhaven Street – minor street movement, LOS F during the AM and PM peak hours
- Murrieta Hot Springs Road / Winchester Road (Hwy 79) – LOS E during the PM peak hour

**TABLE 5–1
EXISTING INTERSECTION OPERATIONS**

Intersection	Control Type	Peak Hour	Delay ^a	LOS ^b
1. Murrieta Hot Springs Rd / Margarita Rd	Signal	AM	27.4	C
		PM	38.8	D
2. Murrieta Hot Springs Rd / Via Princessa	Signal	AM	15.3	B
		PM	16.1	B
3. Murrieta Hot Springs Rd / Calle Del Lago	TWSC	AM	26.7	D
		PM	43.3	E
4. Murrieta Hot Springs Rd / Date St	DNE	AM	DNE	DNE
		PM	DNE	DNE
5. Murrieta Hot Springs Rd / Delhaven St	TWSC	AM	98.2	F
		PM	503.9	F
6. Murrieta Hot Springs Rd / Hwy 79	Signal	AM	40.7	D
		PM	56.8	E

Footnotes:

a. Average delay expressed in seconds per vehicle.

b. Level of Service.

c. TWSC – Two-Way Stop Controlled intersection. Minor street left turn delay is reported.

General Note:

DNE – Does not exist.

SIGNALIZED		UNSIGNALIZED	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

5.2 Daily Street Segment Levels of Service

Table 5–2 summarizes the Existing segment operations. As seen in *Table 5–2*, the following study area segments are calculated to operate at LOS E or LOS F:

- **Murrieta Hot Springs Road:** School House Way to Via Princessa W. (LOS E)
- **Murrieta Hot Springs Road:** Margarita Road to Via Princessa E. (LOS F)
- **Murrieta Hot Springs Road:** Via Princessa E. to Calle Del Lago (LOS E)
- **Murrieta Hot Springs Road:** Calle Del Lago to Delhaven Street (LOS E)
- **Murrieta Hot Springs Road:** Delhaven Street to Hwy 79 (LOS E)

Appendix B includes the Existing peak hour intersection analysis worksheets.

TABLE 5–2
EXISTING STREET SEGMENT OPERATIONS

Street Segment	Classification	Capacity (LOS C) ^a	ADT ^b	LOS ^c	V/C ^d
Murrieta Hot Springs Road					
School House Wy to Via Princessa W.	6-Ln Urban Arterial	43,100	51,970	E	1.206
Margarita Rd to Via Princessa E.	4-Ln Arterial	28,700	38,450	F	1.340
Via Princessa E. to Calle Del Lago	4-Ln Arterial	28,700	34,680	E	1.208
Calle Del Lago to Delhaven St	4-Ln Arterial (TWLTL)	28,700	35,680	E	1.243
Delhaven St to Hwy 79	4-Ln Arterial (TWLTL)	28,700	34,170	E	1.191
Margarita Road					
Murrieta Hot Springs Rd to Torrey Pines Rd	4-Ln Major (TWLTL)	27,300	21,870	B	0.801

Footnotes:

- Capacities based on City of Murrieta Roadway Classification Table.
- Average Daily Traffic Volumes.
- Level of Service.
- Volume to Capacity.

6.0 ANALYSIS OF EXISTING WITH PROJECT SCENARIO

The geometry of the study intersections will be modified with the Project. *Figure 7-1* depicts the Existing with Project intersection geometry.

6.1 Intersection Analysis

The improved intersection geometry with the Project was used in the analysis of this scenario. *Table 6-1* summarizes the Existing with Project intersection operations. As seen in *Table 6-1*, with the Project, the following study area intersection are calculated to operate at LOS E or worse:

- Murrieta Hot Springs Road / Delhaven Street – LOS E during the AM peak hour and LOS F during the PM peak hour

It may be noted that with the Project, the delays at the Murrieta Hot Springs Road / Margarita Road does not reduce much or increases with the improvement. This is because although a third through lane is added at this intersection in both the eastbound and westbound directions, the existing dedicated eastbound right-turn lane is combined with the through lane. The volumes in the eastbound right-turn movement are high.

Even though the Murrieta Hot Springs Road / Delhaven Street intersection is calculated to operate at LOS E or F, the delay is less than without the project.

Appendix C includes the Existing with Project peak hour intersection analysis worksheets.

6.2 Segment Operations

Table 6-2 summarizes the Existing with Project segment operations. As seen in *Table 6-2*, with the Project, the segments of Murrieta Hot Springs Road between Margarita Road and Winchester Road (Hwy 79) that are widened are calculated to operate at LOS C or better.

TABLE 6-1
EXISTING WITH PROJECT INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing With Project ^c		Δ Delay ^d
			Delay ^a	LOS ^b	Delay	LOS	
1. Murrieta Hot Springs Rd / Margarita Rd	Signal	AM	27.4	C	27.3	C	(-) 0.1
		PM	38.8	D	39.8	D	1.0
2. Murrieta Hot Springs Rd / Via Princessa	Signal	AM	15.3	B	14.1	B	(-) 1.2
		PM	16.1	B	14.3	B	(-) 1.8
3. Murrieta Hot Springs Rd / Calle Del Lago	MSSC ^e	AM	26.7	D	17.7	C	(-) 9.0
		PM	43.3	E	21.9	C	(-) 21.4
4. Murrieta Hot Springs Rd / Date St	DNE	AM	DNE	DNE	DNE	DNE	NA
		PM	DNE	DNE	DNE	DNE	NA
5. Murrieta Hot Springs Rd / Delhaven St	SBR	AM	98.2	F	49.2	E	(49.0)
	WBL	AM	10.8	B	15.7	C	4.9
	SBR	PM	345.9	F	130.1	F	(215.8)
	WBL	PM	13.1	B	21.3	C	8.2
6. Murrieta Hot Springs Rd / Delhaven St	TWSC	AM	98.2	F	49.2	E	(-) 49.0
		PM	503.9	F	172.0	F	(-) 331.9
7. Murrieta Hot Springs Rd / Hwy 79	Signal	AM	40.7	D	36.3	D	(-) 4.4
		PM	56.8	E	47.1	D	(-) 9.7

Footnotes:

- a. Average delay expressed in seconds per vehicle.
- b. Level of Service.
- c. Project is widening Murrieta Hot Springs Road to 6-Lanes.
- d. Δ denotes the increase in delay due to project. Decrease (-) in delay due to the project.
- e. MSSC - Minor Street STOP Controlled. Minor Street left-turn delay and LOS reported.

General Notes:

DNE – Does not Exist
 NA – Not Applicable
 SBR – Southbound right-Turn
 WBL – Westbound Left-turn

SIGNALIZED		UNSIGNALIZED	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

TABLE 6-2
EXISTING WITH PROJECT STREET SEGMENT OPERATIONS

Street Segment	Existing				Existing With Project ^f					Δ V/C ^g
	Functional Capacity ^a (LOS C)	ADT ^b	LOS ^c	V/C ^d	Roadway Classification	LOS C Capacity ^e	ADT	LOS	V/C	
Murrieta Hot Springs Road										
School House Wy to Via Princessa W.	43,100	51,970	E	1.206	6-Ln Urban Arterial	43,100	51,970	E	1.206	0.000
Margarita Rd to Via Princessa E.	28,700	38,450	F	1.340	6- Ln Urban Arterial	43,100	38,450	C	0.892	(-)0.448
Via Princessa E. to Calle Del Lago	28,700	34,680	E	1.208	6- Ln Urban Arterial	43,100	34,680	B	0.805	(-)0.403
Calle Del Lago to Delhaven St	28,700	35,680	E	1.243	6- Ln Urban Arterial	43,100	35,680	B	0.828	(-)0.415
Delhaven St to Hwy 79	28,700	34,170	E	1.191	6- Ln Urban Arterial	43,100	34,170	B	0.793	(-)0.398
Margarita Road										
Murrieta Hot Springs Rd to Torrey Pines Rd	27,300	21,870	B	0.801	4- Ln Major (TWLTL)	27,300	21,870	B	0.801	0.000

Footnotes:

- a. Capacities based on City of Murrieta Roadway Classification Table.
- b. Average Daily Traffic Volumes.
- c. Level of Service.
- d. Volume to Capacity.
- e. Project is widening Murrieta Hot Springs Road to 6-Lanes
- f. Decrease (-) in V/C ratio due to the project.



MURRIETA HOT SPRINGS ROAD WIDENING

7.0 OPENING YEAR 2020

A list of cumulative projects was obtained from the City of Murrieta. Traffic generated by these projects was added to the Existing traffic volumes. An annual ambient growth of 2% for two years was also added to form the Opening Year 2020 volumes.

7.1 Description of Projects

Following are brief descriptions of the cumulative projects. *Table 7-1* summarizes the trips generated by these planned projects.

Adobe Springs

The Adobe Springs Project is located along the west side of Winchester Road (SR 79), just north of Auld Road. This project includes the development of 287 single family dwelling units and a 208,500 square foot (SF) business park. This project is estimated to generate a total of 5,196 daily trips, with 508 AM peak hour trips (303 inbound and 205 outbound) and 537 PM peak hour trips (244 inbound and 293 outbound).

Date Street Shopping Center

The Date Street Shopping Center is located along the south side of Old Date Street, east of Delhaven Street. This project includes the development of 24,880 square feet of retail. This project is estimated to generate a total of 801 daily trips, with 18 AM peak hour trips (11 inbound and 7 outbound) and 103 PM peak hour trips (70 inbound and 33 outbound).

Murrieta 180

The Murrieta 180 project is located in the southeast quadrant of the Murrieta Hot Springs Road / Via Princesa East intersection. This project consists of the development of 196 apartment units, with access to Murrieta Hot Springs Road. This project is estimated to generate a total of 1,303 daily trips, with 100 AM peak hour trips (20 inbound and 80 outbound) and 121 PM peak hour trips (78 inbound and 43 outbound).

Murrieta Apts

The Murrieta apartments project is located south of Date Street. This project consists of the development of 238 apartment units, with access to Date Street. This project is estimated to generate a total of 1,742 daily trips, with 109 AM peak hour trips (25 inbound and 84 outbound) and 133 PM peak hour trips (84 inbound and 49 outbound).

MHS 20

The MHS 20 project consists of a 12 fueling position gas station, a 3,600 SF convenience store and a 3,800 SF fast food restaurant, located south of Old Date Street along the north side of Rising Hill Drive. This project is estimated to generate a total of 4,400 daily trips, with 389 AM peak hour trips (208 inbound and 181 outbound) and 310 PM peak hour trips (156 inbound and 154 outbound).

TABLE 7-1
CUMULATIVE PROJECTS TRIP GENERATION

Land Use	Size	Daily Volume	AM Peak Hour Volumes			PM Peak Hour Volumes		
			In	Out	Total	In	Out	Total
Adobe Springs								
Residential	287 DU	2,732	55	161	216	181	106	287
Business Park	208.5 KSF	2,464	248	44	292	63	187	250
<i>Subtotal Adobe</i>		<i>5,196</i>	<i>303</i>	<i>205</i>	<i>508</i>	<i>244</i>	<i>293</i>	<i>537</i>
Date Street Shopping Ctr	24.88 KSF	801	11	7	18	70	33	103
Murietta 180	196 DU	1,303	20	80	100	78	43	121
Murietta Apts	238 DU	1,742	25	84	109	84	49	133
MHS 20		4,400	208	181	389	156	154	310
Aldi	19.06 KSF	1,834	40	25	65	34	33	77
Total Trips		15,276	607	582	1,189	666	605	1,281

Aldi

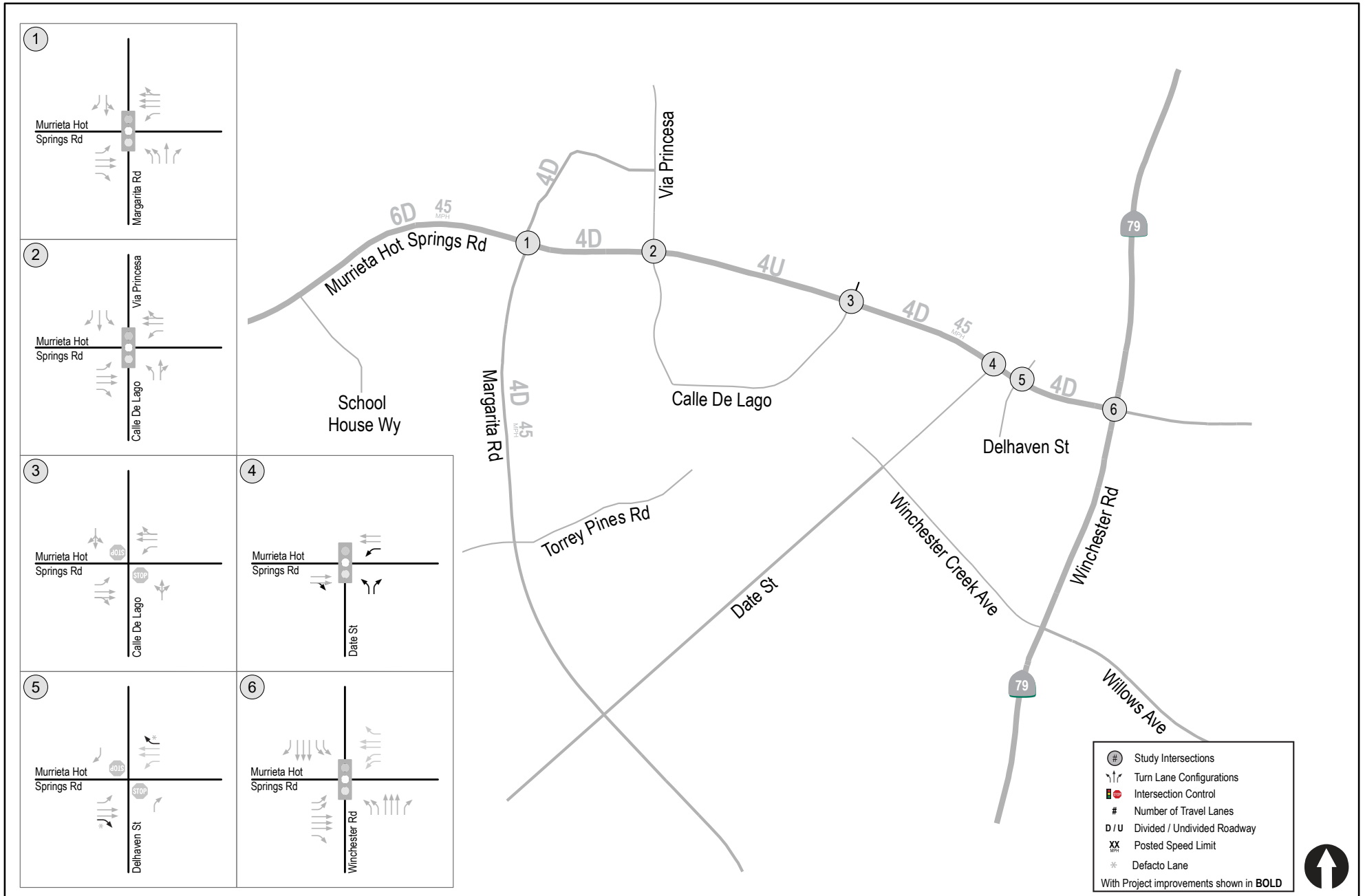
The Aldi Food Market Project is located in the southwest quadrant of the Winchester Road (SR 79) / Murietta Hot Springs Road intersection. This project consists of a 19,056 SF supermarket. This project is estimated to generate a total of 1,834 daily trips, with 65 AM peak hour trips (40 inbound and 25 outbound) and 77 PM peak hour trips (34 inbound and 33 outbound).

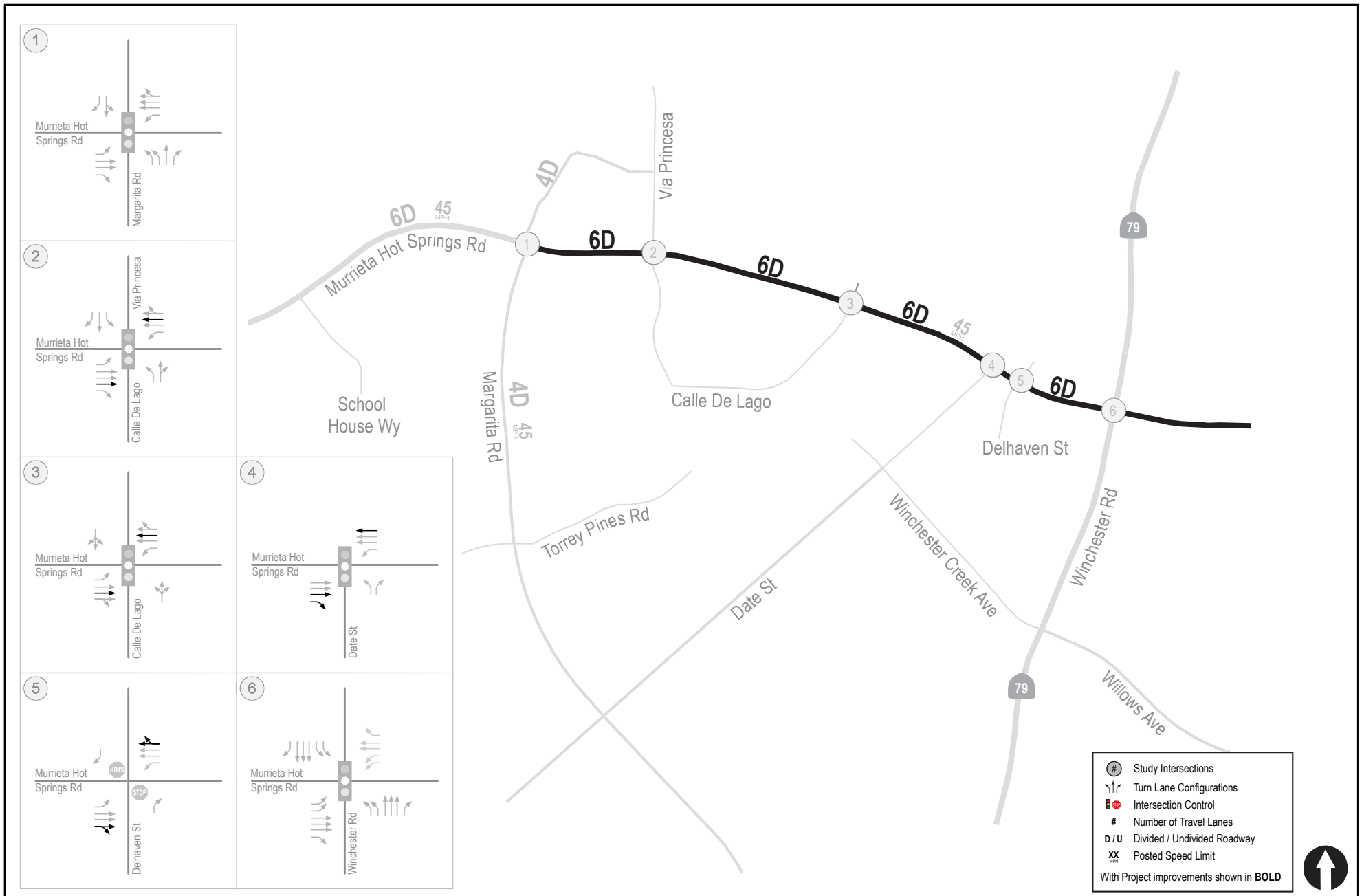
Overall, the above six cumulative projects are calculated to generate a total of 15,276 daily trips, with 1,189 AM peak hour trips (607 inbound and 582 outbound) and 1,281 PM peak hour trips (666 inbound and 605 outbound).

7.2 Opening Year 2020 Volumes

The traffic generated by the above six cumulative projects were assigned to the study area intersections and added to the Existing + Ambient growth of 2% per year traffic volumes to obtain the Opening Year 2020 traffic volumes.

Figure 7-1 depicts the Year 2020 Without Project Conditions Diagram, while **Figure 7-2** depicts the Year 2020 With Project Conditions Diagram. **Figure 7-3** depicts the Opening Year 2020 traffic volumes.





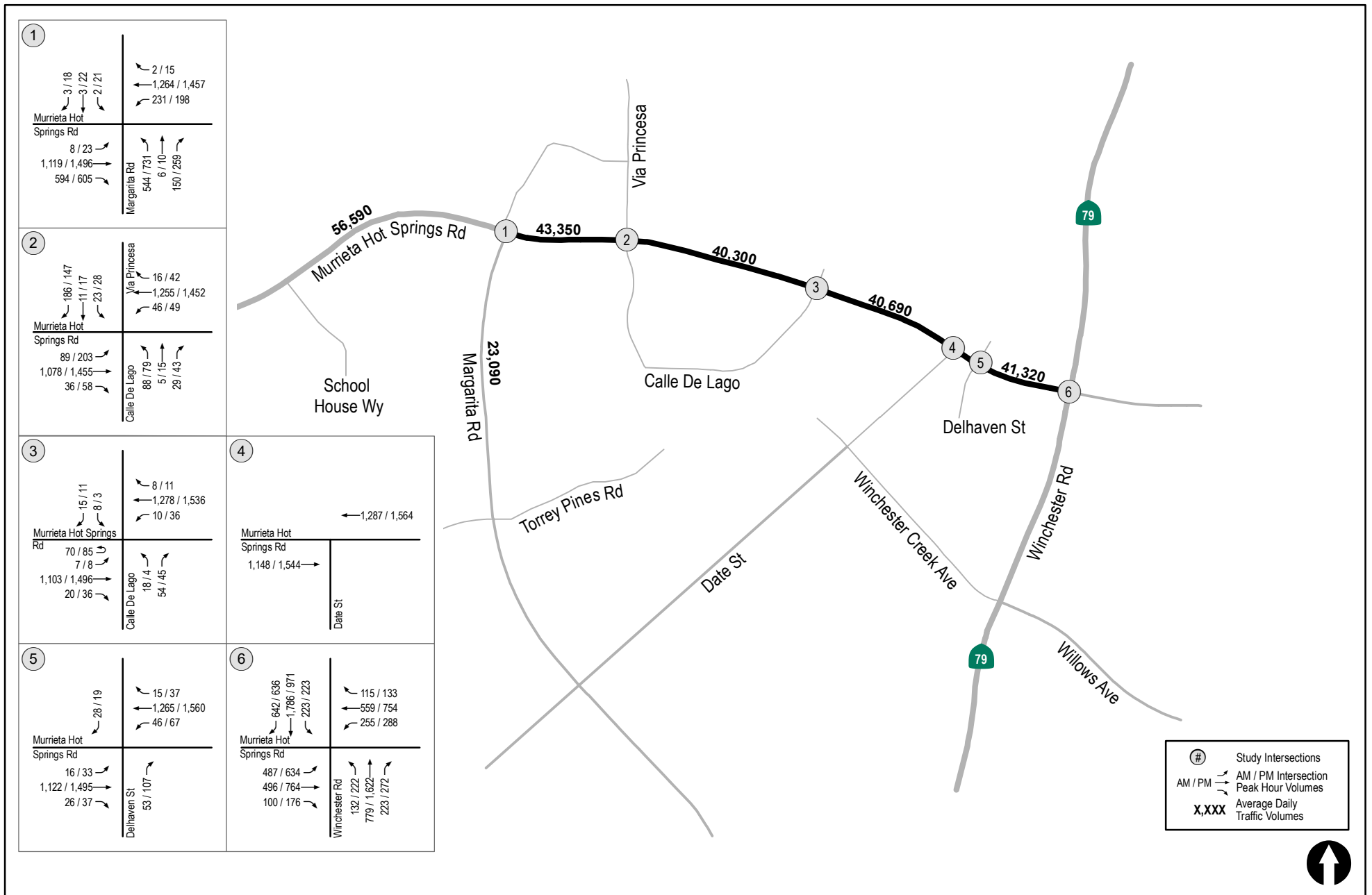


Figure 7-3
Opening Year 2020 Traffic Volumes

8.0 ANALYSIS OF OPENING YEAR 2020 SCENARIOS

As described in Section 7.0 Opening Year 2020, the Opening Year volumes include traffic volumes generated by known cumulative projects and an annual ambient growth of 2%. These volumes are analyzed without and with the Project in this section. Following is a description of this analysis.

8.1 Opening Year 2020 Without Project

8.1.1 Intersection Analysis

Table 8–1 summarizes the Opening Year 2020 without Project intersection operations. As seen in *Table 8–1*, on Opening Year 2020 without Project, the following study area intersection are calculated to operate at LOS E or worse:

- Murrieta Hot Springs Road / Calle Del Lago – LOS F during the AM and PM peak hours
- Murrieta Hot Springs Road / Date Street – LOS E during PM peak hour
- Murrieta Hot Springs Road / Highway 79 – LOS F during the PM peak hour

Appendix D includes the Opening Year 2020 without Project peak hour intersection analysis worksheets.

8.1.2 Segment Operations

Table 8–2 summarizes the Opening Year 2020 without Project segment operations. As seen in *Table 8–2*, on Opening Year 2020 without Project, the following study area segments are calculated to operate at LOS F:

- **Murrieta Hot Springs Road:** School House Way to Via Princessa W. (LOS F)
- **Murrieta Hot Springs Road:** Margarita Road to Via Princessa E. (LOS F)
- **Murrieta Hot Springs Road:** Via Princessa E. to Calle Del Lago (LOS F)
- **Murrieta Hot Springs Road:** Calle Del Lago to Delhaven Street (LOS F)
- **Murrieta Hot Springs Road:** Delhaven Street to Hwy 79 (LOS F)

**TABLE 8-1
OPENING YEAR 2020 INTERSECTION OPERATIONS**

Intersection	Control Type	Peak Hour	Opening Year 2020 Without Project		Opening Year 2020 With Project ^c		Δ Delay ^d
			Delay ^a	LOS ^b	Delay	LOS	
1. Murrieta Hot Springs Rd / Margarita Rd	Signal	AM	30.1	C	33.1	C	3.0
		PM	47.0	D	47.9	D	0.9
2. Murrieta Hot Springs Rd / Via Princessa	Signal	AM	15.3	B	13.7	B	(-) 1.6
		PM	17.1	B	14.2	B	(-) 2.9
3. Murrieta Hot Springs Rd / Calle Del Lago	MSSC ^e	AM	97.8	F	-	-	NA
		PM	1,133.6	F	-	-	NA
	Signal	AM			16.3	B	(-) 81.5
		PM			16.5	B	(-) 1,117.1
4. Murrieta Hot Springs Rd / Date St	Signal	AM	48.1	D	24.9	C	(-) 23.2
		PM	70.1	E	33.8	C	(-) 36.3
5. Murrieta Hot Springs Rd / Delhaven St	SBR	AM	15.0	C	17.1	C	2.1
	WBL	AM	12.2	B	19.6	C	7.4
	SBR	PM	17.7	C	20.4	C	2.7
	WBL	PM	16.6	C	36.8	E	20.2
6. Murrieta Hot Springs Rd / Hwy 79	Signal	AM	53.6	D	44.4	D	(-) 9.2
		PM	80.1	F	60.6	E	(-) 19.5

Footnotes:

- a. Average delay expressed in seconds per vehicle.
- b. Level of Service.
- c. Project is widening Murrieta Hot Springs Road to 6-Lanes.
- d. Δ denotes the change in delay due to project. Decrease (-) in delay due to the project.
- e. MSSC - Minor Street STOP Controlled. Minor Street left-turn delay and LOS reported.
- f. Only right turns are permitted from the Minor street at this intersection, major street left-turn delay and LOS are reported.

General Notes:

DNE – Does not Exist
 NA – Not Applicable
 SBR – Southbound right-turn
 WBL – Westbound left-turn

SIGNALIZED		UNSIGNALIZED	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

TABLE 8-2
OPENING YEAR 2020 STREET SEGMENT OPERATIONS

Street Segment	Opening Year 2020				Opening Year 2020 With Project					Δ V/C ^e
	Functional Capacity ^a (LOS C)	ADT ^b	LOS ^c	V/C ^d	Roadway Classification	Functional Capacity (LOS C)	ADT	LOS	V/C	
Murrieta Hot Springs Road										
School House Wy to Via Princessa W.	43,100	56,590	F	1.313	6-Ln Urban Arterial	43,100	56,590	F	1.313	0.000
Margarita Rd to Via Princessa E.	28,700	43,350	F	1.510	6-Ln Urban Arterial	43,100	43,350	D	1.006	-0.504
Via Princessa E. to Calle Del Lago	28,700	40,300	F	1.404	6-Ln Urban Arterial	43,100	40,300	C	0.935	-0.469
Calle Del Lago to Delhaven St	28,700	40,690	F	1.418	6-Ln Urban Arterial	43,100	40,690	C	0.944	-0.474
Delhaven St to Hwy 79	28,700	41,320	F	1.440	6-Ln Urban Arterial	43,100	41,320	C	0.959	-0.481
Margarita Road										
Murrieta Hot Springs Rd to Torrey Pines Rd	27,300	23,090	B	0.846	4-Ln Major (TWLTL)	27,300	23,090	B	0.846	0.000

Footnotes:

- a. Capacities based on City of Murrieta Roadway Classification Table.
- b. Average Daily Traffic Volumes.
- c. Level of Service.
- d. Volume to Capacity.
- e. Decrease (-) in V/C ratio due to the project.

General Notes:

Project is widening Murrieta Hot Springs Road to 6-Lanes.

8.2 Opening Year 2020 With Project

8.2.1 Project Description

As part of the Project, the City will widen Murrieta Hot Springs Road to a 6-Lane Urban Arterial and install a traffic signal at the Murrieta Hot Springs Road / Calle Del Lago intersection. Hence, under this condition, this intersection was analyzed as a signalized intersection.

8.2.2 Intersection Analysis

Table 8-1 summarizes the Opening Year 2020 without Project intersection operations. As seen in *Table 8-1*, on Opening Year 2020 with Project, the following study area intersection are calculated to operate at LOS E or worse:

- Murrieta Hot Springs Road / Delhaven Street – LOS E during the PM peak hour
- Murrieta Hot Springs Road / Highway 79 – LOS E during the PM peak hour

The following may be noted:

- With the Project, the delays at the Murrieta Hot Springs Road / Margarita Road does not reduce much or increases with the improvement. This is because although a third through lane is added at this intersection in both the eastbound and westbound directions, the existing dedicated eastbound right-turn lane is combined with the through lane. The volumes in the eastbound right-turn movement are high.
- With the Project, the delays at the Murrieta Hot Springs Road / Delhaven Street increases with the improvement. Left-turns are not permitted from Delhaven Street, the minor street, at this intersection. Therefore, the delay and LOS reported is for the left-turn movement on the Main street, Murrieta Hot Springs Road. Hence, since the left-turning traffic has to cross three through lanes (one additional lane) due to the improvement, the delay is higher.

Appendix E includes the Existing + Project peak hour intersection analysis worksheets.

8.2.3 Segment Operations

Table 8-2 summarizes the Opening Year 2020 with Project segment operations. As seen in *Table 8-2*, with the Project, the segments of Murrieta Hot Springs Road between Margarita Road and Winchester Road (SR 79) that are widened, are calculated to operate at LOS C or better, except the segment between Margarita Road and Via Princessa E, which is calculated to operate at LOS D.

9.0 ANALYSIS OF LONG-TERM SCENARIOS

9.1 Year 2035 Volumes

Year 2035 peak hour intersection and segment volumes were obtained from the City of Murrieta General Plan. *Appendix F* includes the figures depicting the Year 2035 intersection geometry and traffic volumes.

Figure 9-1 depicts the Year 2035 With Project Conditions Diagram, while *Figure 9-2* depicts the Year 2035 Traffic Volumes.

9.2 Year 2035 Without Project

9.2.1 Intersection Analysis

Table 9-1 summarizes the Year 2035 without Project intersection operations. As seen in *Table 9-1*, in the Year 2035 without Project, the following study area intersection are calculated to operate at LOS E or worse:

- Murrieta Hot Springs Road / Margarita Road – LOS F during the PM peak hour
- Murrieta Hot Springs Road / Calle Del Lago – LOS F during the AM peak hour
- Murrieta Hot Springs Road / Date Street – LOS F during the AM and PM peak hours
- Murrieta Hot Springs Road / Delhaven Street – LOS F during the AM and PM peak hours
- Murrieta Hot Springs Road / Highway 79 – LOS F during the AM and PM peak hours

Appendix F includes the Year 2035 without Project peak hour intersection analysis worksheets.

9.2.2 Segment Operations

Table 9-2 summarizes the Year 2035 without Project segment operations. As seen in *Table 9-2*, on Opening Year 2020 without Project, the following study area segments are calculated to operate at LOS F:

- **Murrieta Hot Springs Road:** School House Way to Via Princessa W. (LOS F)
- **Murrieta Hot Springs Road:** Margarita Road to Via Princessa E. (LOS F)
- **Murrieta Hot Springs Road:** Via Princessa E. to Calle Del Lago (LOS F)
- **Murrieta Hot Springs Road:** Calle Del Lago to Delhaven Street (LOS F)
- **Murrieta Hot Springs Road:** Delhaven Street to Hwy 79 (LOS F)

TABLE 9-1
YEAR 2035 INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Year 2035 Without Project		Year 2035 With Project ^c		Δ Delay ^d
			Delay ^a	LOS ^b	Delay	LOS	
1. Murrieta Hot Springs Rd / Margarita Rd	Signal	AM	40.0	D	41.5	D	1.5
		PM	118.5	F	111.4	F	(-) 7.1
2. Murrieta Hot Springs Rd / Via Princessa	Signal	AM	23.0	C	15.4	B	(-) 7.4
		PM	41.0	D	26.9	C	(-) 13.9
3. Murrieta Hot Springs Rd / Calle Del Lago	MSSC ^e	AM	7414.5	F	-	-	NA
		PM	32.1	D	-	-	NA
	Signal ^f	AM	-	-	7.8	A	-
		PM	-	-	8.2	A	-
4. Murrieta Hot Springs Rd / Date St	Signal	AM	160.7	F	30.7	C	(-) 130.0
		PM	193.2	F	32.2	C	(-) 161.0
5. Murrieta Hot Springs Rd / Delhaven St	MSSC	AM	57.7	F	73.9	F	16.2
		PM	355.4	F	484.4	F	129.0
	Signal ^f	AM	-	-	8.9	A	-
		PM	-	-	15.9	B	-
6. Murrieta Hot Springs Rd / Hwy 79	Signal	AM	233.2	F	139.7	F	(-) 93.5
		PM	269.0	F	180.2	F	(-) 88.8

Footnotes:

- Average delay expressed in seconds per vehicle.
- Level of Service.
- Project is widening Murrieta Hot Springs Road to 6-Lanes.
- Δ denotes the increase in delay due to project. Decrease (-) in delay due to the project.
- MSSC - Minor Street STOP Controlled. Minor Street left-turn delay and LOS reported.
- Alternative intersection analysis with signal control.

General Notes:

DNE – Does not Exist
NA – Not Applicable

SIGNALIZED		UNSIGNALIZED	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

**TABLE 9-2
YEAR 2035 STREET SEGMENT OPERATIONS**

Street Segment	Year 2035 Without Project				Year 2035 With Project					Δ V/C ^e
	Functional Capacity ^a (LOS C)	ADT ^b	LOS ^c	V/C ^d	Roadway Classification	Functional Capacity ^a (LOS C)	ADT	LOS	V/C	
Murrieta Hot Springs Road										
School House Wy to Via Princessa W.	43,100	66,400	F	1.541	6-Ln Urban Arterial	43,100	66,400	F	1.541	0.000
Margarita Rd to Via Princessa E.	28,700	56,800	F	1.979	6-Ln Urban Arterial	43,100	56,800	F	1.318	-0.661
Via Princessa E. to Calle Del Lago	28,700	52,600	F	1.833	6-Ln Urban Arterial	43,100	52,600	E	1.220	-0.613
Calle Del Lago to Delhaven St	28,700	54,200	F	1.889	6-Ln Urban Arterial	43,100	54,200	F	1.258	-0.631
Delhaven St to Hwy 79	28,700	66,500	F	2.317	6-Ln Urban Arterial	43,100	66,500	F	1.543	-0.774
Margarita Road										
Murrieta Hot Springs Rd to Torrey Pines Rd	27,300	23,200	B	0.850	4-Ln Major (TWLTL)	27,300	23,200	B	0.850	0.000

Footnotes:

- a. Capacities based on City of Murrieta Roadway Classification Table.
- b. Average Daily Traffic Volumes.
- c. Level of Service.
- d. Volume to Capacity.
- e. Decrease (-) in V/C ratio due to the project.

General Notes:

Project is widening Murrieta Hot Springs Road to 6-Lanes.

9.3 Year 2035 With Project

9.3.1 Project Description

As part of the Project, the City will widen Murrieta Hot Springs Road to a 6 Lane Urban Arterial and install a traffic signal at the Murrieta Hot Springs Road / Calle Del Lago intersection. Hence, under this condition, this intersection was analyzed as a signalized intersection.

9.3.2 Intersection Analysis

Table 9–1 summarizes the Year 2035 with Project intersection operations. As seen in *Table 9–1*, in the Year 2035 with Project, the following study area intersection are calculated to operate at LOS E or worse:

- Murrieta Hot Springs Road / Margarita Road – LOS F during the PM peak hour
- Murrieta Hot Springs Road / Delhaven Street – LOS F during the AM and PM peak hours
- Murrieta Hot Springs Road / Highway 79 – LOS F during the AM and PM peak hours

The following may be noted:

- With the Project, the delays at the Murrieta Hot Springs Road / Margarita Road does not reduce much, or even increases with the improvement. This is because although a third through lane is added at this intersection in both the eastbound and westbound directions, the existing dedicated eastbound right-turn lane is combined with the through lane. The volumes in the eastbound right-turn movement are high.
- With the Project, the delays at the Murrieta Hot Springs Road / Delhaven Street increases with the improvement. Left-turns are not permitted from Delhaven Street, the minor street, at this intersection. Therefore, the delay and LOS reported is for the left-turn movement on the Main street, Murrieta Hot Springs Road. Hence, since the left-turning traffic has to cross three through lanes (one additional lane) due to the improvement, the delay is higher.

The Murrieta Hot Springs Road / Calle Del Lago and the Murrieta Hot Springs Road / Calle Delhaven Street intersections were also analyzed assuming the installation of a traffic signal and are calculated to operate at LOS B or better with the traffic signal. A traffic signal is not recommended at the Murrieta Hot Springs Road / Calle Delhaven Street intersection and will not be permitted by the City due to the close intersection spacing to the traffic signal at future Date Street (approximately 300 feet) and the existing traffic signal at Winchester Road approximately 700 feet). However, it should be noted that traffic from these cross streets, Calle Del Lago and Delhaven Street will not be able to easily negotiate a left-turn on to the 6-Lane Murrieta Hot Springs Road without a traffic signal.

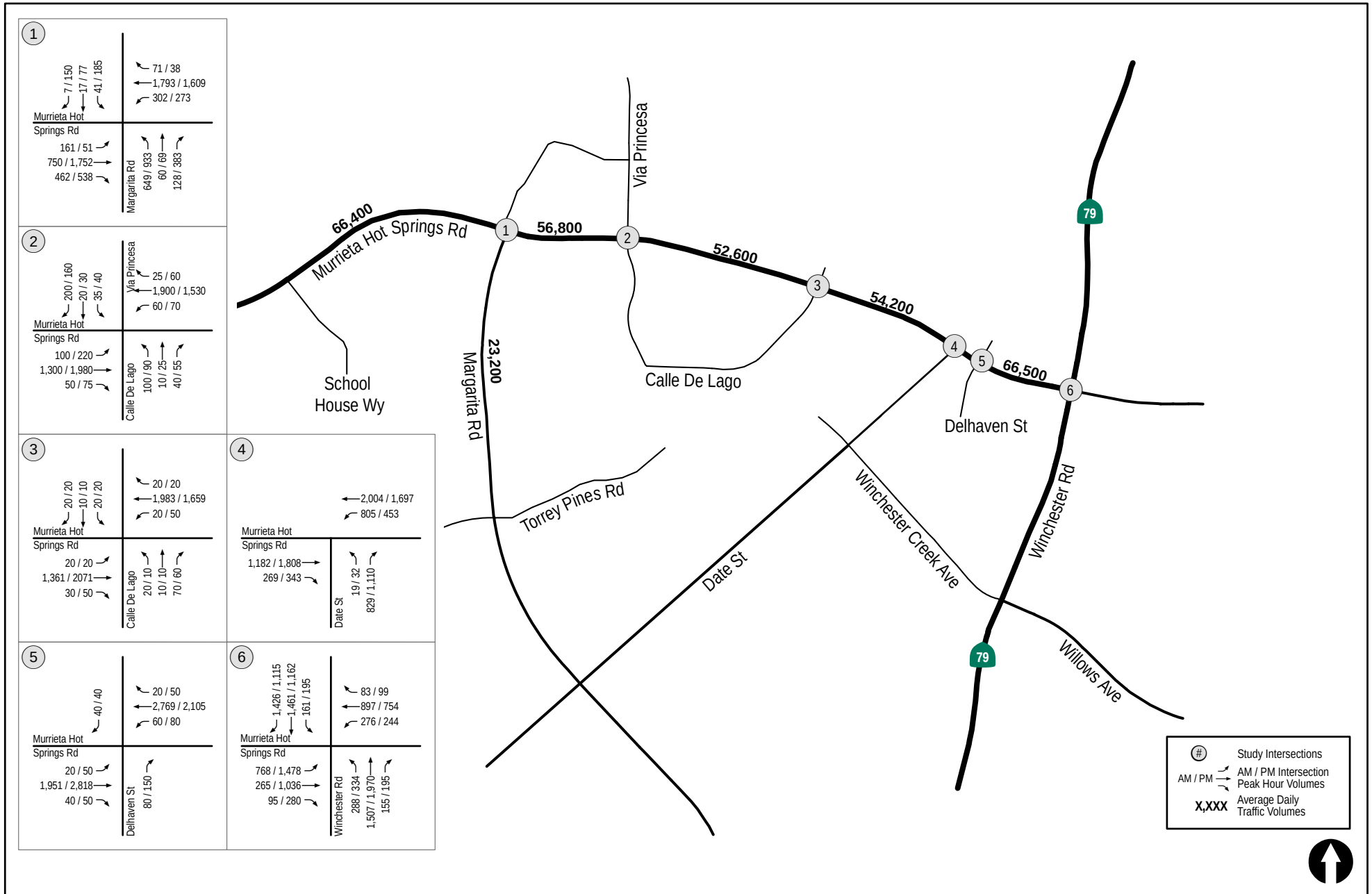
Appendix G includes the Year 2035 with Project peak hour intersection analysis worksheets.

9.3.3 Segment Operations

Table 9–2 summarizes the Year 2035 with Project segment operations. As seen in *Table 9–2*, in the Year 2035 with Project, the following study area segments are calculated to operate at LOS E or worse:

- **Murrieta Hot Springs Road:** School House Way to Via Princessa W. (LOS F)
- **Murrieta Hot Springs Road:** Margarita Road to Via Princessa E. (LOS F)
- **Murrieta Hot Springs Road:** Via Princessa E. to Calle Del Lago (LOS E)
- **Murrieta Hot Springs Road:** Calle Del Lago to Delhaven Street (LOS F)
- **Murrieta Hot Springs Road:** Delhaven Street to Hwy 79 (LOS F)

However, the V/C ratio decreases by more than 0.6 on all segments between Margarita Road and Winchester Road (SR 79) that are widened due to the Project. Hence the Project improves the segment operations substantially in the Year 2035 timeframe.



10.0 SIGNAL WARRANT ANALYSIS

Peak hour signal warrant analyses were conducted for each of two unsignalized intersections and one future intersection in the study area. These include the following:

1. Murrieta Hot Springs Road / Calle Del Lago (unsignalized)
2. Murrieta Hot Springs Road / Date Street (does not currently exist)
3. Murrieta Hot Springs Road / Delhaven Street (unsignalized)

10.1 Murrieta Hot Springs Road / Calle Del Lago

The following assumptions are made in determining the conditions at the subject intersection:

- *Approach Lanes* – One shared left-through-right lane is provided in the southbound and northbound directions.

Page 847 of the California Manual On Uniform Traffic Control Devices (MUTCD) 2014 Edition states “for an approach with one lane for through and right-turning traffic plus a left-turn lane, if engineering judgment indicates that it should be considered a one-lane approach because the traffic using the left-turn lane is minor, the total traffic volume approaching the intersection should be applied against the signal warrants as a one-lane approach. The approach should be considered two lanes if approximately half of the traffic on the approach turns left and the left-turn lane is of sufficient length to accommodate all left-turn vehicles.”

- At this location, Calle Del Lago is a two-lane road (one lane in each direction) with a shared left-through-right lane at the intersection and it is not considered to be possible for traffic to enter Murrieta Hot Springs Road from northbound or southbound Calle Del Lago with “minimal conflict”. Hence, these approaches function and are analyzed as a one lane approach.
- *Approach Volumes* – As stated in the MUTCD, “engineering judgment and rationale should be applied to a street approach with one through/left-turn lane plus a right-turn lane. In this case, the degree of conflict of minor-street right-turn traffic with traffic on the major street should be considered. Thus, right-turn and left turn traffic should be included in the minor-street volume since the movement cannot enter the major street with minimal conflict. The approach should be evaluated as a one-lane approach with all traffic volumes in the right/through/left-turn movements considered.”
- The posted speed limit on Murrieta Hot Springs Road is 45 mph.

Based on the existing and forecast future volumes, the peak hour volume warrant is not met at this intersection under Existing conditions, on Opening Year 2020 or in the long-term (Year 2035).

10.2 Murrieta Hot Springs Road / Date Street

The following assumptions are made in determining the conditions at the subject intersection:

- *Approach Lanes* – One left-turn lane and dual right-turn lanes are proposed in the northbound direction at this future intersection in the long-term. Date Street will be a four-lane road (two lanes in each direction) with a dedicated left-turn lane and two right-turn lanes at the intersection and it is not

considered to be possible for traffic to enter Murrieta Hot Springs Road from northbound Date street with “minimal conflict”. This approach will function and is analyzed as a two-lane approach.

- *Approach Volumes* – As described above, a left-turn lane and dual right-turn lanes will be provided on northbound Date Street at Murrieta Hot Springs Road. Based on the number of approach lanes and the MUTCD, a 50% reduction in right-turning traffic is assumed since this is considered a two-lane approach and right-turning traffic has to enter a busy 3-lane road that functions as one of the main arterials. The posted speed limit on Murrieta Hot Springs Road is 45 mph.

Based on the existing and forecast future volumes, the peak hour volume warrant is met at this intersection in the long-term (Year 2035).

10.3 Murrieta Hot Springs Road / Delhaven Street

The following assumptions are made in determining the conditions at the subject intersection:

- *Approach Lanes* – One left-turn lane and one shared through-right lane is provided in the southbound and northbound directions at this intersection. At this location, Delhaven Street is a two-lane road (one lane in each direction) with One left-turn lane and one shared through-right lane at the intersection and it is not considered to be possible for traffic to enter Murrieta Hot Springs Road from northbound or southbound Delhaven Street with “minimal conflict”. Hence, these approaches function and are analyzed as a two-lane approach.
- *Approach Volumes* – The posted speed limit on Murrieta Hot Springs Road is 45 mph.

Based on the existing and forecast future volumes, the peak hour volume warrant is not met at this intersection under Existing conditions. However, the peak hour warrant is met at this intersection on Opening Year 2020 and in the long-term (Year 2035).

11.0 FUTURE PEDESTRIAN, BIKE AND TRANSIT CONDITIONS

11.1 Future Pedestrian Conditions

Sidewalks are currently provided along both sides of Murrieta Hot Springs Road west of Margarita Road and on Margarita Road in the study area. With the widening of Murrieta Springs Road between Margarita Road and Winchester Road, sidewalks will be provided on both sides of Murrieta Hot Springs Road for the entire length of the Project. Additional crosswalks would be painted at the Via Princesa/Murrieta Hot Springs Road and Calle Del Lago/Murrieta Hot Springs Road intersections to for the convenience of pedestrians.

Overall pedestrian circulation along the length of the Project would be improved.

11.2 Future Bike Conditions

Currently, there is a Class II bike lane on Murrieta Hot Springs Road beginning at Alta Murrieta Drive and ending at Margarita Road. Per the *Murrieta General Plan Circulation Element*, the existing Class II bike lane on Murrieta Hot Springs Road would be extended from Margarita Road to Winchester Road in the future. Exhibit 5-1 Trails and Bikeways from the *Murrieta General Plan Circulation Element* is included in **Appendix H** for reference. The Project will add bike lanes in each direction on Murrieta Hot Springs Road between Margarita Road and Winchester Road and therefore improve bicycle circulation along the length of the Project would be improved.

11.3 Future Transit Conditions

As described previously, the Riverside Transit Agency (RTA) Route 61 currently runs on Murrieta Hot Springs Road west of Margarita Road and on Margarita Road south of Murrieta Hot Springs Road. No plans for future transit development are known at this time.

12.0 CONCLUSIONS

Based on the preceding analyses, the widening of Murrieta Hot Springs Road will result in improved traffic operations in both the near-term and long-term timeframes.

Table 9-2 shows that while LOS F is calculated in the long-term even with the widening to six lanes, the V/C ratios are greatly improved. In addition, the pedestrian, bicycle and transit conditions along Murrieta Hot Springs Road will be greatly improved.

Without a traffic signal, traffic from Calle Del Lago and Delhaven Street will not be able to easily turn left onto the 6-Lane Murrieta Hot Springs Road.

Overall, the widening project will be a substantial improvement as compared to Existing conditions.

TECHNICAL APPENDICES
MURRIETA HOT SPRINGS ROAD WIDENING
Murrieta, California
July 6, 2020

LLG Ref. 3-18-2934

**Linscott, Law &
Greenspan, Engineers**

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APPENDICES

APPENDIX

- A. City of Murrieta Circulation Element from the City of Murrieta General Plan, Intersection and Segment Manual Count Sheets and Signal Timing Plans
- B. Peak Hour Intersection Analysis Worksheets – Existing
- C. Exhibits 5a and 5b from the City of Murrieta General Plan and Peak Hour Intersection Analysis Worksheets – Existing With Project
- D. Peak Hour Intersection Analysis Worksheets – Opening Year 2020 Without Project
- E. Peak Hour Intersection Analysis Worksheets – Opening Year 2020 With Project
- F. Copy of the Year 2035 volumes from the City of Murrieta General Plan, Peak Hour Intersection Analysis Worksheets – Year 2035 Without Project
- G. Peak Hour Intersection Analysis Worksheets – Year 2035 With Project
- H. Exhibit 5-1 Trails and Bikeways from the Murrieta General Plan Circulation Element

APPENDIX A

CITY OF MURRIETA CIRCULATION ELEMENT - CITY OF MURRIETA GENERAL PLAN, INTERSECTION & SEGMENT MANUAL COUNT SHEETS AND SIGNAL TIMING PLANS



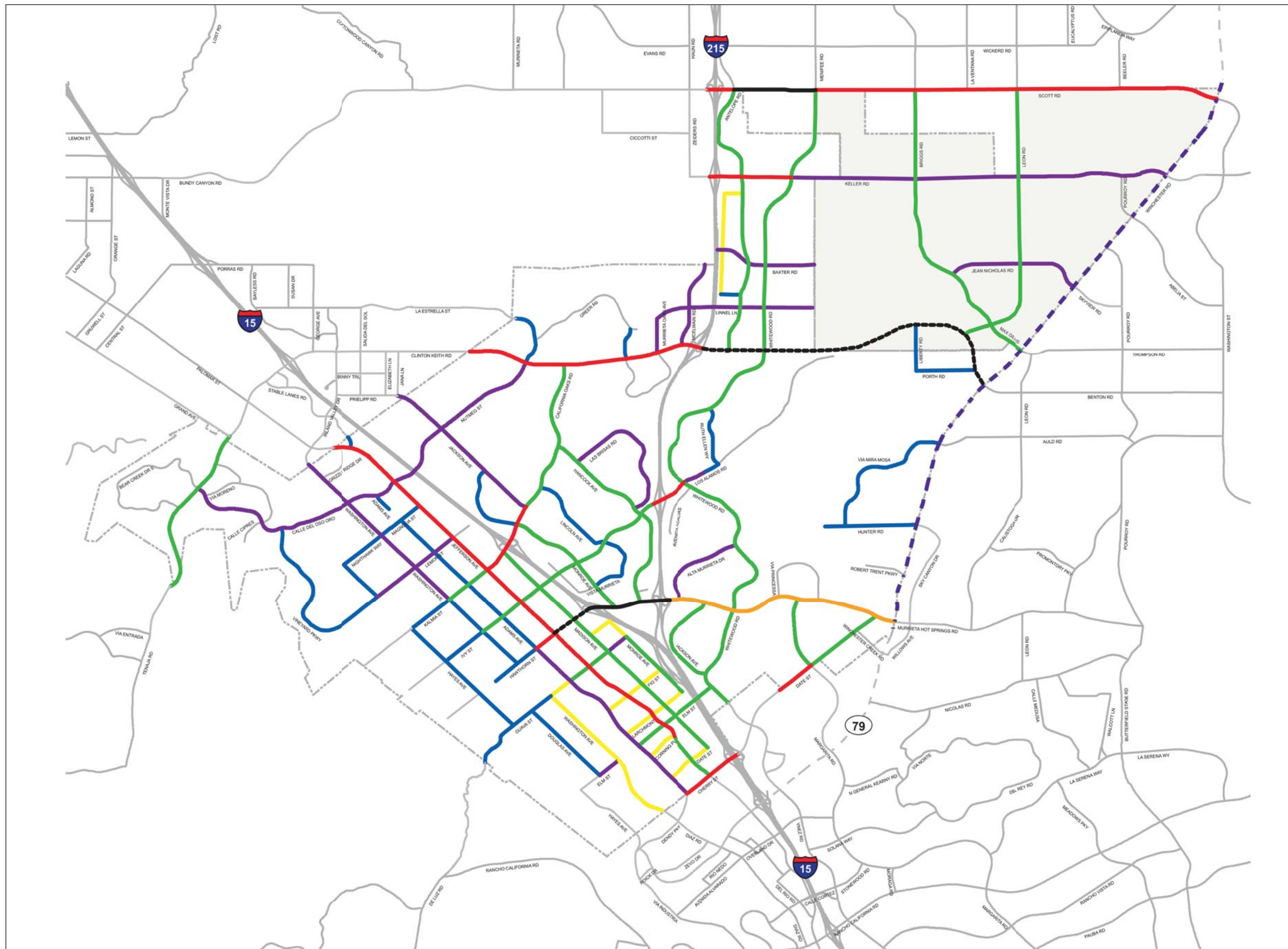
LEGEND

	* Curb to Curb / R/W
	County of Riverside Expressway 110' / 184'
	Augmented Urban Arterial 126' / 150'
	Multi-Modal Transp. Corridor 86' / 134'
	Urban Arterial 110' / 134'
	Arterial 86' / 110'
	Major 76' / 100'
	Secondary 64' / 88'
	Industrial Collector 56' / 78'
	Collector 44' / 66'
	Selected Roadways Shown for Clarity
	City of Murrieta Boundary
	Sphere of Influence

* Per City Standard Drawings



0 0.5 1
Miles



National Data & Surveying Services

Intersection Turning Movement Count

Location: Margarita Rd & Murrieta Hot Springs Rd
City: Murrieta
Control: Signalized

Project ID: 18-06100-001
Date: 8/23/2018

Total

NS/EW Streets:	Margarita Rd				Margarita Rd				Murrieta Hot Springs Rd				Murrieta Hot Springs Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	2	1	1	0	0.5	0.5	1	0	1	2	1	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	147	0	18	0	0	2	0	0	1	187	91	0	31	289	2	1	769
7:15 AM	102	1	25	0	0	1	1	0	3	203	125	0	47	349	2	1	860
7:30 AM	115	2	17	0	0	0	0	0	4	211	172	0	37	309	2	1	870
7:45 AM	117	4	25	0	0	2	2	0	2	270	162	0	54	315	1	2	956
8:00 AM	114	0	39	0	1	0	1	0	3	264	133	0	60	228	0	0	843
8:15 AM	136	0	41	0	0	0	0	0	2	240	118	0	53	314	1	3	908
8:30 AM	156	2	35	0	1	1	0	0	1	227	158	0	34	266	0	1	882
8:45 AM	146	2	26	0	0	0	2	0	3	232	162	0	47	317	0	1	938
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	1033	11	226	0	2	6	6	0	19	1834	1121	0	363	2387	8	10	7026
	81.34%	0.87%	17.80%	0.00%	14.29%	42.86%	42.86%	0.00%	0.64%	61.67%	37.69%	0.00%	13.11%	86.24%	0.29%	0.36%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	523	6	140	0	2	3	3	0	8	1001	571	0	201	1123	2	6	3589
PEAK HR FACTOR :	0.838	0.375	0.854	0.000	0.500	0.375	0.375	0.000	0.667	0.927	0.881	0.000	0.838	0.891	0.500	0.500	0.939
	0.867				0.500				0.910				0.895				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	2	1	1	0	0.5	0.5	1	0	1	2	1	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	139	2	42	0	3	0	2	0	4	282	120	0	36	263	1	3	897
4:15 PM	149	3	51	0	2	1	3	0	7	286	130	0	42	262	10	1	947
4:30 PM	163	10	49	0	2	5	8	0	4	318	149	1	40	339	4	2	1094
4:45 PM	165	3	56	0	4	1	3	0	3	318	171	0	43	302	1	0	1070
5:00 PM	174	0	46	0	3	5	4	0	8	304	130	1	50	304	2	4	1035
5:15 PM	191	5	64	0	2	2	3	0	5	363	146	0	34	347	5	2	1169
5:30 PM	163	4	70	0	13	10	8	0	5	335	163	1	37	340	3	2	1154
5:45 PM	175	1	54	0	2	4	2	0	1	325	143	1	51	315	4	2	1080
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	1319	28	432	0	31	28	33	0	37	2531	1152	4	333	2472	30	16	8446
	74.14%	1.57%	24.28%	0.00%	33.70%	30.43%	35.87%	0.00%	0.99%	67.96%	30.93%	0.11%	11.68%	86.71%	1.05%	0.56%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	703	10	234	0	20	21	17	0	19	1327	582	3	172	1306	14	10	4438
PEAK HR FACTOR :	0.920	0.500	0.836	0.000	0.385	0.525	0.531	0.000	0.594	0.914	0.893	0.750	0.843	0.941	0.700	0.625	0.949
	0.911				0.468				0.939				0.968				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Margarita Rd & Murrieta Hot Springs Rd
City: Murrieta
Control: Signalized

Project ID: 18-06100-001
Date: 8/23/2018

Bikes

NS/EW Streets:	Margarita Rd				Margarita Rd				Murrieta Hot Springs Rd				Murrieta Hot Springs Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	2 NL	1 NT	1 NR	0 NU	0.5 SL	0.5 ST	1 SR	0 SU	1 EL	2 ET	1 ER	0 EU	1 WL	3 WT	0 WR	0 WU	
7:00 AM	10	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	13
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	2	0	0	0	0	0	0	0	1	0	0	1	0	0	4
7:45 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2
8:00 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	2	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	5
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
TOTAL VOLUMES :	NL 13	NT 0	NR 4	NU 0	SL 0	ST 0	SR 0	SU 0	EL 0	ET 0	ER 5	EU 0	WL 4	WT 1	WR 0	WU 0	TOTAL 27
APPROACH %'s :	76.47%	0.00%	23.53%	0.00%					0.00%	0.00%	100.00%	0.00%	80.00%	20.00%	0.00%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	3	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	9
PEAK HR FACTOR :	0.375	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.375	0.000	0.000	0.000	0.450
											0.375						

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	2 NL	1 NT	1 NR	0 NU	0.5 SL	0.5 ST	1 SR	0 SU	1 EL	2 ET	1 ER	0 EU	1 WL	3 WT	0 WR	0 WU	
4:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
4:15 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:15 PM	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2
5:30 PM	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	3
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES :	NL 2	NT 1	NR 0	NU 0	SL 0	ST 0	SR 0	SU 0	EL 0	ET 2	ER 3	EU 0	WL 0	WT 2	WR 0	WU 0	TOTAL 10
APPROACH %'s :	66.67%	33.33%	0.00%	0.00%					0.00%	40.00%	60.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	1	1	0	0	0	0	0	0	0	1	1	0	0	2	0	0	6
PEAK HR FACTOR :	0.25	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.500	0.000	0.000	0.500
											0.500						

National Data & Surveying Services

Intersection Turning Movement Count

Location: Margarita Rd & Murrieta Hot Springs Rd
City: Murrieta

Project ID: 18-06100-001
Date: 8/23/2018

Pedestrians (Crosswalks)

NS/EW Streets:	Margarita Rd		Margarita Rd		Murrieta Hot Springs Rd		Murrieta Hot Springs Rd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		TOTAL
	EB	WB	EB	WB	NB	SB	NB	SB	
7:00 AM	1	0	0	0	0	1	0	0	2
7:15 AM	0	0	0	0	2	0	0	0	2
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	2	1	1	0	0	0	4
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	1	0	0	0	0	1
8:30 AM	1	0	0	0	0	1	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES :	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
APPROACH %'s :	2	0	2	2	3	2	0	0	11
PEAK HR :	100.00%	0.00%	50.00%	50.00%	60.00%	40.00%			
PEAK HR VOL :	07:45 AM - 08:45 AM								TOTAL
PEAK HR FACTOR :	1	0	2	2	1	1	0	0	7
	0.250		0.250	0.500	0.250	0.250			0.438
	0.250		0.333		0.500				

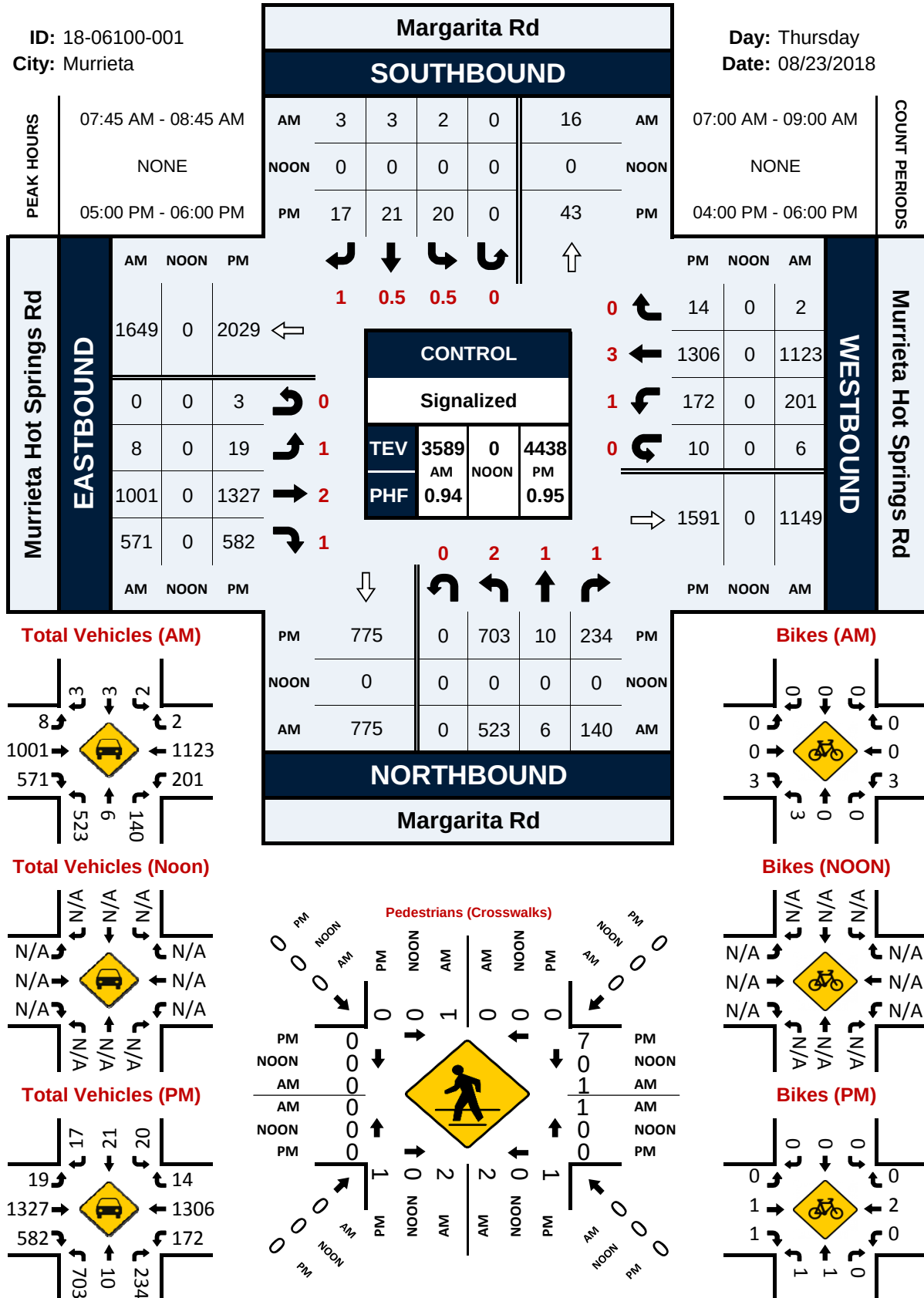
PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		TOTAL
	EB	WB	EB	WB	NB	SB	NB	SB	
4:00 PM	1	1	1	0	1	1	0	0	5
4:15 PM	0	0	1	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	1	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	2	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	1	1	0	5	0	0	7
TOTAL VOLUMES :	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
APPROACH %'s :	1	1	3	1	1	9	0	0	16
PEAK HR :	50.00%	50.00%	75.00%	25.00%	10.00%	90.00%			
PEAK HR VOL :	05:00 PM - 06:00 PM								TOTAL
PEAK HR FACTOR :	0	0	1	1	0	7	0	0	9
			0.250	0.250		0.350			0.321
			0.250		0.350				

Margarita Rd & Murrieta Hot Springs Rd

Peak Hour Turning Movement Count

ID: 18-06100-001
City: Murrieta

Day: Thursday
Date: 08/23/2018



National Data & Surveying Services

Intersection Turning Movement Count

Location: Via Princesa & Murrieta Hot Springs Rd

City: Murrieta

Control: Signalized

Project ID: 18-06100-002

Date: 8/23/2018

Total

NS/EW Streets:	Via Princesa				Via Princesa				Murrieta Hot Springs Rd				Murrieta Hot Springs Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	1 NT	0 NR	0 NU	1 SL	1 ST	1 SR	0 SU	1 EL	2 ET	1 ER	0 EU	1 WL	2 WT	0 WR	0 WU	
7:00 AM	18	0	8	0	0	2	55	0	11	196	7	0	8	283	4	0	592
7:15 AM	23	2	7	0	0	2	42	0	25	191	11	0	6	310	5	0	624
7:30 AM	20	1	8	0	4	4	47	0	18	229	5	0	5	306	4	0	651
7:45 AM	35	2	6	0	6	4	34	0	20	262	11	0	13	265	2	0	660
8:00 AM	17	0	8	0	5	1	57	0	23	230	6	0	14	250	4	0	615
8:15 AM	13	2	6	0	7	2	41	0	25	237	13	0	12	278	5	0	641
8:30 AM	17	0	6	0	5	4	43	0	20	207	7	0	18	264	9	0	600
8:45 AM	20	0	4	0	6	10	44	0	25	231	1	0	19	300	4	0	664
TOTAL VOLUMES :	NL 163	NT 7	NR 53	NU 0	SL 33	ST 29	SR 363	SU 0	EL 167	ET 1783	ER 61	EU 0	WL 95	WT 2256	WR 37	WU 0	TOTAL 5047
APPROACH %'s :	73.09%	3.14%	23.77%	0.00%	7.76%	6.82%	85.41%	0.00%	8.30%	88.66%	3.03%	0.00%	3.98%	94.47%	1.55%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	85	5	28	0	22	11	179	0	86	958	35	0	44	1099	15	0	2567
PEAK HR FACTOR :	0.607	0.625	0.875	0.000	0.786	0.688	0.785	0.000	0.860	0.914	0.673	0.000	0.786	0.898	0.750	0.000	0.972
	0.686				0.841				0.921				0.919				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	1 NT	0 NR	0 NU	1 SL	1 ST	1 SR	0 SU	1 EL	2 ET	1 ER	0 EU	1 WL	2 WT	0 WR	0 WU	
4:00 PM	16	4	9	0	4	3	25	0	47	284	10	0	7	284	6	0	699
4:15 PM	21	6	10	0	9	2	29	0	56	265	12	0	17	299	13	0	739
4:30 PM	11	3	10	0	7	2	36	0	44	315	11	0	14	323	9	0	785
4:45 PM	17	2	12	0	9	3	43	0	43	293	19	0	20	268	8	0	737
5:00 PM	22	3	13	0	9	7	38	0	43	329	12	0	7	315	10	0	808
5:15 PM	18	4	7	0	6	4	46	0	49	323	12	0	13	335	10	0	827
5:30 PM	17	3	10	0	5	4	25	0	48	338	13	0	10	350	10	0	833
5:45 PM	19	4	11	0	7	1	32	0	55	282	19	0	17	292	10	0	749
TOTAL VOLUMES :	NL 141	NT 29	NR 82	NU 0	SL 56	ST 26	SR 274	SU 0	EL 385	ET 2429	ER 108	EU 0	WL 105	WT 2466	WR 76	WU 0	TOTAL 6177
APPROACH %'s :	55.95%	11.51%	32.54%	0.00%	15.73%	7.30%	76.97%	0.00%	13.18%	83.13%	3.70%	0.00%	3.97%	93.16%	2.87%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	76	14	41	0	27	16	141	0	195	1272	56	0	47	1292	40	0	3217
PEAK HR FACTOR :	0.864	0.875	0.788	0.000	0.750	0.571	0.766	0.000	0.886	0.941	0.737	0.000	0.691	0.923	1.000	0.000	0.965
	0.862				0.821				0.954				0.932				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Via Princesa & Murrieta Hot Springs Rd
City: Murrieta
Control: Signalized

Project ID: 18-06100-002
Date: 8/23/2018

Bikes

NS/EW Streets:	Via Princesa				Via Princesa				Murrieta Hot Springs Rd				Murrieta Hot Springs Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	1 NT	0 NR	0 NU	1 SL	1 ST	1 SR	0 SU	1 EL	2 ET	1 ER	0 EU	1 WL	2 WT	0 WR	0 WU	
7:00 AM	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
7:15 AM	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3
7:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	1	1	0	0	0	0	2	0	3	0	1	0	0	2	0	0	10
	50.00%	50.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	75.00%	0.00%	25.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	2	0	1	0	0	0	0	1	0	0	4
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.000	1.000
							0.500			0.250				0.250			

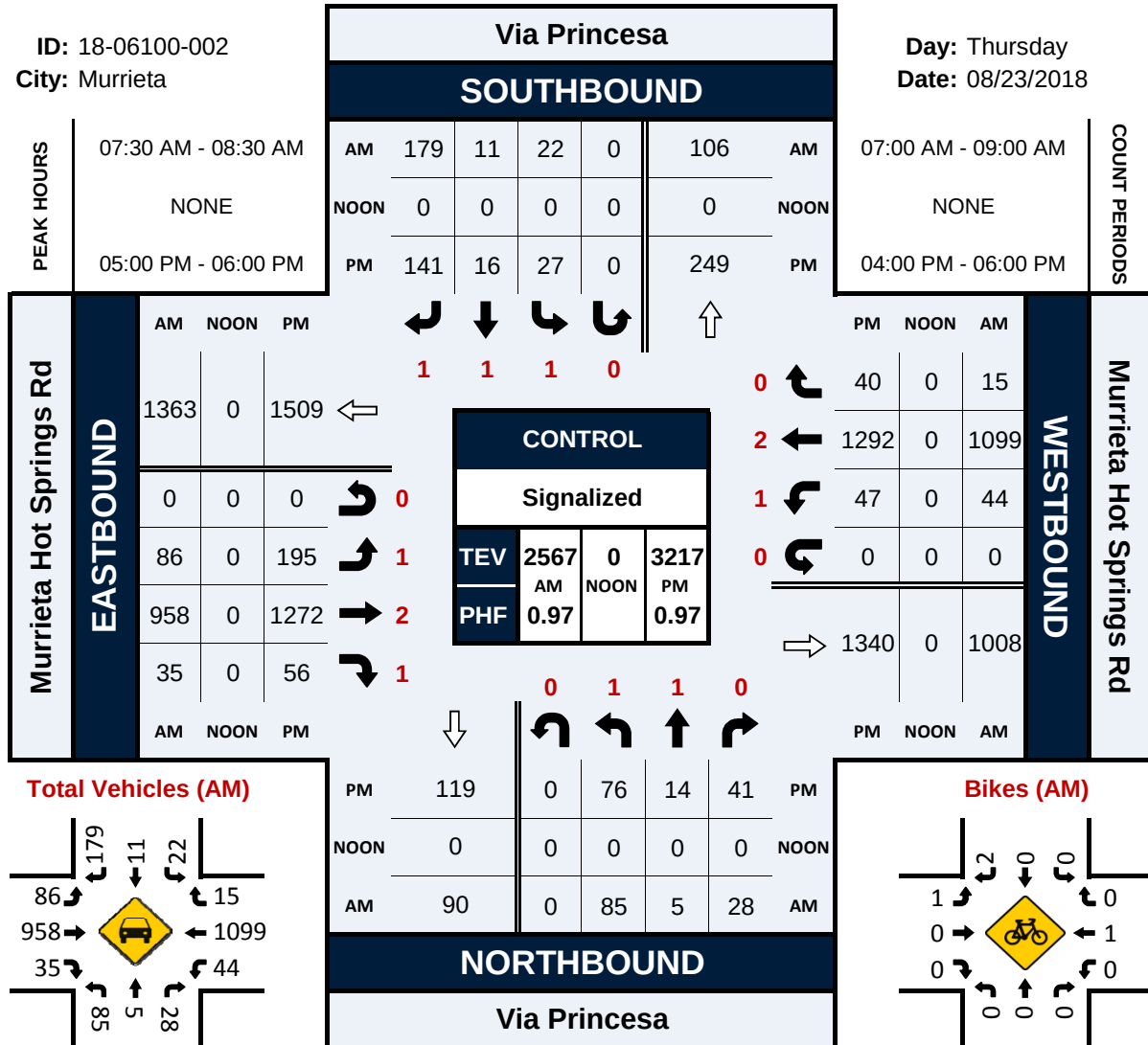
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	1 NT	0 NR	0 NU	1 SL	1 ST	1 SR	0 SU	1 EL	2 ET	1 ER	0 EU	1 WL	2 WT	0 WR	0 WU	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	2	0	0	0	0	1	0	0	2	0	0	0	2	0	0	7
	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	2	0	0	0	0	0	0	0	1	0	0	0	1	0	0	4
PEAK HR FACTOR :	0.00	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.500
										0.250				0.250			

Via Princesa & Murrieta Hot Springs Rd

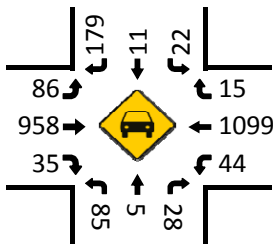
Peak Hour Turning Movement Count

ID: 18-06100-002
City: Murrieta

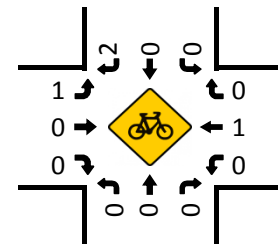
Day: Thursday
Date: 08/23/2018



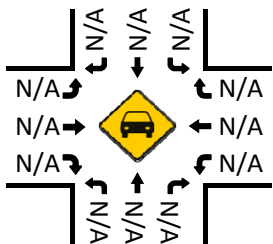
Total Vehicles (AM)



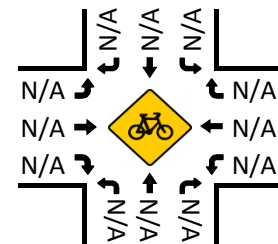
Bikes (AM)



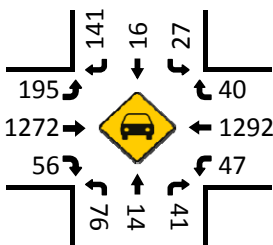
Total Vehicles (Noon)



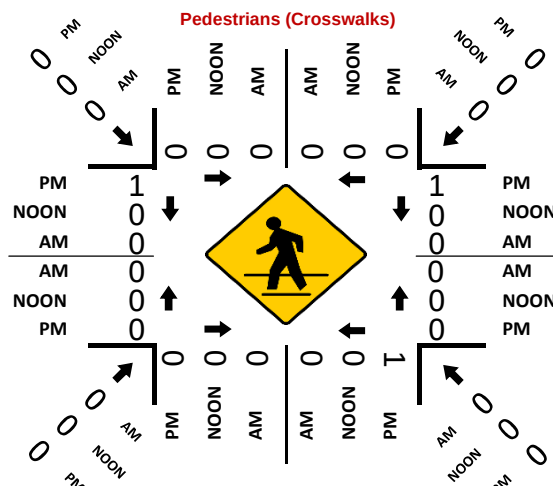
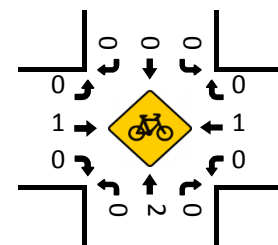
Bikes (Noon)



Total Vehicles (PM)



Bikes (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Calle Del Lago & Murrieta Hot Springs Rd
City: Murrieta
Control: 2-Way Stop (NB/SB)

Project ID: 18-06100-003
Date: 8/23/2018

Total

NS/EW Streets:	Calle Del Lago				Calle Del Lago				Murrieta Hot Springs Rd				Murrieta Hot Springs Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	1 NT	0 NR	0 NU	0 SL	1 ST	0 SR	0 SU	1 EL	2 ET	0 ER	0 EU	1 WL	2 WT	0 WR	0 WU	
7:00 AM	5	0	6	0	1	0	4	0	1	197	2	0	1	281	1	0	499
7:15 AM	5	0	2	0	0	0	4	0	0	186	0	0	5	300	0	0	502
7:30 AM	3	0	15	0	2	0	4	0	2	219	4	0	1	292	5	0	547
7:45 AM	6	0	12	0	2	0	2	0	0	275	3	0	5	292	0	0	597
8:00 AM	4	0	15	0	3	0	5	0	2	248	7	0	1	236	2	0	523
8:15 AM	4	0	10	0	1	0	3	0	3	240	5	0	3	301	1	0	571
8:30 AM	2	0	11	0	0	0	2	0	2	220	4	0	6	257	0	0	504
8:45 AM	2	0	5	0	0	0	4	0	1	231	6	0	5	337	1	0	592
TOTAL VOLUMES :	NL 31	NT 0	NR 76	NU 0	SL 9	ST 0	SR 28	SU 0	EL 11	ET 1816	ER 31	EU 0	WL 27	WT 2296	WR 10	WU 0	TOTAL 4335
APPROACH %'s :	28.97%	0.00%	71.03%	0.00%	24.32%	0.00%	75.68%	0.00%	0.59%	97.74%	1.67%	0.00%	1.16%	98.41%	0.43%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	17	0	52	0	8	0	14	0	7	982	19	0	10	1121	8	0	2238
PEAK HR FACTOR :	0.708	0.000	0.867	0.000	0.667	0.000	0.700	0.000	0.583	0.893	0.679	0.000	0.500	0.931	0.400	0.000	0.937
	0.908				0.688				0.906				0.934				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	1 NT	0 NR	0 NU	0 SL	1 ST	0 SR	0 SU	1 EL	2 ET	0 ER	0 EU	1 WL	2 WT	0 WR	0 WU	
4:00 PM	0	0	7	0	0	0	2	0	4	285	12	0	10	288	1	0	609
4:15 PM	0	0	11	0	0	0	1	0	2	265	4	0	6	321	3	0	613
4:30 PM	2	0	5	0	3	0	3	0	3	306	6	0	6	337	2	0	673
4:45 PM	3	0	8	0	0	0	0	0	4	325	10	0	10	304	3	0	667
5:00 PM	1	0	12	0	1	0	7	0	3	319	3	0	6	330	0	0	682
5:15 PM	2	0	13	0	2	0	0	0	1	328	13	0	9	346	2	0	716
5:30 PM	0	0	11	0	0	0	2	0	2	360	8	0	9	367	1	0	760
5:45 PM	1	0	7	0	0	0	2	0	2	305	11	0	11	330	8	0	677
TOTAL VOLUMES :	NL 9	NT 0	NR 74	NU 0	SL 6	ST 0	SR 17	SU 0	EL 21	ET 2493	ER 67	EU 0	WL 67	WT 2623	WR 20	WU 0	TOTAL 5397
APPROACH %'s :	10.84%	0.00%	89.16%	0.00%	26.09%	0.00%	73.91%	0.00%	0.81%	96.59%	2.60%	0.00%	2.47%	96.79%	0.74%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	4	0	43	0	3	0	11	0	8	1312	35	0	35	1373	11	0	2835
PEAK HR FACTOR :	0.500	0.000	0.827	0.000	0.375	0.000	0.393	0.000	0.667	0.911	0.673	0.000	0.795	0.935	0.344	0.000	0.933
	0.783				0.438				0.916				0.941				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Calle Del Lago & Murrieta Hot Springs Rd
City: Murrieta
Control: 2-Way Stop (NB/SB)

Project ID: 18-06100-003
Date: 8/23/2018

Bikes

NS/EW Streets:	Calle Del Lago				Calle Del Lago				Murrieta Hot Springs Rd				Murrieta Hot Springs Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	1 NT	0 NR	0 NU	0 SL	1 ST	0 SR	0 SU	1 EL	2 ET	0 ER	0 EU	1 WL	2 WT	0 WR	0 WU	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
PEAK HR :	07:30 AM - 08:30 AM												0.00% 100.00% 0.00% 0.00%				TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	1 NT	0 NR	0 NU	0 SL	1 ST	0 SR	0 SU	1 EL	2 ET	0 ER	0 EU	1 WL	2 WT	0 WR	0 WU	
4:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	1	0	1	0	0	0	0	0	0	1	0	0	0	1	0	0	4
PEAK HR :	05:00 PM - 06:00 PM												0.00% 100.00% 0.00% 0.00%				TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250

National Data & Surveying Services

Intersection Turning Movement Count

Location: Calle Del Lago & Murrieta Hot Springs Rd
City: Murrieta

Project ID: 18-06100-003
Date: 8/23/2018

Pedestrians (Crosswalks)

NS/EW Streets:	Calle Del Lago		Calle Del Lago		Murrieta Hot Springs Rd		Murrieta Hot Springs Rd	
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	1	0
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	1	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	1	0	0
TOTAL VOLUMES :	EB	WB	EB	WB	NB	SB	NB	SB
APPROACH %'s :	0	0	0	1	0	1	1	0
			0.00%	100.00%	0.00%	100.00%	100.00%	0.00%
PEAK HR :	07:30 AM - 08:30 AM							
PEAK HR VOL :	0	0	0	1	0	0	1	0
PEAK HR FACTOR :				0.250			0.250	
			0.250				0.250	
								TOTAL
								2
								0.500

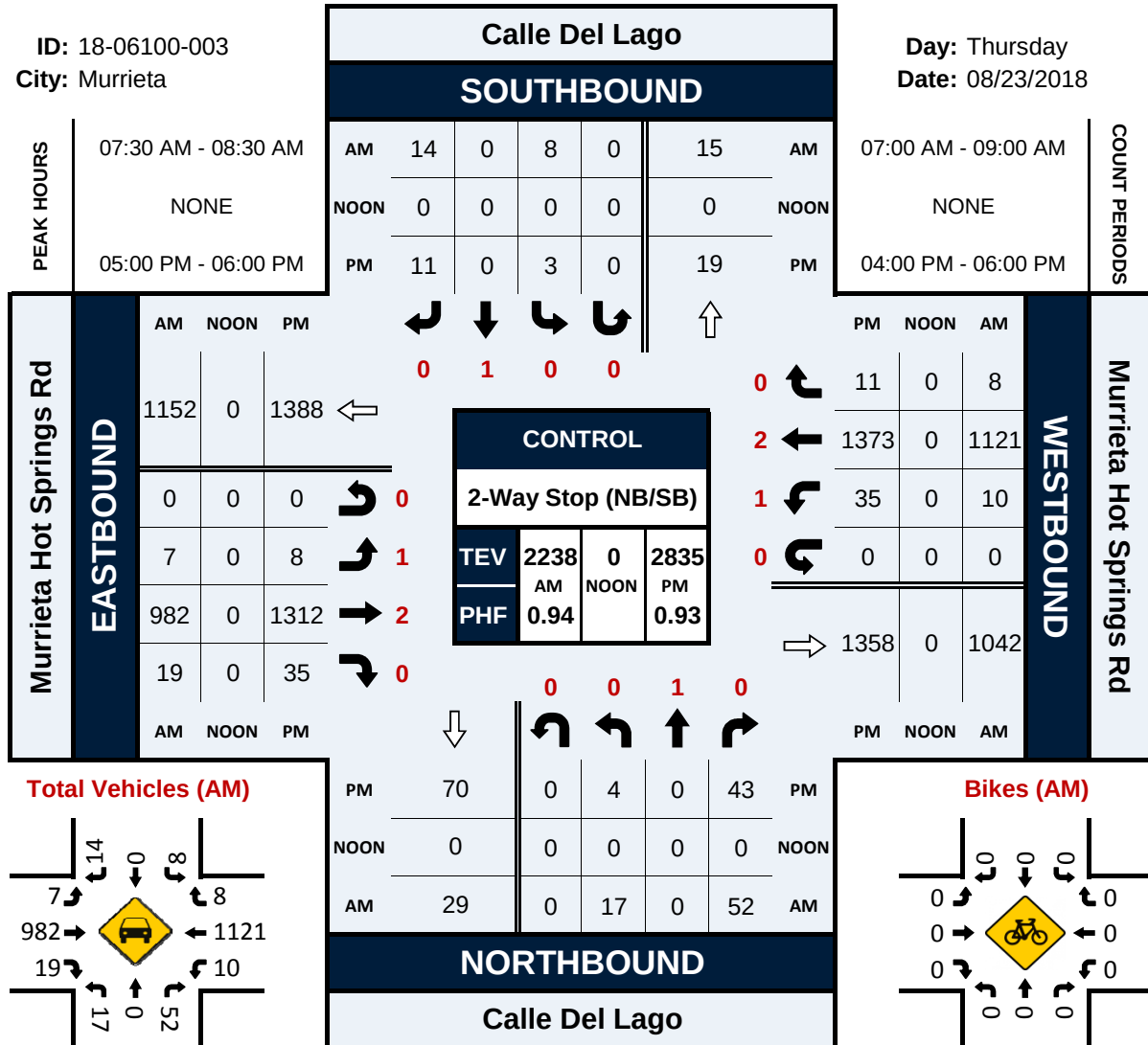
PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
4:00 PM	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0
TOTAL VOLUMES :	EB	WB	EB	WB	NB	SB	NB	SB
APPROACH %'s :	0	0	0	0	0	0	0	2
							0.00%	100.00%
PEAK HR :	05:00 PM - 06:00 PM							
PEAK HR VOL :	0	0	0	0	0	0	0	0
PEAK HR FACTOR :								
								TOTAL
								0

Calle Del Lago & Murrieta Hot Springs Rd

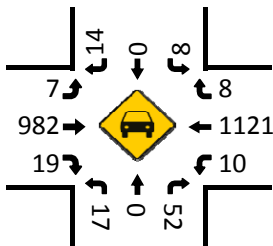
Peak Hour Turning Movement Count

ID: 18-06100-003
City: Murrieta

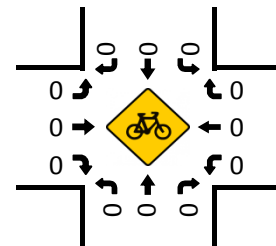
Day: Thursday
Date: 08/23/2018



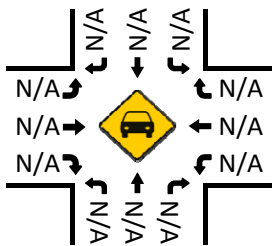
Total Vehicles (AM)



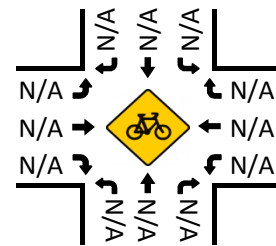
Bikes (AM)



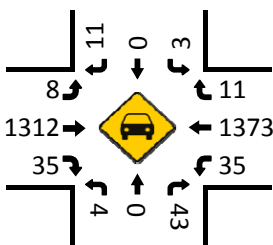
Total Vehicles (Noon)



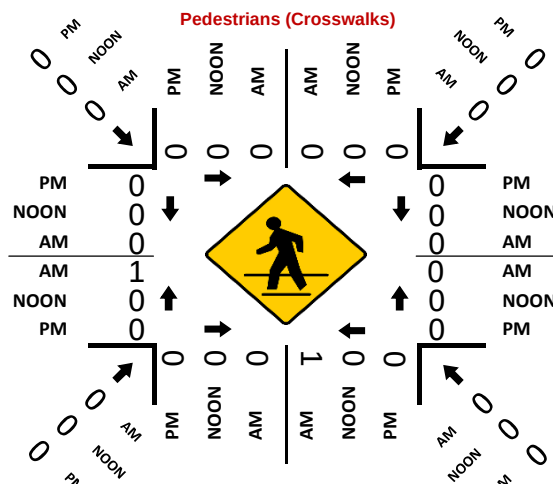
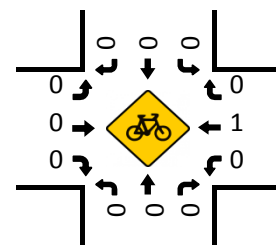
Bikes (NOON)



Total Vehicles (PM)



Bikes (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Delhaven St & Murrieta Hot Springs Rd

City: Murrieta

Control: 2-Way Stop (NB/SB)

Project ID: 18-06100-004

Date: 8/23/2018

Total

NS/EW Streets:	Delhaven St				Delhaven St				Murrieta Hot Springs Rd				Murrieta Hot Springs Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	1 NT	0 NR	0 NU	0 SL	2 ST	0 SR	0 SU	1 EL	2 ET	0 ER	0 EU	1 WL	2 WT	0 WR	0 WU	
7:00 AM	5	0	3	0	1	0	2	0	4	197	2	0	0	273	4	0	491
7:15 AM	4	0	1	0	1	0	7	0	2	193	1	0	0	301	3	1	514
7:30 AM	2	0	3	0	2	0	7	0	3	215	3	0	1	286	4	1	527
7:45 AM	2	0	0	0	1	0	5	0	6	273	3	1	2	286	2	1	582
8:00 AM	4	0	5	0	3	0	4	0	1	275	3	0	1	232	4	0	532
8:15 AM	1	0	2	0	1	0	4	0	4	252	1	0	1	305	4	0	575
8:30 AM	3	1	0	0	1	0	3	0	2	225	0	0	2	250	0	0	487
8:45 AM	1	0	1	0	1	0	1	0	3	232	2	0	1	347	7	0	596
TOTAL VOLUMES :	NL 22	NT 1	NR 15	NU 0	SL 11	ST 0	SR 33	SU 0	EL 25	ET 1862	ER 15	EU 1	WL 8	WT 2280	WR 28	WU 3	TOTAL 4304
APPROACH %'s :	57.89%	2.63%	39.47%	0.00%	25.00%	0.00%	75.00%	0.00%	1.31%	97.85%	0.79%	0.05%	0.34%	98.32%	1.21%	0.13%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	9	0	10	0	7	0	20	0	14	1015	10	1	5	1109	14	2	2216
PEAK HR FACTOR :	0.563	0.000	0.500	0.000	0.583	0.000	0.714	0.000	0.583	0.923	0.833	0.250	0.625	0.909	0.875	0.500	0.952
	0.528				0.750				0.919				0.911				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	1 NT	0 NR	0 NU	0 SL	2 ST	0 SR	0 SU	1 EL	2 ET	0 ER	0 EU	1 WL	2 WT	0 WR	0 WU	
4:00 PM	4	0	2	0	1	0	1	0	5	288	2	0	1	285	4	0	593
4:15 PM	2	1	4	0	0	0	7	0	6	261	3	1	0	320	2	0	607
4:30 PM	1	0	2	0	1	0	4	1	8	304	4	1	1	351	11	0	689
4:45 PM	1	0	1	0	0	0	3	0	9	305	5	1	0	303	6	0	634
5:00 PM	4	1	1	0	1	0	3	0	6	336	3	0	1	328	10	1	695
5:15 PM	2	0	4	0	1	1	3	0	9	330	4	0	2	356	10	0	722
5:30 PM	3	0	3	0	2	1	3	0	7	365	4	1	3	372	3	0	767
5:45 PM	4	0	4	0	1	0	3	0	9	300	4	0	2	340	13	1	681
TOTAL VOLUMES :	NL 21	NT 2	NR 21	NU 0	SL 7	ST 2	SR 27	SU 1	EL 59	ET 2489	ER 29	EU 4	WL 10	WT 2655	WR 59	WU 2	TOTAL 5388
APPROACH %'s :	47.73%	4.55%	47.73%	0.00%	18.92%	5.41%	72.97%	2.70%	2.29%	96.44%	1.12%	0.15%	0.37%	97.40%	2.16%	0.07%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	13	1	12	0	5	2	12	0	31	1331	15	1	8	1396	36	2	2865
PEAK HR FACTOR :	0.813	0.250	0.750	0.000	0.625	0.500	1.000	0.000	0.861	0.912	0.938	0.250	0.667	0.938	0.692	0.500	0.934
	0.813				0.792				0.914				0.954				

National Data & Surveying Services

Intersection Turning Movement Count

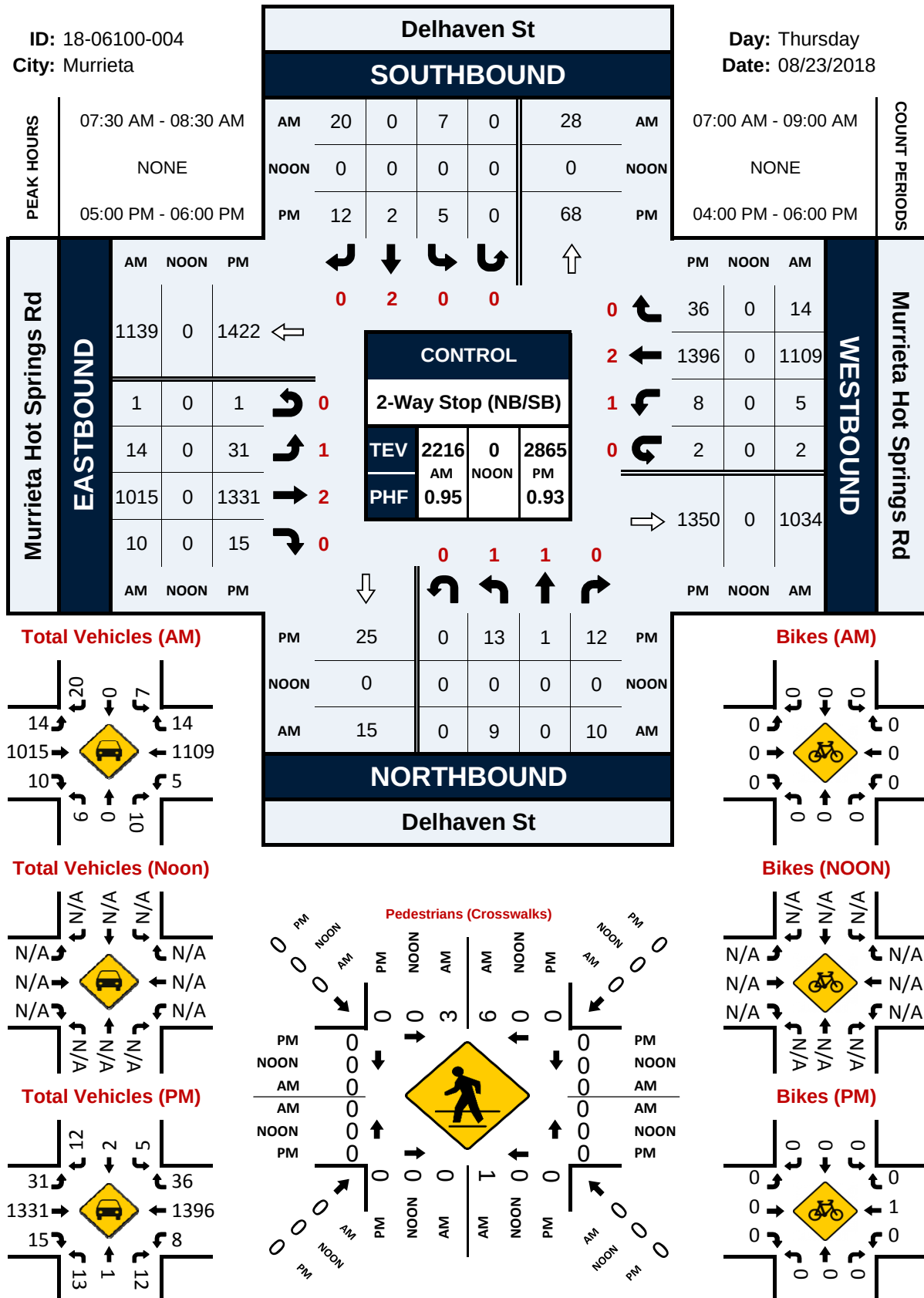
Location: Delhaven St & Murrieta Hot Springs Rd
City: Murrieta
Control: 2-Way Stop (NB/SB)

Project ID: 18-06100-004
Date: 8/23/2018

Bikes

NS/EW Streets:	Delhaven St				Delhaven St				Murrieta Hot Springs Rd				Murrieta Hot Springs Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	1 NT	0 NR	0 NU	0 SL	2 ST	0 SR	0 SU	1 EL	2 ET	0 ER	0 EU	1 WL	2 WT	0 WR	0 WU	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
PEAK HR :	07:30 AM - 08:30 AM												0.00% 100.00% 0.00% 0.00%				TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	1 NT	0 NR	0 NU	0 SL	2 ST	0 SR	0 SU	1 EL	2 ET	0 ER	0 EU	1 WL	2 WT	0 WR	0 WU	
4:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3
PEAK HR :	05:00 PM - 06:00 PM								0.00% 100.00% 0.00% 0.00%				0.00% 100.00% 0.00% 0.00%				TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250



National Data & Surveying Services

Intersection Turning Movement Count

Location: Hwy 79 & Murrieta Hot Springs Rd
City: Murrieta
Control: Signalized

Project ID: 18-06100-005
Date: 8/23/2018

Total

NS/EW Streets:	Hwy 79				Hwy 79				Murrieta Hot Springs Rd				Murrieta Hot Springs Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	2	3	1	0	2	3	1	0	2	3	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	41	179	62	1	22	379	102	5	72	100	31	1	84	139	20	0	1238
7:15 AM	36	250	71	1	33	508	151	6	113	80	12	0	87	127	19	0	1494
7:30 AM	36	168	54	0	44	442	140	4	60	123	20	0	56	120	20	0	1287
7:45 AM	21	152	32	1	29	371	135	5	110	143	32	0	59	135	19	2	1246
8:00 AM	27	162	46	1	71	379	127	11	117	113	23	0	40	98	26	1	1242
8:15 AM	29	151	48	1	54	385	115	7	124	132	32	0	96	145	27	1	1347
8:30 AM	29	176	31	0	50	395	134	5	78	83	28	0	67	110	19	0	1205
8:45 AM	30	137	26	1	31	392	121	9	95	116	39	0	89	181	24	3	1294
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	249	1375	370	6	334	3251	1025	52	769	890	217	1	578	1055	174	7	10353
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	120	732	203	3	177	1700	553	26	400	459	87	0	242	480	84	3	5269
PEAK HR FACTOR :	0.833	0.732	0.715	0.750	0.623	0.837	0.916	0.591	0.855	0.802	0.680	0.000	0.695	0.889	0.808	0.375	0.882
	0.739				0.880				0.830				0.868				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	2	3	1	0	2	3	1	0	2	3	1	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	43	385	55	0	49	262	113	9	115	133	27	1	60	147	23	0	1422
4:15 PM	42	401	42	2	30	275	108	6	114	127	38	0	83	161	15	1	1445
4:30 PM	41	392	42	0	31	221	115	3	109	138	39	0	57	193	13	1	1395
4:45 PM	36	377	40	0	34	235	118	7	146	143	37	0	67	161	32	0	1433
5:00 PM	29	408	55	0	33	240	125	9	124	175	32	1	64	184	27	1	1507
5:15 PM	50	417	65	2	47	251	148	1	142	146	46	1	72	145	21	3	1557
5:30 PM	51	347	87	0	33	204	133	4	125	189	36	1	67	190	25	1	1493
5:45 PM	69	367	45	2	50	219	131	14	116	161	34	0	68	164	40	1	1481
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	361	3094	431	6	307	1907	991	53	991	1212	289	4	538	1345	196	8	11733
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	199	1539	252	4	163	914	537	28	507	671	148	3	271	683	113	6	6038
PEAK HR FACTOR :	0.721	0.923	0.724	0.500	0.815	0.910	0.907	0.500	0.893	0.888	0.804	0.750	0.941	0.899	0.706	0.500	0.969
	0.934				0.918				0.947				0.948				

Location: Hwy 79 & Murrieta Hot Springs Rd
City: Murrieta
Control: Signalized

Project ID: 18-06100-005
Date: 8/23/2018

Bikes

[illegible]

VOLUME

Murrieta Hot Springs Rd Bet. School House Way & Via Princesa

Day: Tuesday
Date: 8/28/2018City: Murrieta
Project #: CA18_6101_001

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						25,392	26,167						51,559
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL							TOTAL
00:00			64	27	91		12:00			350	365	715							
00:15			33	30	63		12:15			394	338	732							
00:30			36	26	62		12:30			356	367	723							
00:45			30	163	20	103	12:45			413	1513	388	1458	801	2971				
01:00			27	15	42		13:00			412	359	771							
01:15			22	13	35		13:15			405	383	788							
01:30			23	16	39		13:30			368	379	747							
01:45			13	85	18	62	13:45			394	1579	387	1508	781	3087				
02:00			19	24	43		14:00			385	383	768							
02:15			13	11	24		14:15			419	431	850							
02:30			12	17	29		14:30			403	439	842							
02:45			8	52	28	80	14:45			558	1765	438	1691	996	3456				
03:00			14	37	51		15:00			538	463	1001							
03:15			20	38	58		15:15			542	438	980							
03:30			27	51	78		15:30			519	538	1057							
03:45			23	84	85	211	15:45			457	2056	433	1872	890	3928				
04:00			16	96	112		16:00			488	461	949							
04:15			27	98	125		16:15			487	488	975							
04:30			34	110	144		16:30			449	497	946							
04:45			57	134	165	469	16:45			526	1950	507	1953	1033	3903				
05:00			67	137	204		17:00			479	482	961							
05:15			69	158	227		17:15			481	528	1009							
05:30			112	171	283		17:30			495	479	974							
05:45			139	387	223	689	17:45			525	1980	440	1929	965	3909				
06:00			110	220	330		18:00			469	450	919							
06:15			146	231	377		18:15			419	396	815							
06:30			213	332	545		18:30			409	447	856							
06:45			277	746	482	1265	18:45			388	1685	330	1623	718	3308				
07:00			276	448	724		19:00			354	310	664							
07:15			367	407	774		19:15			356	335	691							
07:30			435	377	812		19:30			356	310	666							
07:45			413	1491	466	1698	19:45			329	1395	228	1183	557	2578				
08:00			366	373	739		20:00			310	235	545							
08:15			362	461	823		20:15			324	230	554							
08:30			380	427	807		20:30			273	206	479							
08:45			375	1483	497	1758	20:45			295	1202	175	846	470	2048				
09:00			351	444	795		21:00			235	179	414							
09:15			327	428	755		21:15			199	156	355							
09:30			334	355	689		21:30			168	127	295							
09:45			302	1314	412	1639	21:45			183	785	120	582	303	1367				
10:00			315	358	673		22:00			147	135	282							
10:15			327	426	753		22:15			114	90	204							
10:30			300	345	645		22:30			84	90	174							
10:45			360	1302	376	1505	22:45			103	448	61	376	164	824				
11:00			335	352	687		23:00			88	63	151							
11:15			343	376	719		23:15			81	51	132							
11:30			371	374	745		23:30			66	42	108							
11:45			386	1435	372	1474	23:45			123	358	37	193	160	551				
TOTALS			8676	10953	19629		TOTALS			16716	15214	31930							
SPLIT %			44.2%	55.8%	38.1%		SPLIT %			52.4%	47.6%	61.9%							

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						25,392	26,167						51,559
AM Peak Hour			07:15	08:15	08:15		PM Peak Hour			14:45	16:30	14:45							
AM Pk Volume			1581	1829	3297		PM Pk Volume			2157	2014	4034							
Pk Hr Factor			0.909	0.920	0.945		Pk Hr Factor			0.966	0.954	0.954							
7 - 9 Volume	0	0	2974	3456	6430		4 - 6 Volume	0	0	3930	3882	7812							
7 - 9 Peak Hour			07:15	08:00	07:30		4 - 6 Peak Hour			16:45	16:30	16:45							
7 - 9 Pk Volume	0	0	1581	1758	3253		4 - 6 Pk Volume	0	0	1981	2014	3977							
Pk Hr Factor	0.000	0.000	0.909	0.884	0.925		Pk Hr Factor	0.000	0.000	0.942	0.954	0.962							

VOLUME

Murrieta Hot Springs Rd Bet. School House Way & Via Princesa

Day: Wednesday

City: Murrieta

Date: 8/29/2018

Project #: CA18_6101_001

DAILY TOTALS					NB	SB	EB					WB	Total
					0	0						25,930	26,458
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL	
00:00			122	45	167		12:00			347	403	750	
00:15			40	39	79		12:15			423	367	790	
00:30			40	21	61		12:30			392	337	729	
00:45			29	231	21	126	12:45			435	1597	380	1487
					50	357						815	3084
01:00			27	16	43		13:00			346	389	735	
01:15			17	19	36		13:15			359	425	784	
01:30			29	13	42		13:30			354	425	779	
01:45			18	91	15	63	13:45			417	1476	420	1659
					33	154						837	3135
02:00			20	12	32		14:00			372	414	786	
02:15			14	12	26		14:15			437	436	873	
02:30			10	23	33		14:30			399	430	829	
02:45			21	65	28	75	14:45			542	1750	466	1746
					49	140						1008	3496
03:00			10	21	31		15:00			504	470	974	
03:15			14	38	52		15:15			547	501	1048	
03:30			21	46	67		15:30			456	475	931	
03:45			20	65	72	177	15:45			467	1974	459	1905
					92	242						926	3879
04:00			24	99	123		16:00			451	467	918	
04:15			17	90	107		16:15			492	450	942	
04:30			41	132	173		16:30			509	507	1016	
04:45			67	149	145	466	16:45			509	1961	475	1899
					212	615						984	3860
05:00			78	142	220		17:00			508	504	1012	
05:15			78	140	218		17:15			537	448	985	
05:30			107	176	283		17:30			533	500	1033	
05:45			162	425	229	687	17:45			486	2064	455	1907
					391	1112						941	3971
06:00			127	195	322		18:00			451	387	838	
06:15			162	235	397		18:15			446	489	935	
06:30			216	329	545		18:30			393	391	784	
06:45			291	796	486	1245	18:45			433	1723	354	1621
					777	2041						787	3344
07:00			278	448	726		19:00			389	331	720	
07:15			352	456	808		19:15			368	325	693	
07:30			422	393	815		19:30			371	298	669	
07:45			417	1469	457	1754	19:45			301	1429	250	1204
					874	3223						551	2633
08:00			368	383	751		20:00			342	223	565	
08:15			404	448	852		20:15			284	228	512	
08:30			377	454	831		20:30			303	218	521	
08:45			429	1578	499	1784	20:45			298	1227	194	863
					928	3362						492	2090
09:00			353	419	772		21:00			248	186	434	
09:15			361	389	750		21:15			270	171	441	
09:30			341	393	734		21:30			209	148	357	
09:45			337	1392	426	1627	21:45			183	910	107	612
					763	3019						290	1522
10:00			320	321	641		22:00			159	128	287	
10:15			305	393	698		22:15			132	103	235	
10:30			304	411	715		22:30			122	75	197	
10:45			340	1269	396	1521	22:45			98	511	63	369
					736	2790						161	880
11:00			318	381	699		23:00			107	54	161	
11:15			350	357	707		23:15			91	64	155	
11:30			388	364	752		23:30			59	46	105	
11:45			400	1456	358	1460	23:45			65	322	37	201
					758	2916						102	523
TOTALS			8986	10985	19971		TOTALS			16944	15473	32417	
SPLIT %			45.0%	55.0%	38.1%		SPLIT %			52.3%	47.7%	61.9%	

DAILY TOTALS					NB	SB	EB					WB	Total				
					0	0	25,930					26,458	52,388				
AM Peak Hour			07:30	08:15	08:15		PM Peak Hour			16:45	16:15	16:45					
AM Pk Volume			1611	1820	3383		PM Pk Volume			2087	1936	4014					
Pk Hr Factor			0.954	0.912	0.911		Pk Hr Factor			0.972	0.955	0.971					
7 - 9 Volume	0	0	3047	3538	6585		4 - 6 Volume	0	0	4025	3806	7831					
7 - 9 Peak Hour			07:30	08:00	08:00		4 - 6 Peak Hour			16:45	16:15	16:45					
7 - 9 Pk Volume	0	0	1611	1784	3362		4 - 6 Pk Volume	0	0	2087	1936	4014					
Pk Hr Factor	0.000	0.000	0.954	0.894	0.906		Pk Hr Factor	0.000	0.000	0.972	0.955	0.971					

Prepared by NDS/ATD

Project #: CA18_6101_001

City: Murrieta

Location: Murrieta Hot Springs Rd Bet. School House

Date: 8/28/2018



Prepared by NDS/ATD

Project #: CA18_6101_001

City: Murrieta

Location: Murrieta Hot Springs Rd Bet. School House

Date: 8/29/2018



VOLUME

Murrieta Hot Springs Rd Bet. Margarita Rd & Via Princesa

Day: Tuesday
Date: 8/28/2018City: Murrieta
Project #: CA18_6101_002

DAILY TOTALS					NB	SB	EB					WB	Total		
					0	0						18,882			19,191
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL			
00:00			55	25	80		12:00			294	272	566			
00:15			41	27	68		12:15			261	249	510			
00:30			26	14	40		12:30			278	279	557			
00:45			24	146	14	80	12:45			272	1105	245	1045	517	2150
01:00			20	8	28		13:00			281	268	549			
01:15			15	12	27		13:15			278	284	562			
01:30			15	6	21		13:30			291	284	575			
01:45			11	61	16	42	13:45			291	1141	273	1109	564	2250
02:00			9	21	30		14:00			309	289	598			
02:15			13	8	21		14:15			291	302	593			
02:30			13	17	30		14:30			312	324	636			
02:45			7	42	17	63	14:45			372	1284	284	1199	656	2483
03:00			12	24	36		15:00			368	319	687			
03:15			11	33	44		15:15			398	317	715			
03:30			20	47	67		15:30			410	361	771			
03:45			20	63	70	174	15:45			328	1504	292	1289	620	2793
04:00			11	80	91		16:00			370	357	727			
04:15			21	83	104		16:15			341	364	705			
04:30			27	108	135		16:30			374	370	744			
04:45			45	104	138	409	16:45			340	1425	336	1427	676	2852
05:00			52	94	146		17:00			378	374	752			
05:15			43	130	173		17:15			388	385	773			
05:30			85	140	225		17:30			387	305	692			
05:45			89	269	173	537	17:45			394	1547	281	1345	675	2892
06:00			81	177	258		18:00			356	337	693			
06:15			117	185	302		18:15			357	274	631			
06:30			167	247	414		18:30			340	307	647			
06:45			211	576	360	969	18:45			285	1338	234	1152	519	2490
07:00			203	355	558		19:00			278	210	488			
07:15			262	327	589		19:15			299	191	490			
07:30			231	297	528		19:30			279	204	483			
07:45			311	1007	378	1357	19:45			259	1115	155	760	414	1875
08:00			256	323	579		20:00			277	180	457			
08:15			270	333	603		20:15			237	161	398			
08:30			229	352	581		20:30			216	135	351			
08:45			250	1005	351	1359	20:45			229	959	127	603	356	1562
09:00			236	358	594		21:00			206	125	331			
09:15			248	309	557		21:15			160	108	268			
09:30			229	288	517		21:30			139	90	229			
09:45			253	966	292	1247	21:45			140	645	86	409	226	1054
10:00			219	275	494		22:00			128	77	205			
10:15			246	294	540		22:15			99	58	157			
10:30			206	277	483		22:30			61	59	120			
10:45			245	916	270	1116	22:45			87	375	52	246	139	621
11:00			257	309	566		23:00			69	43	112			
11:15			231	264	495		23:15			66	42	108			
11:30			274	295	569		23:30			47	33	80			
11:45			259	1021	251	1119	23:45			86	268	17	135	103	403
TOTALS			6176	8472	14648		TOTALS			12706	10719	23425			
SPLIT %			42.2%	57.8%	38.5%		SPLIT %			54.2%	45.8%	61.5%			

DAILY TOTALS					NB	SB	EB					WB	Total				
					0	0	18,882					19,191	38,073				
AM Peak Hour			11:45	08:15	07:45		PM Peak Hour			14:45	16:30	16:30					
AM Pk Volume			1092	1394	2452		PM Pk Volume			1548	1465	2945					
Pk Hr Factor			0.929	0.973	0.890		Pk Hr Factor			0.944	0.951	0.952					
7 - 9 Volume	0	0	2012	2716	4728		4 - 6 Volume	0	0	2972	2772	5744					
7 - 9 Peak Hour			07:30	07:45	07:45		4 - 6 Peak Hour			17:00	16:30	16:30					
7 - 9 Pk Volume	0	0	1068	1386	2452		4 - 6 Pk Volume	0	0	1547	1465	2945					
Pk Hr Factor	0.000	0.000	0.859	0.917	0.890		Pk Hr Factor	0.000	0.000	0.982	0.951	0.952					

VOLUME

Murrieta Hot Springs Rd Bet. Margarita Rd & Via Princesa

Day: Wednesday

City: Murrieta

Date: 8/29/2018

Project #: CA18_6101_002

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						19,388	19,429						38,817
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL							TOTAL
00:00			101	40	141		12:00			297	271	568							
00:15			30	26	56		12:15			291	239	530							
00:30			28	18	46		12:30			291	259	550							
00:45			32	191	16	100	12:45			305	1184	271	1040	576	2224				
01:00			24	11	35		13:00			291	269	560							
01:15			17	17	34		13:15			249	316	565							
01:30			26	9	35		13:30			272	331	603							
01:45			15	82	9	46	13:45			287	1099	282	1198	569	2297				
02:00			15	7	22		14:00			303	303	606							
02:15			10	5	15		14:15			292	302	594							
02:30			14	14	28		14:30			301	313	614							
02:45			14	53	20	46	14:45			320	1216	340	1258	660	2474				
03:00			10	19	29		15:00			384	353	737							
03:15			14	33	47		15:15			365	316	681							
03:30			12	36	48		15:30			355	334	689							
03:45			15	51	64	152	15:45			330	1434	320	1323	650	2757				
04:00			19	79	98		16:00			355	336	691							
04:15			16	77	93		16:15			378	337	715							
04:30			30	109	139		16:30			373	411	784							
04:45			50	115	128	393	16:45			367	1473	337	1421	704	2894				
05:00			50	107	157		17:00			397	338	735							
05:15			52	128	180		17:15			407	312	719							
05:30			74	142	216		17:30			404	358	762							
05:45			106	282	176	553	17:45			415	1623	310	1318	725	2941				
06:00			104	156	260		18:00			298	266	564							
06:15			131	182	313		18:15			376	335	711							
06:30			178	258	436		18:30			312	277	589							
06:45			237	650	342	938	18:45			340	1326	236	1114	576	2440				
07:00			222	346	568		19:00			332	207	539							
07:15			228	370	598		19:15			299	251	550							
07:30			238	314	552		19:30			276	199	475							
07:45			308	996	365	1395	19:45			266	1173	175	832	441	2005				
08:00			262	334	596		20:00			238	162	400							
08:15			302	323	625		20:15			247	167	414							
08:30			247	356	603		20:30			231	164	395							
08:45			279	1090	350	1363	20:45			237	953	153	646	390	1599				
09:00			258	341	599		21:00			196	152	348							
09:15			269	298	567		21:15			247	117	364							
09:30			234	319	553		21:30			180	107	287							
09:45			266	1027	312	1270	21:45			148	771	85	461	233	1232				
10:00			225	261	486		22:00			119	78	197							
10:15			229	262	491		22:15			98	69	167							
10:30			209	303	512		22:30			108	46	154							
10:45			256	919	263	1089	22:45			81	406	52	245	133	651				
11:00			254	283	537		23:00			61	35	96							
11:15			235	273	508		23:15			62	39	101							
11:30			295	262	557		23:30			54	23	77							
11:45			268	1052	291	1109	23:45			45	222	22	119	67	341				
TOTALS			6508	8454	14962		TOTALS			12880	10975	23855							
SPLIT %			43.5%	56.5%	38.5%		SPLIT %			54.0%	46.0%	61.5%							

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						19,388	19,429						38,817
AM Peak Hour			11:30	07:00	07:45		PM Peak Hour			17:00	16:15	16:30							
AM Pk Volume			1151	1395	2497		PM Pk Volume			1623	1423	2942							
Pk Hr Factor			0.969	0.943	0.928		Pk Hr Factor			0.978	0.866	0.938							
7 - 9 Volume	0	0	2086	2758	4844		4 - 6 Volume	0	0	3096	2739	5835							
7 - 9 Peak Hour			07:45	07:00	07:45		4 - 6 Peak Hour			17:00	16:15	16:30							
7 - 9 Pk Volume	0	0	1119	1395	2497		4 - 6 Pk Volume	0	0	1623	1423	2942							
Pk Hr Factor	0.000	0.000	0.908	0.943	0.928		Pk Hr Factor	0.000	0.000	0.978	0.866	0.938							

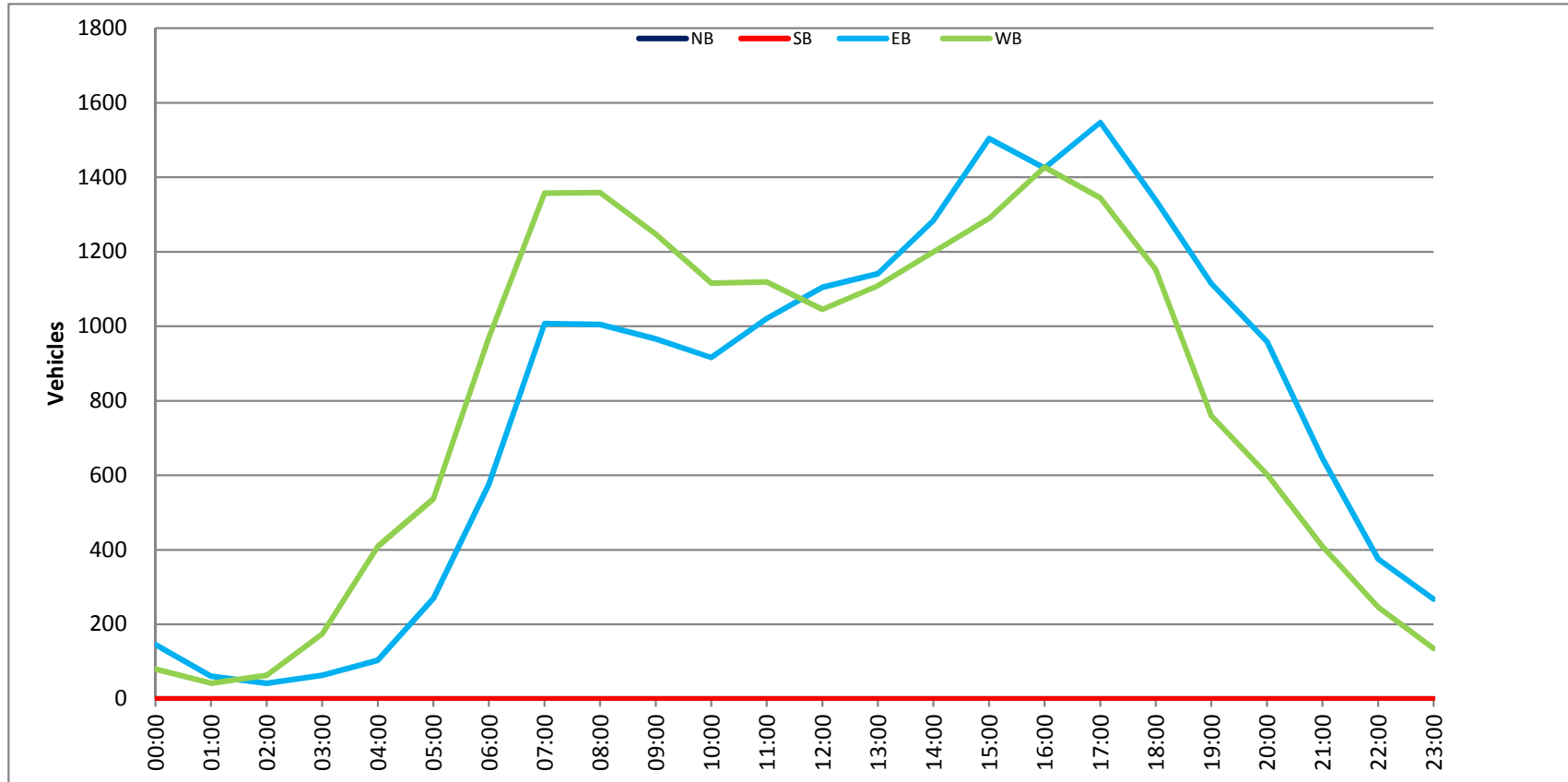
Prepared by NDS/ATD

Project #: CA18_6101_002

City: Murrieta

Location: Murrieta Hot Springs Rd Bet. Margarita Rd &

Date: 8/28/2018



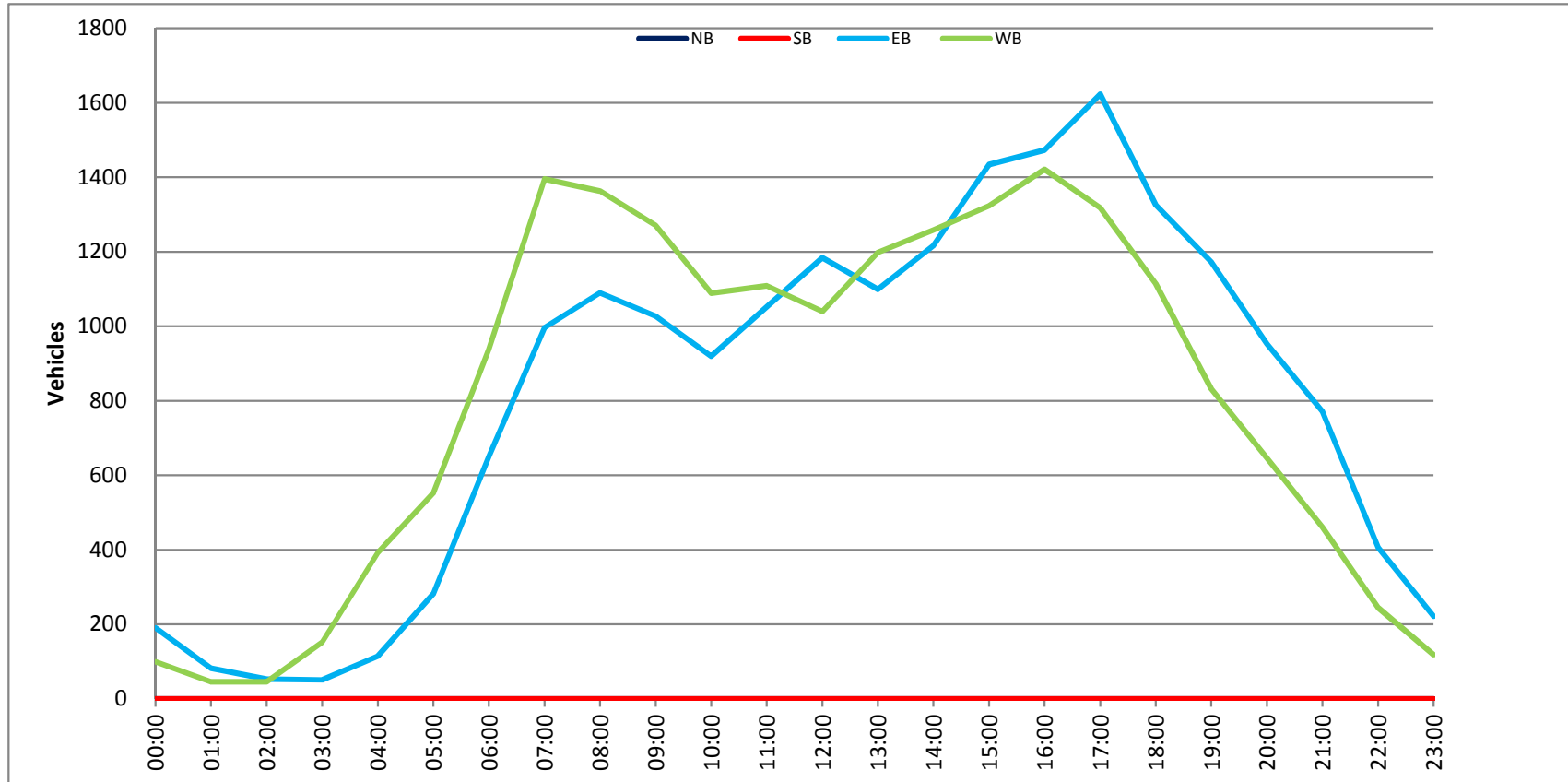
Prepared by NDS/ATD

Project #: CA18_6101_002

City: Murrieta

Location: Murrieta Hot Springs Rd Bet. Margarita Rd &

Date: 8/29/2018



VOLUME

Murrieta Hot Springs Rd Bet. Via Princesa & Calle Del Lago

Day: Tuesday
Date: 8/28/2018City: Murrieta
Project #: CA18_6101_003

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						17,060	17,282						34,342
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL							
00:00			50	19	69		12:00			270	243	513							
00:15			29	24	53		12:15			243	236	479							
00:30			25	12	37		12:30			249	256	505							
00:45			23	127	10	65	12:45			266	1028	241	976	507	2004				
01:00			21	12	33		13:00			266	243	509							
01:15			13	7	20		13:15			248	253	501							
01:30			13	6	19		13:30			257	263	520							
01:45			6	53	12	37	13:45			272	1043	248	1007	520	2050				
02:00			9	20	29		14:00			261	261	522							
02:15			15	5	20		14:15			267	254	521							
02:30			10	15	25		14:30			298	271	569							
02:45			8	42	15	55	14:45			319	1145	258	1044	577	2189				
03:00			12	20	32		15:00			331	273	604							
03:15			11	28	39		15:15			345	316	661							
03:30			18	48	66		15:30			350	316	666							
03:45			18	59	69	165	15:45			296	1322	285	1190	581	2512				
04:00			7	64	71		16:00			320	348	668							
04:15			20	80	100		16:15			288	346	634							
04:30			22	88	110		16:30			318	319	637							
04:45			46	95	115	347	16:45			306	1232	296	1309	602	2541				
05:00			52	84	136		17:00			330	358	688							
05:15			44	115	159		17:15			339	343	682							
05:30			77	114	191		17:30			348	284	632							
05:45			91	264	157	470	17:45			348	1365	283	1268	631	2633				
06:00			71	142	213		18:00			325	293	618							
06:15			113	157	270		18:15			314	272	586							
06:30			157	210	367		18:30			324	275	599							
06:45			205	546	280	789	18:45			258	1221	228	1068	486	2289				
07:00			191	282	473		19:00			243	182	425							
07:15			230	278	508		19:15			284	173	457							
07:30			237	286	523		19:30			230	204	434							
07:45			264	922	302	1148	19:45			238	995	144	703	382	1698				
08:00			272	295	567		20:00			238	168	406							
08:15			226	287	513		20:15			221	153	374							
08:30			210	300	510		20:30			190	115	305							
08:45			211	919	336	1218	20:45			209	858	118	554	327	1412				
09:00			229	325	554		21:00			163	112	275							
09:15			220	270	490		21:15			151	98	249							
09:30			217	239	456		21:30			114	88	202							
09:45			228	894	269	1103	21:45			127	555	84	382	211	937				
10:00			225	221	446		22:00			115	72	187							
10:15			203	302	505		22:15			88	53	141							
10:30			204	246	450		22:30			48	54	102							
10:45			222	854	244	1013	22:45			72	323	47	226	119	549				
11:00			258	267	525		23:00			68	43	111							
11:15			218	253	471		23:15			57	39	96							
11:30			242	263	505		23:30			46	29	75							
11:45			233	951	232	1015	23:45			76	247	19	130	95	377				
TOTALS			5726	7425	13151		TOTALS			11334	9857	21191							
SPLIT %			43.5%	56.5%	38.3%		SPLIT %			53.5%	46.5%	61.7%							

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						17,060	17,282						34,342
AM Peak Hour			07:15	08:15	07:30		PM Peak Hour			17:00	16:15	17:00							
AM Pk Volume			1003	1248	2169		PM Pk Volume			1365	1319	2633							
Pk Hr Factor			0.922	0.929	0.956		Pk Hr Factor			0.981	0.921	0.957							
7 - 9 Volume	0	0	1841	2366	4207		4 - 6 Volume	0	0	2597	2577	5174							
7 - 9 Peak Hour			07:15	08:00	07:30		4 - 6 Peak Hour			17:00	16:15	17:00							
7 - 9 Pk Volume	0	0	1003	1218	2169		4 - 6 Pk Volume	0	0	1365	1319	2633							
Pk Hr Factor	0.000	0.000	0.922	0.906	0.956		Pk Hr Factor	0.000	0.000	0.981	0.921	0.957							

VOLUME

Murrieta Hot Springs Rd Bet. Via Princesa & Calle Del Lago

Day: Wednesday

City: Murrieta

Date: 8/29/2018

Project #: CA18_6101_003

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						17,452	17,572						35,024
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL							TOTAL
00:00			99	35	134		12:00			253	235	488							
00:15			27	22	49		12:15			267	237	504							
00:30			29	17	46		12:30			273	225	498							
00:45			32	187	15	89	12:45			281	1074	253	950	534	2024				
01:00			23	11	34		13:00			265	250	515							
01:15			16	12	28		13:15			251	287	538							
01:30			26	9	35		13:30			236	279	515							
01:45			14	79	6	38	13:45			268	1020	262	1078	530	2098				
02:00			13	7	20		14:00			277	279	556							
02:15			8	6	14		14:15			267	246	513							
02:30			9	11	20		14:30			274	282	556							
02:45			11	41	17	41	14:45			291	1109	319	1126	610	2235				
03:00			9	18	27		15:00			321	313	634							
03:15			11	25	36		15:15			323	301	624							
03:30			11	37	48		15:30			293	305	598							
03:45			13	44	60	140	15:45			297	1234	295	1214	592	2448				
04:00			16	75	91		16:00			302	304	606							
04:15			12	67	79		16:15			326	314	640							
04:30			27	98	125		16:30			319	385	704							
04:45			50	105	117	357	16:45			330	1277	308	1311	638	2588				
05:00			39	104	143		17:00			352	292	644							
05:15			57	115	172		17:15			363	291	654							
05:30			75	123	198		17:30			354	321	675							
05:45			95	266	152	494	17:45			373	1442	279	1183	652	2625				
06:00			106	134	240		18:00			273	266	539							
06:15			132	161	293		18:15			327	286	613							
06:30			171	215	386		18:30			286	266	552							
06:45			219	628	272	782	18:45			310	1196	232	1050	542	2246				
07:00			212	267	479		19:00			296	173	469							
07:15			193	326	519		19:15			258	243	501							
07:30			228	259	487		19:30			261	186	447							
07:45			292	925	319	1171	19:45			236	1051	172	774	408	1825				
08:00			239	276	515		20:00			217	150	367							
08:15			258	291	549		20:15			208	156	364							
08:30			243	321	564		20:30			205	168	373							
08:45			240	980	345	1233	20:45			207	837	134	608	341	1445				
09:00			251	308	559		21:00			185	138	323							
09:15			222	280	502		21:15			201	113	314							
09:30			231	292	523		21:30			147	94	241							
09:45			241	945	269	1149	21:45			134	667	84	429	218	1096				
10:00			222	247	469		22:00			101	76	177							
10:15			195	233	428		22:15			90	64	154							
10:30			207	279	486		22:30			93	48	141							
10:45			215	839	221	980	22:45			73	357	45	233	118	590				
11:00			240	266	506		23:00			53	37	90							
11:15			217	241	458		23:15			48	36	84							
11:30			270	240	510		23:30			34	21	55							
11:45			241	968	282	1029	23:45			46	181	19	113	65	294				
TOTALS			6007	7503	13510		TOTALS			11445	10069	21514							
SPLIT %			44.5%	55.5%	38.6%		SPLIT %			53.2%	46.8%	61.4%							

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						17,452	17,572						35,024
AM Peak Hour			11:45	08:15	08:15		PM Peak Hour			17:00	16:00	16:30							
AM Pk Volume			1034	1265	2257		PM Pk Volume			1442	1311	2640							
Pk Hr Factor			0.947	0.917	0.965		Pk Hr Factor			0.966	0.851	0.938							
7 - 9 Volume	0	0	1905	2404	4309		4 - 6 Volume	0	0	2719	2494	5213							
7 - 9 Peak Hour			07:45	08:00	07:45		4 - 6 Peak Hour			17:00	16:00	16:30							
7 - 9 Pk Volume	0	0	1032	1233	2239		4 - 6 Pk Volume	0	0	1442	1311	2640							
Pk Hr Factor	0.000	0.000	0.884	0.893	0.916		Pk Hr Factor	0.000	0.000	0.966	0.851	0.938							

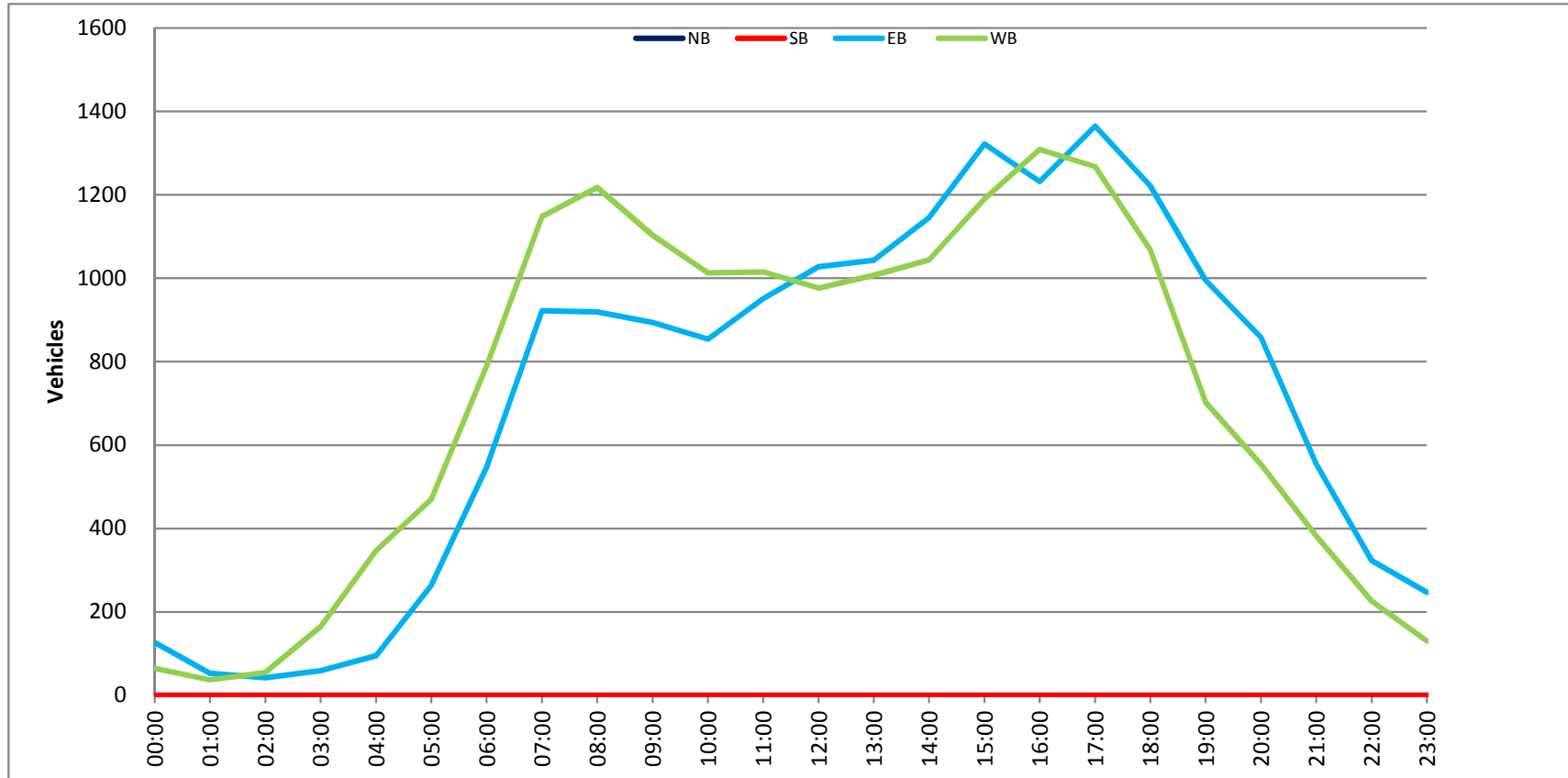
Prepared by NDS/ATD

Project #: CA18_6101_003

City: Murrieta

Location: Murrieta Hot Springs Rd Bet. Via Princesa &

Date: 8/28/2018

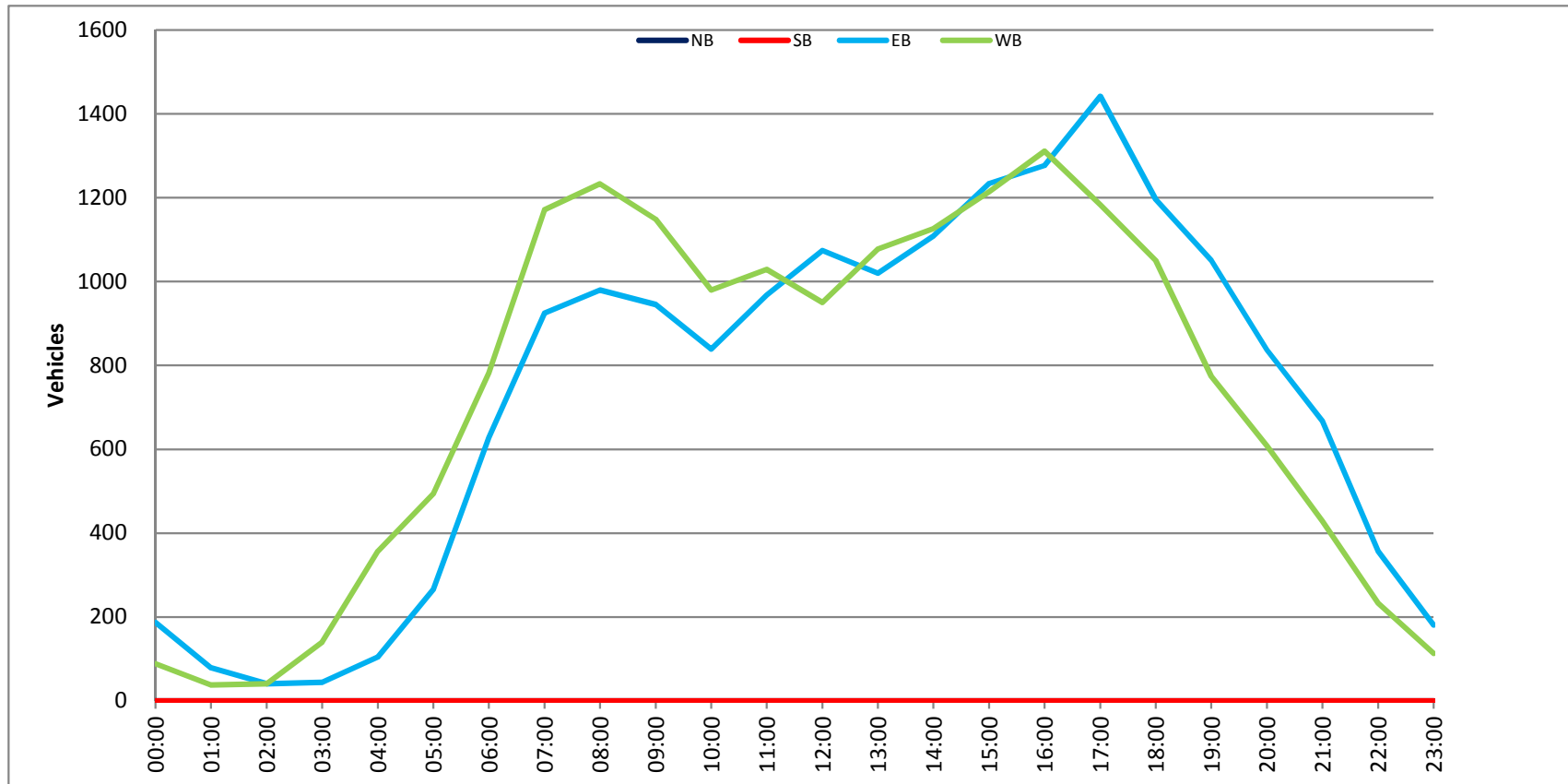


Project #: CA18_6101_003

City: Murrieta

Location: Murrieta Hot Springs Rd Bet. Via Princesa &

Date: 8/29/2018



VOLUME

Murrieta Hot Springs Rd Bet. Calle Del Lago & Delhaven St

Day: Tuesday
Date: 8/28/2018City: Murrieta
Project #: CA18_6101_004

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						17,499	17,727						35,226
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL							TOTAL
00:00			51	23	74		12:00			256	246	502							
00:15			31	24	55		12:15			254	240	494							
00:30			23	14	37		12:30			259	267	526							
00:45			23	128	14	75	12:45			295	1064	241	994	536	2058				
01:00			23	11	34		13:00			270	251	521							
01:15			15	7	22		13:15			260	269	529							
01:30			11	5	16		13:30			250	258	508							
01:45			7	56	14	37	13:45			296	1076	250	1028	546	2104				
02:00			9	21	30		14:00			257	278	535							
02:15			13	6	19		14:15			298	247	545							
02:30			12	17	29		14:30			285	282	567							
02:45			8	42	12	56	14:45			354	1194	275	1082	629	2276				
03:00			12	25	37		15:00			326	318	644							
03:15			13	29	42		15:15			370	293	663							
03:30			18	51	69		15:30			346	335	681							
03:45			21	64	70	175	15:45			330	1372	307	1253	637	2625				
04:00			5	69	74		16:00			310	373	683							
04:15			19	83	102		16:15			323	345	668							
04:30			29	86	115		16:30			309	350	659							
04:45			49	102	113	351	16:45			331	1273	333	1401	664	2674				
05:00			55	82	137		17:00			312	360	672							
05:15			45	115	160		17:15			367	349	716							
05:30			87	107	194		17:30			339	292	631							
05:45			92	279	147	451	17:45			346	1364	297	1298	643	2662				
06:00			67	135	202		18:00			324	293	617							
06:15			126	156	282		18:15			327	281	608							
06:30			160	210	370		18:30			310	293	603							
06:45			220	573	275	776	18:45			274	1235	242	1109	516	2344				
07:00			188	278	466		19:00			222	183	405							
07:15			229	272	501		19:15			313	187	500							
07:30			248	286	534		19:30			225	201	426							
07:45			275	940	300	1136	19:45			232	992	156	727	388	1719				
08:00			283	293	576		20:00			243	173	416							
08:15			227	293	520		20:15			191	155	346							
08:30			215	296	511		20:30			189	123	312							
08:45			220	945	371	1253	20:45			218	841	121	572	339	1413				
09:00			235	314	549		21:00			158	111	269							
09:15			214	288	502		21:15			141	101	242							
09:30			238	230	468		21:30			112	87	199							
09:45			247	934	291	1123	21:45			117	528	88	387	205	915				
10:00			235	216	451		22:00			115	74	189							
10:15			228	313	541		22:15			81	52	133							
10:30			213	246	459		22:30			54	63	117							
10:45			242	918	256	1031	22:45			66	316	50	239	116	555				
11:00			261	277	538		23:00			70	43	113							
11:15			247	255	502		23:15			58	39	97							
11:30			258	268	526		23:30			49	31	80							
11:45			247	1013	239	1039	23:45			73	250	21	134	94	384				
TOTALS			5994	7503	13497		TOTALS			11505	10224	21729							
SPLIT %			44.4%	55.6%	38.3%		SPLIT %			52.9%	47.1%	61.7%							

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						17,499	17,727						35,226
AM Peak Hour			07:15	08:15	07:30		PM Peak Hour			14:45	16:00	16:30							
AM Pk Volume			1035	1274	2205		PM Pk Volume			1396	1401	2711							
Pk Hr Factor			0.914	0.858	0.957		Pk Hr Factor			0.943	0.939	0.947							
7 - 9 Volume	0	0	1885	2389	4274		4 - 6 Volume	0	0	2637	2699	5336							
7 - 9 Peak Hour			07:15	08:00	07:30		4 - 6 Peak Hour			17:00	16:00	16:30							
7 - 9 Pk Volume	0	0	1035	1253	2205		4 - 6 Pk Volume	0	0	1364	1401	2711							
Pk Hr Factor	0.000	0.000	0.914	0.844	0.957		Pk Hr Factor	0.000	0.000	0.929	0.939	0.947							

VOLUME

Murrieta Hot Springs Rd Bet. Calle Del Lago & Delhaven St

Day: Wednesday

City: Murrieta

Date: 8/29/2018

Project #: CA18_6101_004

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						18,215	17,928						36,143
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL							TOTAL
00:00			93	38	131		12:00			263	238	501							
00:15			30	27	57		12:15			305	238	543							
00:30			27	16	43		12:30			290	235	525							
00:45			33	183	16	97	12:45			323	1181	250	961	573	2142				
01:00			21	13	34		13:00			265	270	535							
01:15			15	13	28		13:15			298	298	596							
01:30			25	8	33		13:30			233	285	518							
01:45			11	72	7	41	13:45			323	1119	272	1125	595	2244				
02:00			13	8	21		14:00			270	277	547							
02:15			8	5	13		14:15			310	272	582							
02:30			8	11	19		14:30			277	278	555							
02:45			9	38	19	43	14:45			310	1167	313	1140	623	2307				
03:00			10	18	28		15:00			323	338	661							
03:15			12	27	39		15:15			353	332	685							
03:30			11	38	49		15:30			318	309	627							
03:45			12	45	62	145	15:45			322	1316	318	1297	640	2613				
04:00			17	77	94		16:00			296	306	602							
04:15			14	62	76		16:15			368	336	704							
04:30			32	100	132		16:30			333	398	731							
04:45			55	118	117	356	16:45			370	1367	301	1341	671	2708				
05:00			40	96	136		17:00			347	297	644							
05:15			55	112	167		17:15			406	324	730							
05:30			82	116	198		17:30			351	328	679							
05:45			98	275	156	480	17:45			393	1497	273	1222	666	2719				
06:00			108	128	236		18:00			279	278	557							
06:15			145	158	303		18:15			331	300	631							
06:30			164	221	385		18:30			270	284	554							
06:45			236	653	267	774	18:45			321	1201	230	1092	551	2293				
07:00			217	259	476		19:00			271	191	462							
07:15			204	337	541		19:15			275	254	529							
07:30			215	259	474		19:30			236	177	413							
07:45			310	946	298	1153	19:45			260	1042	188	810	448	1852				
08:00			232	277	509		20:00			201	138	339							
08:15			292	299	591		20:15			201	165	366							
08:30			246	308	554		20:30			198	179	377							
08:45			253	1023	358	1242	20:45			218	818	148	630	366	1448				
09:00			269	296	565		21:00			182	132	314							
09:15			237	294	531		21:15			189	117	306							
09:30			250	281	531		21:30			146	99	245							
09:45			259	1015	269	1140	21:45			123	640	77	425	200	1065				
10:00			233	254	487		22:00			103	83	186							
10:15			214	248	462		22:15			86	63	149							
10:30			214	269	483		22:30			91	51	142							
10:45			248	909	222	993	22:45			75	355	52	249	127	604				
11:00			266	287	553		23:00			59	38	97							
11:15			242	238	480		23:15			48	34	82							
11:30			287	259	546		23:30			37	21	58							
11:45			271	1066	277	1061	23:45			25	169	18	111	43	280				
TOTALS			6343	7525	13868		TOTALS			11872	10403	22275							
SPLIT %			45.7%	54.3%	38.4%		SPLIT %			53.3%	46.7%	61.6%							

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						18,215	17,928						36,143
AM Peak Hour			11:45	08:15	08:15		PM Peak Hour			17:00	15:45	16:30							
AM Pk Volume			1129	1261	2321		PM Pk Volume			1497	1358	2776							
Pk Hr Factor			0.925	0.881	0.950		Pk Hr Factor			0.922	0.853	0.949							
7 - 9 Volume	0	0	1969	2395	4364		4 - 6 Volume	0	0	2864	2563	5427							
7 - 9 Peak Hour			07:45	08:00	08:00		4 - 6 Peak Hour			17:00	16:00	16:30							
7 - 9 Pk Volume	0	0	1080	1242	2265		4 - 6 Pk Volume	0	0	1497	1341	2776							
Pk Hr Factor	0.000	0.000	0.871	0.867	0.927		Pk Hr Factor	0.000	0.000	0.922	0.842	0.949							

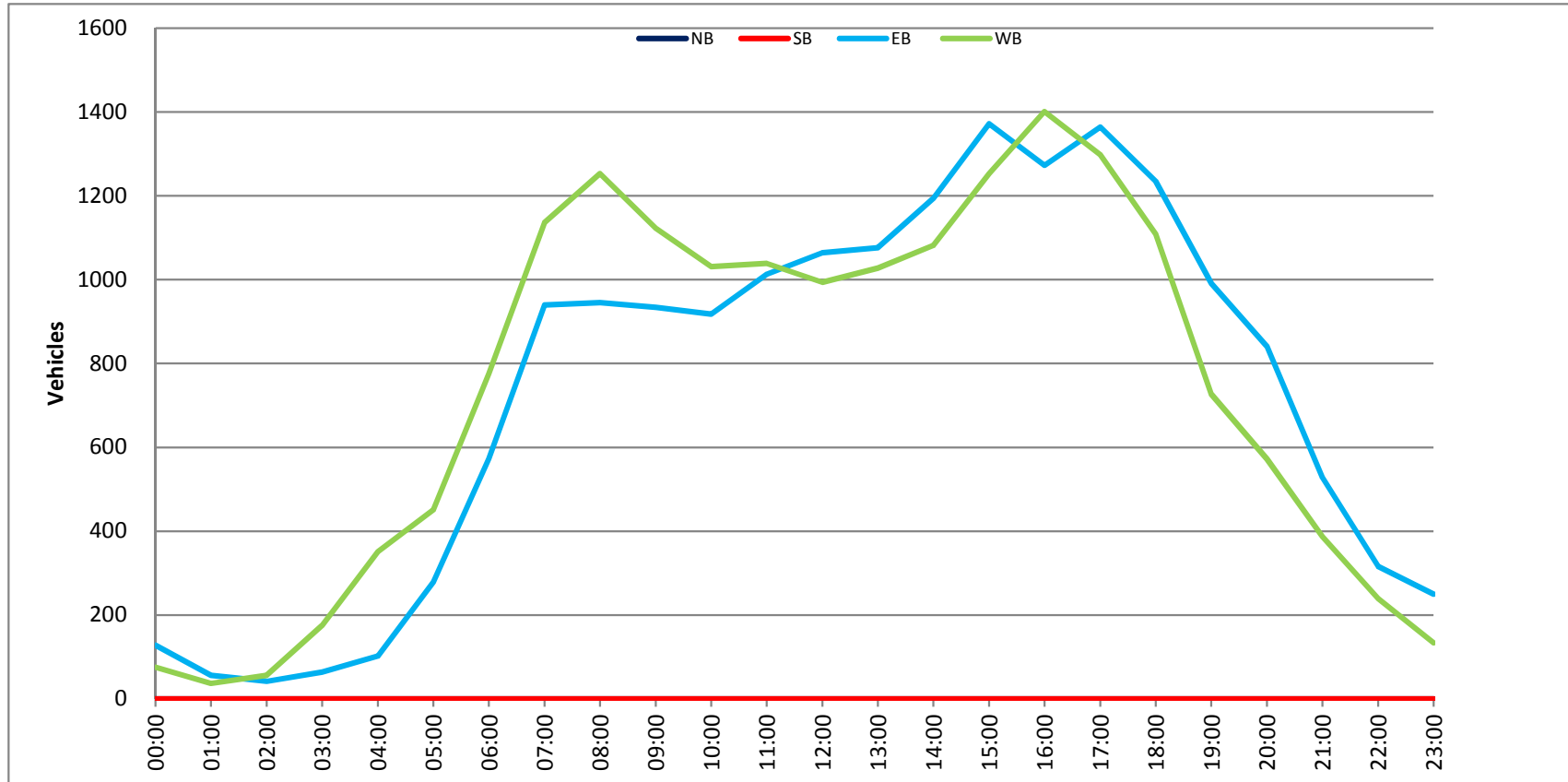
Prepared by NDS/ATD

Project #: CA18_6101_004

City: Murrieta

Location: Murrieta Hot Springs Rd Bet. Calle Del Lago

Date: 8/28/2018



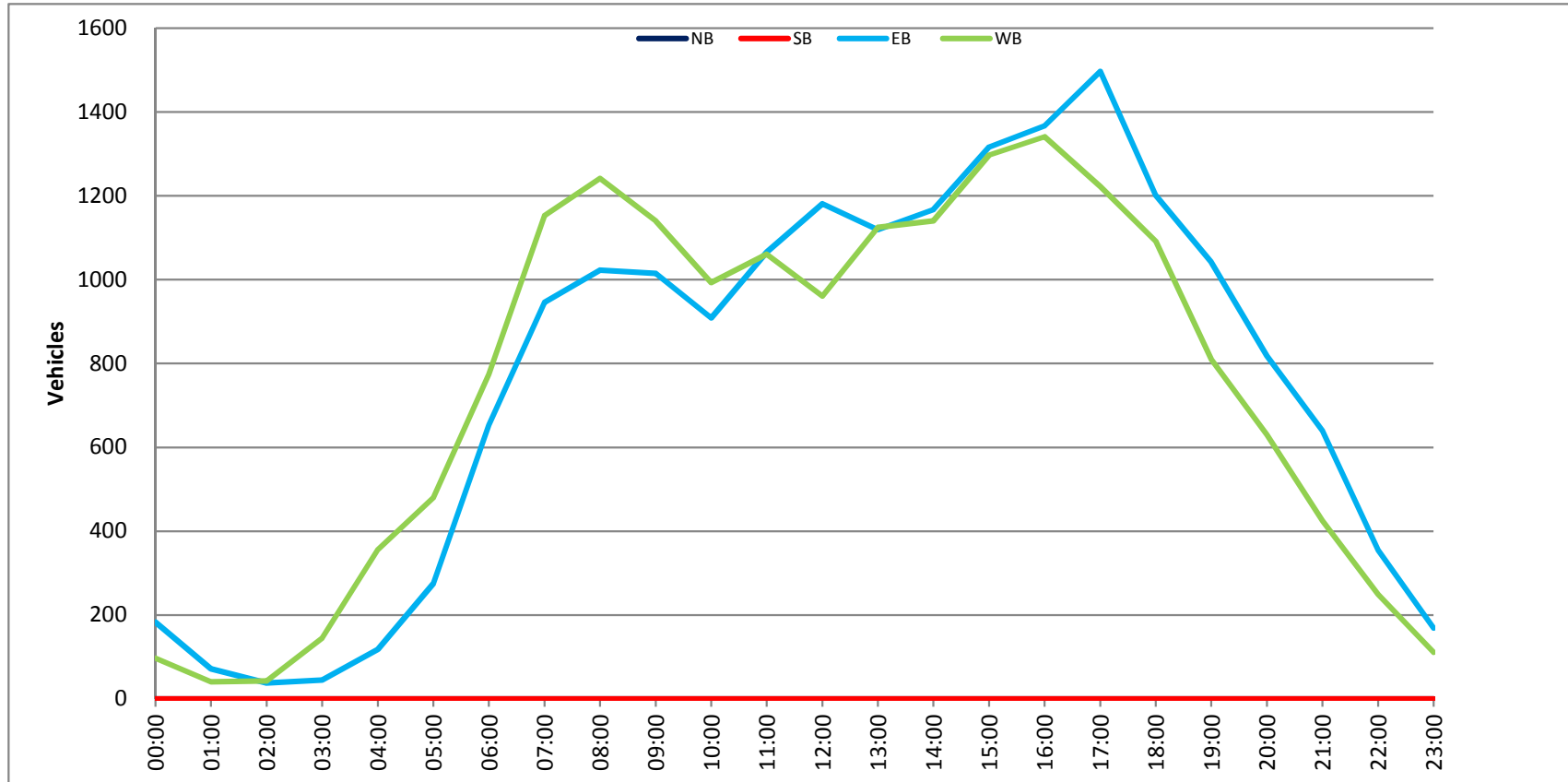
Prepared by NDS/ATD

Project #: CA18_6101_004

City: Murrieta

Location: Murrieta Hot Springs Rd Bet. Calle Del Lago

Date: 8/29/2018



VOLUME

Murrieta Hot Springs Rd Bet. Delhaven St & Hwy 79

Day: Tuesday
Date: 8/28/2018City: Murrieta
Project #: CA18_6101_005

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						16,199	17,763						33,962
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL							TOTAL
00:00			33	31	64		12:00			233	243	476							
00:15			30	24	54		12:15			238	242	480							
00:30			24	13	37		12:30			226	265	491							
00:45			21	108	13	81	12:45			265	962	240	990	505	1952				
01:00			20	12	32		13:00			238	250	488							
01:15			15	8	23		13:15			261	269	530							
01:30			11	4	15		13:30			240	259	499							
01:45			6	52	15	39	13:45			267	1006	241	1019	508	2025				
02:00			11	20	31		14:00			235	267	502							
02:15			12	6	18		14:15			265	241	506							
02:30			11	17	28		14:30			257	288	545							
02:45			7	41	16	59	14:45			320	1077	264	1060	584	2137				
03:00			10	22	32		15:00			306	314	620							
03:15			14	32	46		15:15			319	295	614							
03:30			17	50	67		15:30			315	351	666							
03:45			21	62	69	173	15:45			291	1231	301	1261	592	2492				
04:00			5	70	75		16:00			276	368	644							
04:15			17	78	95		16:15			297	339	636							
04:30			24	88	112		16:30			270	354	624							
04:45			44	90	112	348	16:45			305	1148	325	1386	630	2534				
05:00			52	80	132		17:00			272	367	639							
05:15			46	108	154		17:15			341	349	690							
05:30			88	114	202		17:30			318	299	617							
05:45			91	277	146	448	17:45			319	1250	296	1311	615	2561				
06:00			69	135	204		18:00			304	299	603							
06:15			111	165	276		18:15			289	293	582							
06:30			164	208	372		18:30			287	314	601							
06:45			202	546	272	780	18:45			256	1136	235	1141	491	2277				
07:00			167	281	448		19:00			211	189	400							
07:15			223	264	487		19:15			283	195	478							
07:30			233	294	527		19:30			221	207	428							
07:45			282	905	287	1126	19:45			224	939	163	754	387	1693				
08:00			259	298	557		20:00			233	177	410							
08:15			220	285	505		20:15			189	166	355							
08:30			190	295	485		20:30			188	128	316							
08:45			213	882	374	1252	20:45			194	804	126	597	320	1401				
09:00			221	321	542		21:00			163	116	279							
09:15			208	285	493		21:15			127	111	238							
09:30			218	227	445		21:30			108	88	196							
09:45			235	882	293	1126	21:45			112	510	86	401	198	911				
10:00			216	212	428		22:00			108	76	184							
10:15			207	306	513		22:15			71	51	122							
10:30			193	247	440		22:30			48	60	108							
10:45			214	830	262	1027	22:45			69	296	46	233	115	529				
11:00			233	247	480		23:00			72	43	115							
11:15			220	262	482		23:15			48	44	92							
11:30			232	265	497		23:30			51	32	83							
11:45			238	923	239	1013	23:45			71	242	19	138	90	380				
TOTALS			5598	7472	13070		TOTALS			10601	10291	20892							
SPLIT %			42.8%	57.2%	38.5%		SPLIT %			50.7%	49.3%	61.5%							

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						16,199	17,763						33,962
AM Peak Hour			07:15	08:15	07:30		PM Peak Hour			17:15	16:30	16:30							
AM Pk Volume			997	1275	2158		PM Pk Volume			1282	1395	2583							
Pk Hr Factor			0.884	0.852	0.948		Pk Hr Factor			0.940	0.950	0.936							
7 - 9 Volume	0	0	1787	2378	4165		4 - 6 Volume	0	0	2398	2697	5095							
7 - 9 Peak Hour			07:15	08:00	07:30		4 - 6 Peak Hour			17:00	16:30	16:30							
7 - 9 Pk Volume	0	0	997	1252	2158		4 - 6 Pk Volume	0	0	1250	1395	2583							
Pk Hr Factor	0.000	0.000	0.884	0.837	0.948		Pk Hr Factor	0.000	0.000	0.916	0.950	0.936							

VOLUME

Murrieta Hot Springs Rd Bet. Delhaven St & Hwy 79

Day: Wednesday

Date: 8/29/2018

City: Murrieta

Project #: CA18_6101_005

DAILY TOTALS					NB	SB	EB					WB	Total				
					0	0						16,485					
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL					
00:00			83	35	118		12:00			239	238	477					
00:15			28	23	51		12:15			256	225	481					
00:30			26	15	41		12:30			236	228	464					
00:45			31	168	18	91	12:45			283	1014	244	935				
01:00			18	13	31		13:00			227	278	505					
01:15			14	14	28		13:15			252	292	544					
01:30			22	7	29		13:30			219	281	500					
01:45			10	64	6	40	13:45			265	963	266	1117				
02:00			12	9	21		14:00			241	281	522					
02:15			7	5	12		14:15			273	269	542					
02:30			8	13	21		14:30			243	286	529					
02:45			9	36	16	43	14:45			268	1025	295	1131				
03:00			7	18	25		15:00			275	348	623					
03:15			11	30	41		15:15			298	333	631					
03:30			11	39	50		15:30			290	300	590					
03:45			12	41	63	150	15:45			283	1146	324	1305				
04:00			16	69	85		16:00			254	303	557					
04:15			14	62	76		16:15			323	340	663					
04:30			29	98	127		16:30			287	397	684					
04:45			53	112	115	344	16:45			303	1167	301	1341				
05:00			37	96	133		17:00			315	308	623					
05:15			56	112	168		17:15			350	327	677					
05:30			84	118	202		17:30			317	323	640					
05:45			93	270	155	481	17:45			350	1332	263	1221				
06:00			108	128	236		18:00			255	296	551					
06:15			140	156	296		18:15			306	305	611					
06:30			155	219	374		18:30			250	284	534					
06:45			223	626	273	776	18:45			288	1099	218	1103				
07:00			216	258	474		19:00			263	198	461					
07:15			192	340	532		19:15			236	249	485					
07:30			211	263	474		19:30			228	179	407					
07:45			287	906	291	1152	19:45			248	975	189	815				
08:00			232	276	508		20:00			187	143	330					
08:15			272	291	563		20:15			183	169	352					
08:30			237	306	543		20:30			197	176	373					
08:45			221	962	365	1238	20:45			206	773	145	633				
09:00			258	291	549		21:00			174	129	303					
09:15			224	297	521		21:15			191	125	316					
09:30			221	270	491		21:30			134	100	234					
09:45			255	958	275	1133	21:45			119	618	83	437				
10:00			202	252	454		22:00			95	85	180					
10:15			190	245	435		22:15			80	66	146					
10:30			189	266	455		22:30			84	55	139					
10:45			231	812	226	989	22:45			76	335	57	263				
11:00			234	271	505		23:00			58	42	100					
11:15			217	232	449		23:15			35	37	72					
11:30			250	267	517		23:30			29	25	54					
11:45			242	943	275	1045	23:45			18	140	15	119				
TOTALS			5898	7482	13380		TOTALS			10587	10420	21007					
SPLIT %			44.1%	55.9%	38.9%		SPLIT %			50.4%	49.6%	61.1%					

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						16,485	17,902						34,387
AM Peak Hour			07:45	08:30	08:15		PM Peak Hour			17:00	15:45	16:30							
AM Pk Volume			1028	1259	2241		PM Pk Volume			1332	1364	2588							
Pk Hr Factor			0.895	0.862	0.956		Pk Hr Factor			0.951	0.859	0.946							
7 - 9 Volume	0	0	1868	2390	4258		4 - 6 Volume	0	0	2499	2562	5061							
7 - 9 Peak Hour			07:45	08:00	08:00		4 - 6 Peak Hour			17:00	16:15	16:30							
7 - 9 Pk Volume	0	0	1028	1238	2200		4 - 6 Pk Volume	0	0	1332	1346	2588							
Pk Hr Factor	0.000	0.000	0.895	0.848	0.939		Pk Hr Factor	0.000	0.000	0.951	0.848	0.946							

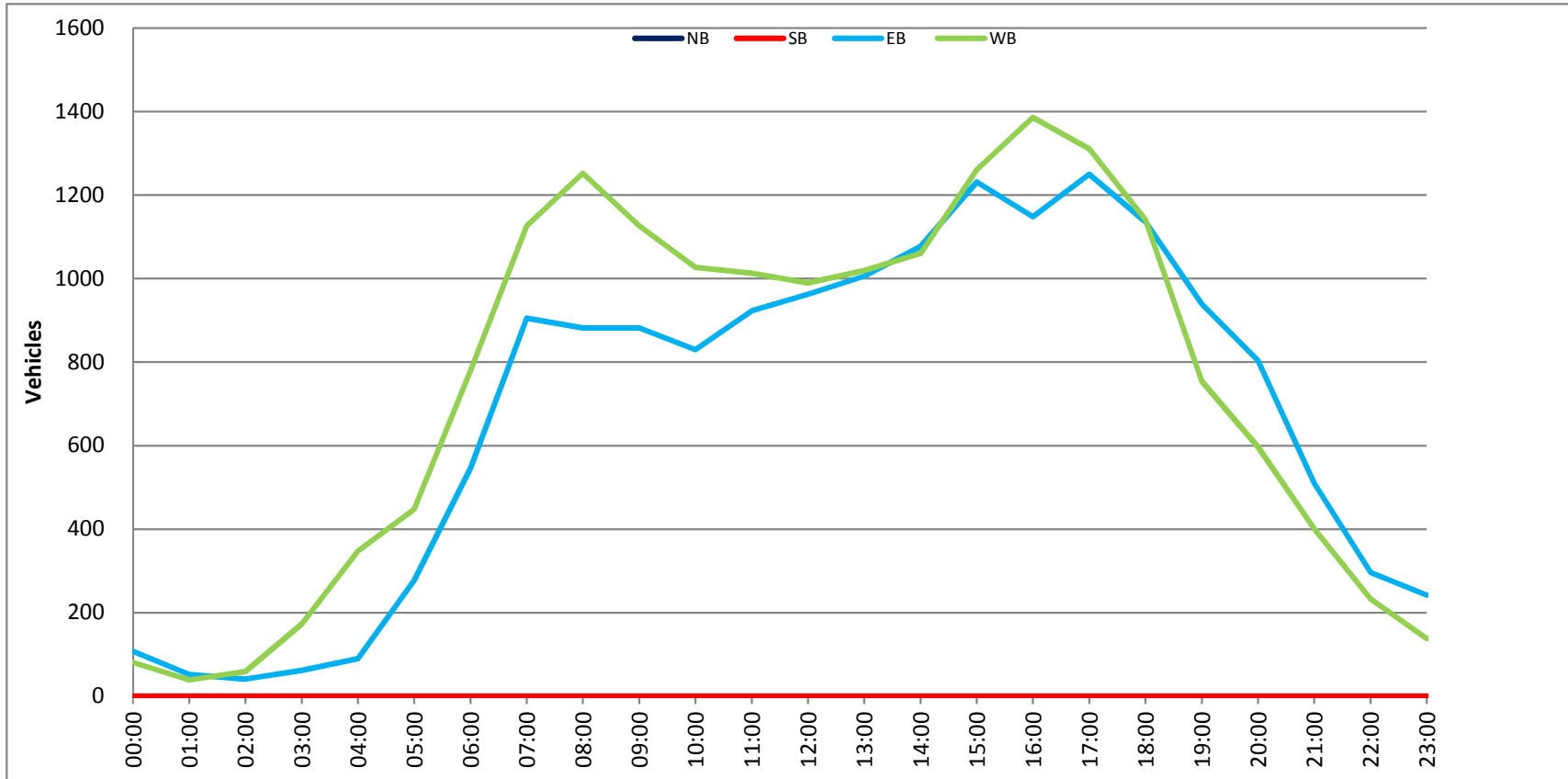
Prepared by NDS/ATD

Project #: CA18_6101_005

City: Murrieta

Location: Murrieta Hot Springs Rd Bet. Delhaven St &

Date: 8/28/2018



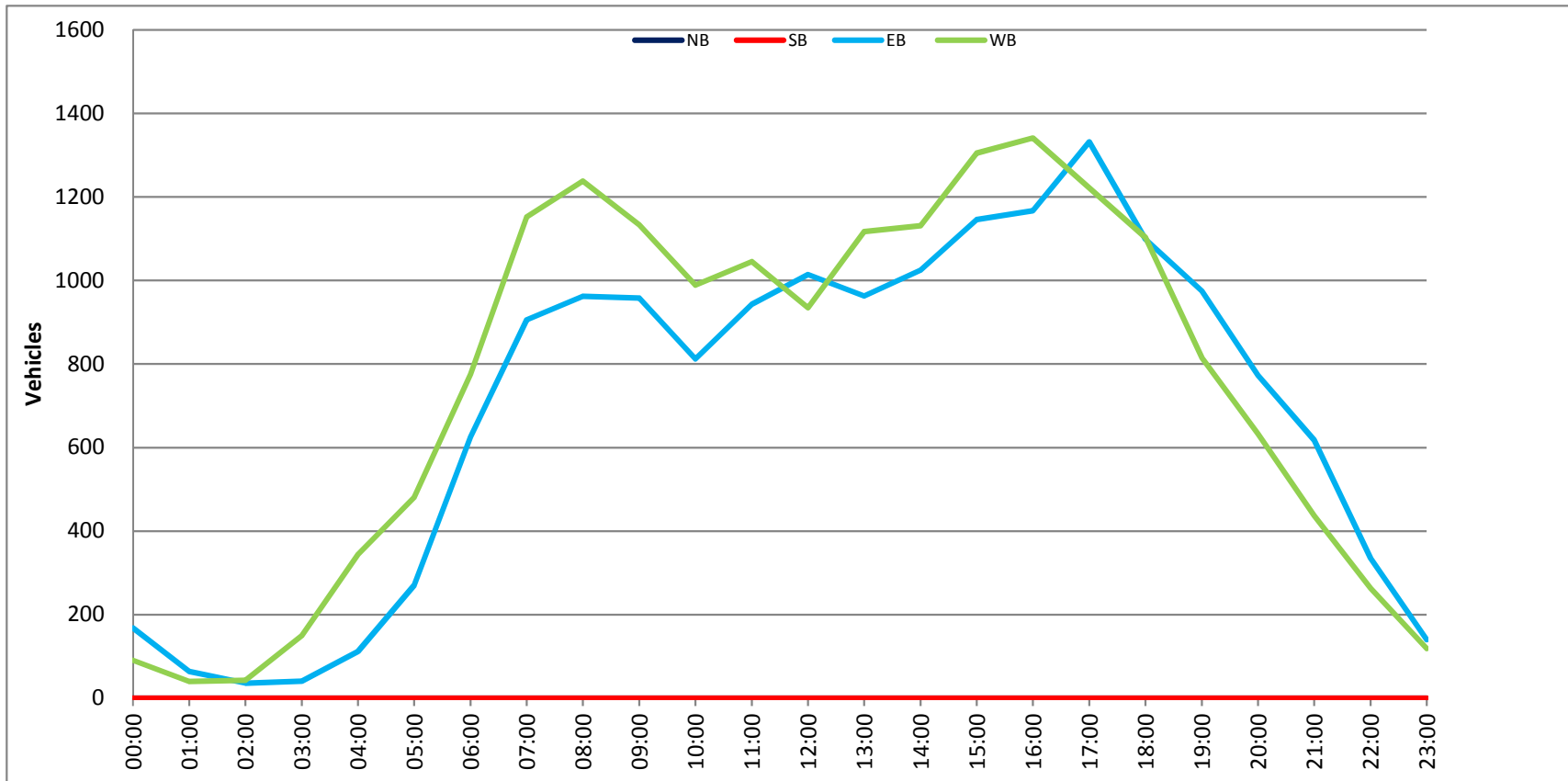
Prepared by NDS/ATD

Project #: CA18_6101_005

City: Murrieta

Location: Murrieta Hot Springs Rd Bet. Delhaven St &

Date: 8/29/2018



VOLUME

Margarita Rd Bet. Murrieta Hot Springs Rd & Torrey Pines Rd

Day: Tuesday
Date: 8/28/2018City: Murrieta
Project #: CA18_6101_006

DAILY TOTALS					NB	SB	EB					WB	Total
					10,916	10,907						0	0
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL	
00:00	12	20			32		12:00	148	162			310	
00:15	13	15			28		12:15	141	162			303	
00:30	11	8			19		12:30	141	172			313	
00:45	12	48	11	54	23	102	12:45	138	568	161	657	299	1225
01:00	9	10			19		13:00	157	179			336	
01:15	5	10			15		13:15	160	154			314	
01:30	12	5			17		13:30	154	168			322	
01:45	7	33	10	35	17	68	13:45	138	609	150	651	288	1260
02:00	6	6			12		14:00	175	182			357	
02:15	4	5			9		14:15	186	179			365	
02:30	5	3			8		14:30	183	211			394	
02:45	9	24	4	18	13	42	14:45	272	816	256	828	528	1644
03:00	9	1			10		15:00	217	251			468	
03:15	5	6			11		15:15	306	226			532	
03:30	7	7			14		15:30	272	223			495	
03:45	15	36	10	24	25	60	15:45	212	1007	190	890	402	1897
04:00	17	3			20		16:00	218	178			396	
04:15	23	23			46		16:15	230	208			438	
04:30	31	27			58		16:30	231	170			401	
04:45	34	105	27	80	61	185	16:45	225	904	202	758	427	1662
05:00	34	32			66		17:00	232	212			444	
05:15	50	28			78		17:15	265	175			440	
05:30	47	68			115		17:30	234	194			428	
05:45	58	189	50	178	108	367	17:45	245	976	195	776	440	1752
06:00	63	61			124		18:00	236	179			415	
06:15	84	66			150		18:15	213	166			379	
06:30	113	90			203		18:30	191	148			339	
06:45	139	399	138	355	277	754	18:45	169	809	162	655	331	1464
07:00	131	127			258		19:00	165	127			292	
07:15	110	162			272		19:15	148	150			298	
07:30	130	251			381		19:30	161	153			314	
07:45	178	549	236	776	414	1325	19:45	112	586	130	560	242	1146
08:00	164	215			379		20:00	115	88			203	
08:15	187	201			388		20:15	100	111			211	
08:30	186	206			392		20:30	96	93			189	
08:45	197	734	196	818	393	1552	20:45	80	391	99	391	179	782
09:00	139	150			289		21:00	69	87			156	
09:15	113	143			256		21:15	65	81			146	
09:30	104	130			234		21:30	70	68			138	
09:45	132	488	147	570	279	1058	21:45	46	250	73	309	119	559
10:00	140	135			275		22:00	70	45			115	
10:15	126	151			277		22:15	55	57			112	
10:30	126	149			275		22:30	42	32			74	
10:45	121	513	162	597	283	1110	22:45	30	197	35	169	65	366
11:00	161	160			321		23:00	27	25			52	
11:15	119	135			254		23:15	21	27			48	
11:30	148	168			316		23:30	18	32			50	
11:45	169	597	173	636	342	1233	23:45	22	88	38	122	60	210
TOTALS	3715	4141			7856		TOTALS	7201	6766			13967	
SPLIT %	47.3%	52.7%			36.0%		SPLIT %	51.6%	48.4%			64.0%	

DAILY TOTALS					NB	SB					EB	WB	Total	
					10,916	10,907					0	0	21,823	
AM Peak Hour	08:00	07:30		07:45			PM Peak Hour	14:45	14:45			14:45		
AM Pk Volume	734	903		1573			PM Pk Volume	1067	956			2023		
Pk Hr Factor	0.931	0.899		0.950			Pk Hr Factor	0.872	0.934			0.951		
7 - 9 Volume	1283	1594	0	0	2877		4 - 6 Volume	1880	1534	0	0	3414		
7 - 9 Peak Hour	08:00	07:30		07:45			4 - 6 Peak Hour	17:00	16:15			17:00		
7 - 9 Pk Volume	734	903	0	0	1573		4 - 6 Pk Volume	976	792	0	0	1752		
Pk Hr Factor	0.931	0.899	0.000	0.000	0.950		Pk Hr Factor	0.921	0.934	0.000	0.000	0.986		

VOLUME

Margarita Rd Bet. Murrieta Hot Springs Rd & Torrey Pines Rd

Day: Wednesday

City: Murrieta

Date: 8/29/2018

Project #: CA18_6101_006

DAILY TOTALS					NB	SB	EB					WB	Total
					10,995	10,931						0	0
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL	
00:00	21	45			66		12:00	179	137			316	
00:15	15	17			32		12:15	150	164			314	
00:30	9	17			26		12:30	155	175			330	
00:45	12	57	9	88	21	145	12:45	150	634	143	619	293	1253
01:00	9	8			17		13:00	159	160			319	
01:15	9	3			12		13:15	173	126			299	
01:30	6	4			10		13:30	149	171			320	
01:45	7	31	3	18	10	49	13:45	193	674	176	633	369	1307
02:00	4	8			12		14:00	191	163			354	
02:15	9	5			14		14:15	189	201			390	
02:30	16	4			20		14:30	193	197			390	
02:45	10	39	7	24	17	63	14:45	261	834	270	831	531	1665
03:00	2	4			6		15:00	213	253			466	
03:15	6	3			9		15:15	315	224			539	
03:30	13	11			24		15:30	249	187			436	
03:45	15	36	9	27	24	63	15:45	216	993	177	841	393	1834
04:00	18	4			22		16:00	198	157			355	
04:15	23	17			40		16:15	212	177			389	
04:30	38	23			61		16:30	239	184			423	
04:45	28	107	28	72	56	179	16:45	266	915	227	745	493	1660
05:00	25	32			57		17:00	241	210			451	
05:15	30	40			70		17:15	237	201			438	
05:30	57	61			118		17:30	231	184			415	
05:45	52	164	53	186	105	350	17:45	246	955	207	802	453	1757
06:00	53	68			121		18:00	204	176			380	
06:15	73	72			145		18:15	216	167			383	
06:30	114	92			206		18:30	215	193			408	
06:45	140	380	123	355	263	735	18:45	180	815	164	700	344	1515
07:00	128	121			249		19:00	165	152			317	
07:15	112	168			280		19:15	142	132			274	
07:30	145	252			397		19:30	137	141			278	
07:45	180	565	213	754	393	1319	19:45	106	550	125	550	231	1100
08:00	167	224			391		20:00	114	113			227	
08:15	205	195			400		20:15	119	121			240	
08:30	176	224			400		20:30	96	119			215	
08:45	205	753	192	835	397	1588	20:45	92	421	108	461	200	882
09:00	135	130			265		21:00	67	100			167	
09:15	119	151			270		21:15	85	73			158	
09:30	121	137			258		21:30	68	70			138	
09:45	144	519	154	572	298	1091	21:45	48	268	67	310	115	578
10:00	125	142			267		22:00	47	60			107	
10:15	119	140			259		22:15	47	51			98	
10:30	136	162			298		22:30	26	32			58	
10:45	148	528	169	613	317	1141	22:45	28	148	25	168	53	316
11:00	144	162			306		23:00	21	20			41	
11:15	118	139			257		23:15	25	25			50	
11:30	139	163			302		23:30	23	15			38	
11:45	125	526	176	640	301	1166	23:45	14	83	27	87	41	170
TOTALS	3705	4184			7889		TOTALS	7290	6747			14037	
SPLIT %	47.0%	53.0%			36.0%		SPLIT %	51.9%	48.1%			64.0%	

DAILY TOTALS				NB	SB	EB				WB	Total		
				10,995	10,931					0			0
AM Peak Hour	08:00	07:30			08:00		PM Peak Hour	14:45	14:30			14:45	
AM Pk Volume	753	884			1588		PM Pk Volume	1038	944			1972	
Pk Hr Factor	0.918	0.877			0.993		Pk Hr Factor	0.824	0.874			0.915	
7 - 9 Volume	1318	1589	0	0	2907		4 - 6 Volume	1870	1547	0	0	3417	
7 - 9 Peak Hour	08:00	07:30			08:00		4 - 6 Peak Hour	16:30	16:30			16:30	
7 - 9 Pk Volume	753	884	0	0	1588		4 - 6 Pk Volume	983	822	0	0	1805	
Pk Hr Factor	0.918	0.877	0.000	0.000	0.993		Pk Hr Factor	0.924	0.905	0.000	0.000	0.915	

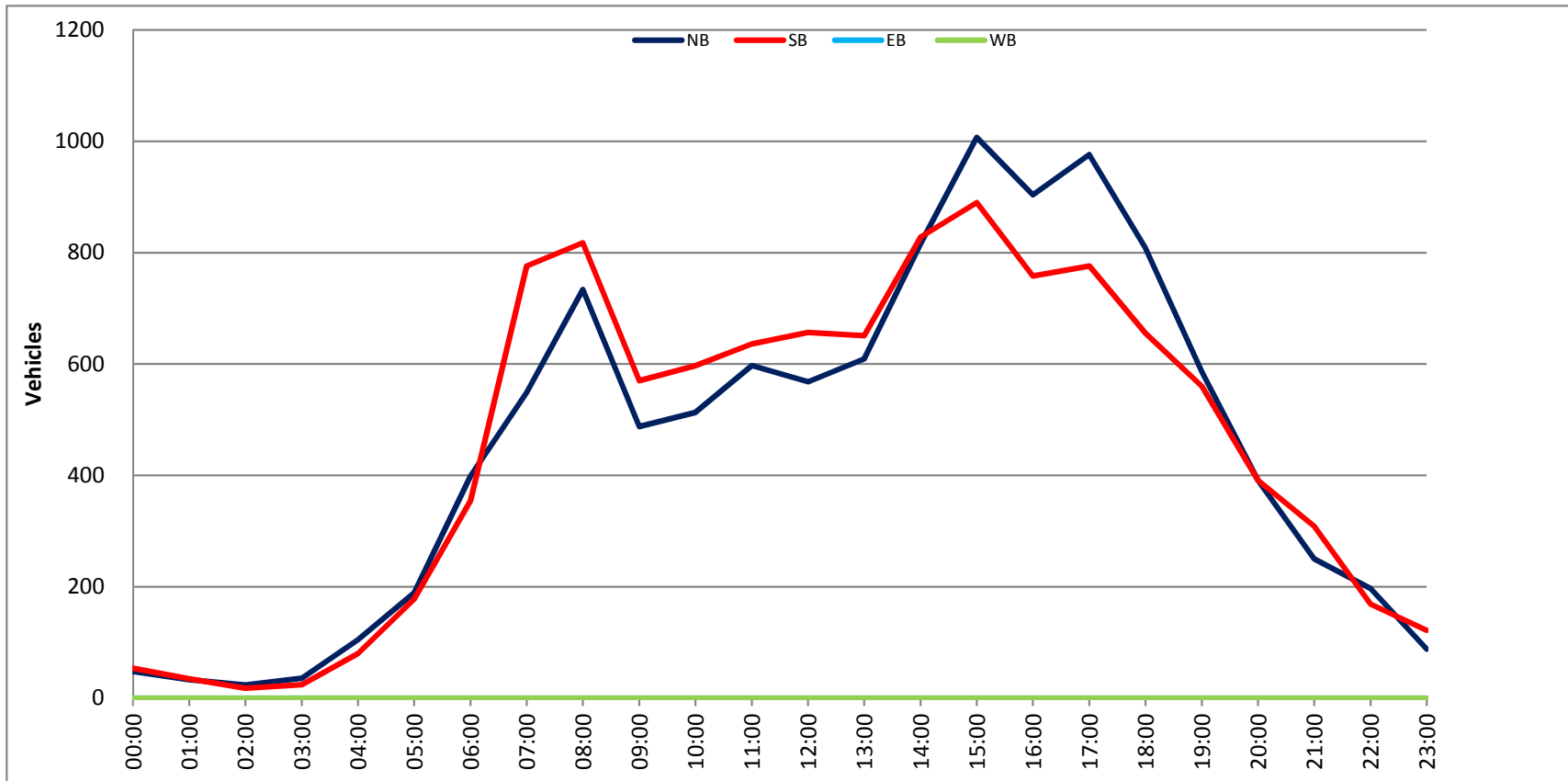
Prepared by NDS/ATD

Project #: CA18_6101_006

City: Murrieta

Location: Margarita Rd Bet. Murrieta Hot Springs Rd &

Date: 8/28/2018



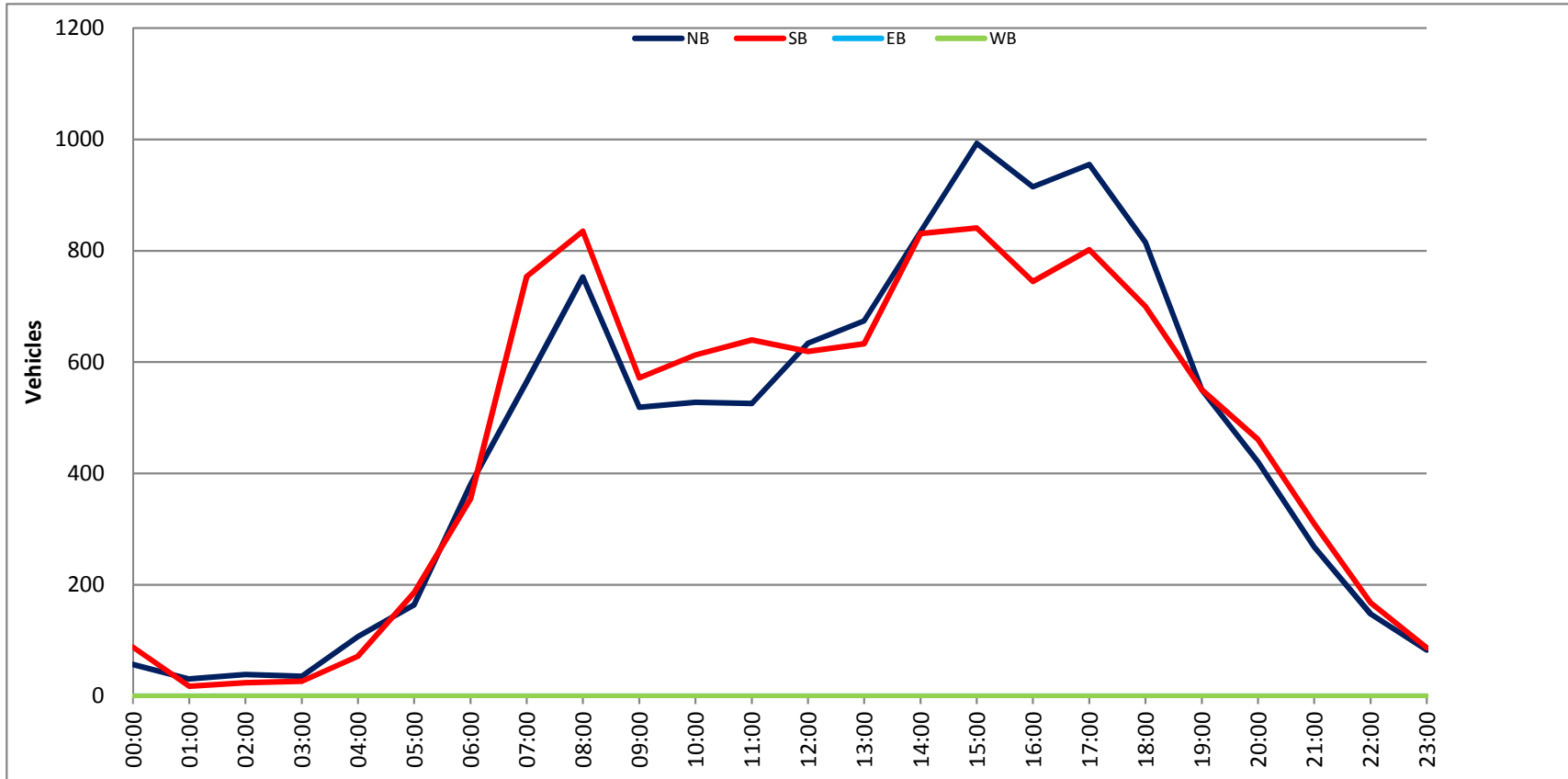
Prepared by NDS/ATD

Project #: CA18_6101_006

City: Murrieta

Location: Margarita Rd Bet. Murrieta Hot Springs Rd &

Date: 8/29/2018



APPENDIX B

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – EXISTING

Existing AM
1: Margarita Rd & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	8	1001	571	207	1123	523	6	140	3	3
Future Volume (vph)	8	1001	571	207	1123	523	6	140	3	3
Turn Type	Prot	NA	Perm	Prot	NA	Split	NA	Perm	NA	Perm
Protected Phases	5	2		1	6	8	8		4	
Permitted Phases			2					8		4
Detector Phase	5	2	2	1	6	8	8	8	4	4
Switch Phase										
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.6	34.8	34.8	10.6	27.8	34.8	34.8	34.8	22.6	22.6
Total Split (s)	10.6	42.5	42.5	20.1	52.0	34.8	34.8	34.8	22.6	22.6
Total Split (%)	8.8%	35.4%	35.4%	16.8%	43.3%	29.0%	29.0%	29.0%	18.8%	18.8%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	4.8	4.8	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	5.8	5.8	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	None	None	None	None	None

Intersection Summary

Cycle Length: 120

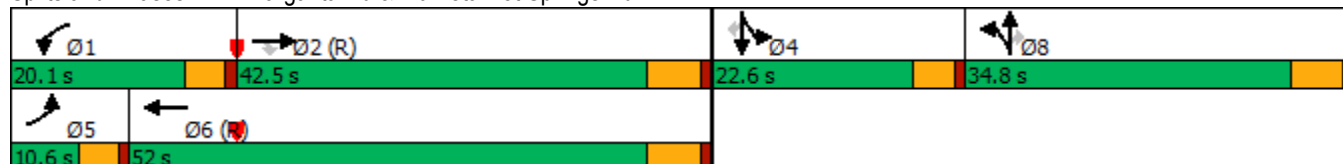
Actuated Cycle Length: 120

Offset: 85 (71%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Splits and Phases: 1: Margarita Rd & Murrieta Hot Springs Rd



Existing AM
1: Margarita Rd & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	1001	571	207	1123	2	523	6	140	2	3	3
Future Volume (veh/h)	8	1001	571	207	1123	2	523	6	140	2	3	3
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	9	1088	621	225	1221	2	568	7	152	2	3	3
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	23	1758	784	230	3216	5	660	357	303	9	13	19
Arrive On Green	0.01	0.49	0.49	0.26	1.00	1.00	0.19	0.19	0.19	0.01	0.01	0.01
Sat Flow, veh/h	1781	3554	1585	1781	5264	9	3456	1870	1585	733	1100	1585
Grp Volume(v), veh/h	9	1088	621	225	790	433	568	7	152	5	0	3
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1702	1869	1728	1870	1585	1834	0	1585
Q Serve(g_s), s	0.6	26.8	39.1	15.0	0.0	0.0	19.1	0.4	10.3	0.3	0.0	0.2
Cycle Q Clear(g_c), s	0.6	26.8	39.1	15.0	0.0	0.0	19.1	0.4	10.3	0.3	0.0	0.2
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.40		1.00
Lane Grp Cap(c), veh/h	23	1758	784	230	2080	1142	660	357	303	21	0	19
V/C Ratio(X)	0.39	0.62	0.79	0.98	0.38	0.38	0.86	0.02	0.50	0.23	0.00	0.16
Avail Cap(c_a), veh/h	89	1758	784	230	2080	1142	835	452	383	275	0	238
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.84	0.84	0.84	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	58.8	22.1	25.2	44.3	0.0	0.0	47.0	39.4	43.4	58.8	0.0	58.7
Incr Delay (d2), s/veh	10.4	1.6	8.0	48.1	0.4	0.8	7.5	0.0	1.3	5.4	0.0	4.0
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	0.3	11.3	16.0	8.8	0.1	0.3	8.9	0.2	4.2	0.2	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.1	23.7	33.2	92.4	0.4	0.8	54.5	39.4	44.7	64.2	0.0	62.7
LnGrp LOS	E	C	C	F	A	A	D	D	D	E	A	E
Approach Vol, veh/h		1718			1448			727			8	
Approach Delay, s/veh		27.4			14.8			52.3			63.6	
Approach LOS		C			B			D			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	20.1	65.2		6.0	6.2	79.1		28.7				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		5.8				
Max Green Setting (Gmax), s	15.5	36.7		18.0	6.0	46.2		29.0				
Max Q Clear Time (g_c+I1), s	17.0	41.1		2.3	2.6	2.0		21.1				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	11.1		1.8				
Intersection Summary												
HCM 6th Ctrl Delay			27.4									
HCM 6th LOS			C									

Existing AM
2: Via Princesa & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	86	958	35	44	1099	85	5	22	11	179
Future Volume (vph)	86	958	35	44	1099	85	5	22	11	179
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6		8		4	
Permitted Phases			2			8		4		4
Detector Phase	5	2	2	1	6	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.6	25.8	25.8	10.6	25.8	27.6	27.6	33.6	33.6	33.6
Total Split (s)	19.0	71.0	71.0	14.0	66.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	15.8%	59.2%	59.2%	11.7%	55.0%	29.2%	29.2%	29.2%	29.2%	29.2%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	None	None	None	None	None

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 65 (54%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 2: Via Princesa & Murrieta Hot Springs Rd



Existing AM
2: Via Princesa & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	958	35	44	1099	15	85	5	28	22	11	179
Future Volume (veh/h)	86	958	35	44	1099	15	85	5	28	22	11	179
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	93	1041	38	48	1195	16	92	5	30	24	12	195
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	116	2462	1098	71	2397	32	221	33	198	229	266	225
Arrive On Green	0.13	1.00	1.00	0.04	0.67	0.67	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1781	3554	1585	1781	3590	48	1175	231	1389	1373	1870	1585
Grp Volume(v), veh/h	93	1041	38	48	591	620	92	0	35	24	12	195
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1862	1175	0	1620	1373	1870	1585
Q Serve(g_s), s	6.1	0.0	0.0	3.2	19.9	19.9	8.8	0.0	2.3	1.9	0.7	14.4
Cycle Q Clear(g_c), s	6.1	0.0	0.0	3.2	19.9	19.9	9.5	0.0	2.3	4.1	0.7	14.4
Prop In Lane	1.00		1.00	1.00		0.03	1.00		0.86	1.00		1.00
Lane Grp Cap(c), veh/h	116	2462	1098	71	1186	1243	221	0	230	229	266	225
V/C Ratio(X)	0.80	0.42	0.03	0.68	0.50	0.50	0.42	0.00	0.15	0.10	0.05	0.87
Avail Cap(c_a), veh/h	214	2462	1098	140	1186	1243	351	0	410	382	474	402
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.71	0.71	0.71	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.4	0.0	0.0	56.8	9.9	9.9	48.5	0.0	45.1	46.9	44.4	50.3
Incr Delay (d2), s/veh	8.8	0.4	0.0	10.6	1.5	1.4	1.3	0.0	0.3	0.2	0.1	9.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.1	0.0	1.6	7.8	8.1	2.7	0.0	0.9	0.7	0.3	6.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.2	0.4	0.0	67.4	11.4	11.4	49.8	0.0	45.4	47.1	44.5	59.9
LnGrp LOS	E	A	A	E	B	B	D	A	D	D	D	E
Approach Vol, veh/h		1172			1259			127			231	
Approach Delay, s/veh		5.1			13.5			48.6			57.8	
Approach LOS		A			B			D			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	88.9		21.7	12.4	85.9		21.7				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		4.6				
Max Green Setting (Gmax), s	9.4	65.2		30.4	14.4	60.2		30.4				
Max Q Clear Time (g_c+I1), s	5.2	2.0		16.4	8.1	21.9		11.5				
Green Ext Time (p_c), s	0.0	10.4		0.6	0.1	10.7		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			15.3									
HCM 6th LOS			B									

Existing AM
3: Calle Del Lago & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	982	19	10	1121	8	17	0	52	8	0	14
Future Vol, veh/h	7	982	19	10	1121	8	17	0	52	8	0	14
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	180	-	-	160	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	1067	21	11	1218	9	18	0	57	9	0	15

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1227	0	0	1088	0	0	1725	2343	544	1795	2349	614
Stage 1	-	-	-	-	-	-	1094	1094	-	1245	1245	-
Stage 2	-	-	-	-	-	-	631	1249	-	550	1104	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	564	-	-	*1024	-	-	*128	*40	*685	*106	39	435
Stage 1	-	-	-	-	-	-	*645	*566	-	*184	244	-
Stage 2	-	-	-	-	-	-	*436	*243	-	*645	566	-
Platoon blocked, %		-	-	1	-	-	1	1	1	1	1	
Mov Cap-1 Maneuver	564	-	-	*1024	-	-	*122	*39	*685	*96	38	435
Mov Cap-2 Maneuver	-	-	-	-	-	-	*122	*39	-	*96	38	-
Stage 1	-	-	-	-	-	-	*636	*558	-	*181	241	-
Stage 2	-	-	-	-	-	-	*416	*240	-	*584	558	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	19.6	26.7
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	321	564	-	-	*1024	-	-	190
HCM Lane V/C Ratio	0.234	0.013	-	-	0.011	-	-	0.126
HCM Control Delay (s)	19.6	11.5	-	-	8.6	-	-	26.7
HCM Lane LOS	C	B	-	-	A	-	-	D
HCM 95th %tile Q(veh)	0.9	0	-	-	0	-	-	0.4

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Existing AM
5: Delhaven St & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	1015	10	7	1109	14	9	0	10	7	0	20
Future Vol, veh/h	15	1015	10	7	1109	14	9	0	10	7	0	20
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	190	-	-	120	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	1103	11	8	1205	15	10	0	11	8	0	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1220	0	0	1114	0	0	1760	2377	557	1813	2375	610
Stage 1	-	-	-	-	-	-	1141	1141	-	1229	1229	-
Stage 2	-	-	-	-	-	-	619	1236	-	584	1146	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	567	-	-	623	-	-	54	34	474	49	34	437
Stage 1	-	-	-	-	-	-	214	274	-	188	248	-
Stage 2	-	-	-	-	-	-	443	246	-	465	272	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	567	-	-	623	-	-	50	33	474	46	33	437
Mov Cap-2 Maneuver	-	-	-	-	-	-	50	33	-	46	33	-
Stage 1	-	-	-	-	-	-	208	266	-	183	245	-
Stage 2	-	-	-	-	-	-	416	243	-	442	264	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.1	51.1	35.6
HCM LOS			F	E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	50	474	567	-	-	623	-	-	46	437
HCM Lane V/C Ratio	0.196	0.023	0.029	-	-	0.012	-	-	0.165	0.05
HCM Control Delay (s)	93.7	12.8	11.5	-	-	10.8	-	-	98.2	13.7
HCM Lane LOS	F	B	B	-	-	B	-	-	F	B
HCM 95th %tile Q(veh)	0.6	0.1	0.1	-	-	0	-	-	0.5	0.2

Existing AM
6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	400	459	87	245	480	84	123	732	203	203	1700	553
Future Volume (vph)	400	459	87	245	480	84	123	732	203	203	1700	553
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.1	22.5	22.5	10.1	49.2	49.2	10.1	47.5	47.5	10.1	49.5	49.5
Total Split (s)	23.0	49.9	49.9	22.3	49.2	49.2	11.3	50.8	50.8	17.0	56.5	56.5
Total Split (%)	16.4%	35.6%	35.6%	15.9%	35.1%	35.1%	8.1%	36.3%	36.3%	12.1%	40.4%	40.4%
Yellow Time (s)	4.1	5.2	5.2	4.1	5.2	5.2	4.1	5.5	5.5	4.1	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	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	0.0	0.0
Total Lost Time (s)	5.1	6.2	6.2	5.1	6.2	6.2	5.1	6.5	6.5	5.1	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 123.5

Natural Cycle: 140

Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd

			
Ø1	Ø2	Ø3	Ø4
17 s	50.8 s	22.3 s	49.9 s
			
Ø5	Ø6	Ø7	Ø8
11.3 s	56.5 s	23 s	49.2 s

Existing AM
6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	400	459	87	245	480	84	123	732	203	203	1700	553
Future Volume (veh/h)	400	459	87	245	480	84	123	732	203	203	1700	553
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	435	499	90	266	522	87	134	796	210	221	1848	576
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	494	1209	375	334	677	302	183	1988	617	281	2132	662
Arrive On Green	0.14	0.24	0.24	0.10	0.19	0.19	0.05	0.39	0.39	0.08	0.42	0.42
Sat Flow, veh/h	3456	5106	1585	3456	3554	1585	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	435	499	90	266	522	87	134	796	210	221	1848	576
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1777	1585	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	14.4	9.7	5.4	8.8	16.3	5.5	4.5	13.2	10.9	7.3	38.6	38.8
Cycle Q Clear(g_c), s	14.4	9.7	5.4	8.8	16.3	5.5	4.5	13.2	10.9	7.3	38.6	38.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	494	1209	375	334	677	302	183	1988	617	281	2132	662
V/C Ratio(X)	0.88	0.41	0.24	0.80	0.77	0.29	0.73	0.40	0.34	0.79	0.87	0.87
Avail Cap(c_a), veh/h	529	1910	593	509	1308	583	183	1988	617	352	2185	678
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	49.1	37.7	36.1	51.7	44.9	40.5	54.5	25.8	25.1	52.7	31.1	31.1
Incr Delay (d2), s/veh	15.1	0.2	0.3	5.1	1.9	0.5	13.8	0.1	0.3	9.0	3.9	11.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	4.1	2.1	4.0	7.3	2.2	2.3	5.3	4.2	3.5	16.2	16.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.2	37.9	36.4	56.7	46.8	41.0	68.3	25.9	25.4	61.6	35.0	42.7
LnGrp LOS	E	D	D	E	D	D	E	C	C	E	C	D
Approach Vol, veh/h		1024			875			1140			2645	
Approach Delay, s/veh		49.0			49.2			30.8			38.9	
Approach LOS		D			D			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.6	52.0	16.4	33.9	11.3	55.3	21.8	28.5				
Change Period (Y+Rc), s	5.1	6.5	5.1	6.2	5.1	6.5	5.1	6.2				
Max Green Setting (Gmax), s	11.9	44.3	17.2	43.7	6.2	50.0	17.9	43.0				
Max Q Clear Time (g_c+I1), s	9.3	15.2	10.8	11.7	6.5	40.8	16.4	18.3				
Green Ext Time (p_c), s	0.2	7.2	0.5	4.0	0.0	7.9	0.3	4.0				
Intersection Summary												
HCM 6th Ctrl Delay			40.7									
HCM 6th LOS			D									

Existing PM
1: Margarita Rd & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	22	1327	582	182	1306	703	10	234	21	17
Future Volume (vph)	22	1327	582	182	1306	703	10	234	21	17
Turn Type	Prot	NA	Perm	Prot	NA	Split	NA	Perm	NA	Perm
Protected Phases	5	2		1	6	8	8		4	
Permitted Phases			2					8		4
Detector Phase	5	2	2	1	6	8	8	8	4	4
Switch Phase										
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.6	34.8	34.8	10.6	27.8	34.8	34.8	34.8	22.6	22.6
Total Split (s)	10.6	47.6	47.6	15.0	52.0	34.8	34.8	34.8	22.6	22.6
Total Split (%)	8.8%	39.7%	39.7%	12.5%	43.3%	29.0%	29.0%	29.0%	18.8%	18.8%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	4.8	4.8	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	5.8	5.8	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	None	None	None	None	None
Act Effct Green (s)	6.2	42.4	42.4	16.2	56.6	34.2	34.2	34.2	8.5	8.5
Actuated g/C Ratio	0.05	0.35	0.35	0.14	0.47	0.28	0.28	0.28	0.07	0.07
v/c Ratio	0.26	1.15	0.76	0.83	0.60	0.78	0.02	0.40	0.35	0.08
Control Delay	62.1	114.8	17.8	75.2	36.9	45.5	29.7	5.8	59.9	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.1	114.8	17.8	75.2	36.9	45.5	29.7	5.8	59.9	0.7
LOS	E	F	B	E	D	D	C	A	E	A
Approach Delay		85.0			41.5		35.6		43.0	
Approach LOS		F			D		D		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 36 (30%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.15

Intersection Signal Delay: 59.2

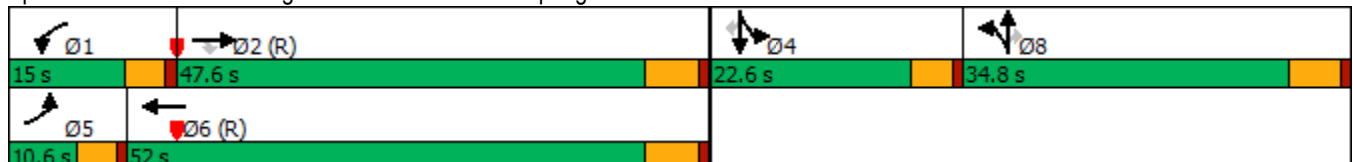
Intersection LOS: E

Intersection Capacity Utilization 87.0%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: Margarita Rd & Murrieta Hot Springs Rd



Existing PM
1: Margarita Rd & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	1327	582	182	1306	14	703	10	234	20	21	17
Future Volume (veh/h)	22	1327	582	182	1306	14	703	10	234	20	21	17
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	24	1442	633	198	1420	15	764	11	254	22	23	18
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	49	1630	727	154	2698	28	820	444	376	39	41	70
Arrive On Green	0.03	0.46	0.46	0.17	1.00	1.00	0.24	0.24	0.24	0.04	0.04	0.04
Sat Flow, veh/h	1781	3554	1585	1781	5209	55	3456	1870	1585	893	933	1585
Grp Volume(v), veh/h	24	1442	633	198	928	507	764	11	254	45	0	18
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1702	1860	1728	1870	1585	1826	0	1585
Q Serve(g_s), s	1.6	44.4	43.2	10.4	0.0	0.0	26.0	0.5	17.5	2.9	0.0	1.3
Cycle Q Clear(g_c), s	1.6	44.4	43.2	10.4	0.0	0.0	26.0	0.5	17.5	2.9	0.0	1.3
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	0.49		1.00
Lane Grp Cap(c), veh/h	49	1630	727	154	1763	964	820	444	376	80	0	70
V/C Ratio(X)	0.49	0.88	0.87	1.28	0.53	0.53	0.93	0.02	0.68	0.56	0.00	0.26
Avail Cap(c_a), veh/h	89	1630	727	154	1763	964	835	452	383	274	0	238
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.71	0.71	0.71	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.5	29.6	29.3	49.6	0.0	0.0	44.8	35.1	41.6	56.2	0.0	55.5
Incr Delay (d2), s/veh	7.4	7.4	13.5	157.5	0.8	1.5	16.7	0.0	4.5	6.0	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	20.1	18.7	10.9	0.2	0.4	13.0	0.3	7.3	1.5	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.9	37.0	42.8	207.1	0.8	1.5	61.5	35.1	46.1	62.3	0.0	57.4
LnGrp LOS	E	D	D	F	A	A	E	D	D	E	A	E
Approach Vol, veh/h		2099			1633			1029			63	
Approach Delay, s/veh		39.0			26.0			57.5			60.9	
Approach LOS		D			C			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.0	60.9		9.9	7.9	67.9		34.3				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		5.8				
Max Green Setting (Gmax), s	10.4	41.8		18.0	6.0	46.2		29.0				
Max Q Clear Time (g_c+I1), s	12.4	46.4		4.9	3.6	2.0		28.0				
Green Ext Time (p_c), s	0.0	0.0		0.1	0.0	14.1		0.5				
Intersection Summary												
HCM 6th Ctrl Delay				38.8								
HCM 6th LOS				D								

Existing PM
2: Via Princesa & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	195	1272	56	47	1292	76	14	27	16	141
Future Volume (vph)	195	1272	56	47	1292	76	14	27	16	141
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6		8		4	
Permitted Phases			2			8		4		4
Detector Phase	5	2	2	1	6	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.6	25.8	25.8	10.6	25.8	27.6	27.6	33.6	33.6	33.6
Total Split (s)	24.0	72.8	72.8	13.6	62.4	33.6	33.6	33.6	33.6	33.6
Total Split (%)	20.0%	60.7%	60.7%	11.3%	52.0%	28.0%	28.0%	28.0%	28.0%	28.0%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	None	None	None	None	None
Act Effect Green (s)	18.5	84.1	84.1	8.3	71.8	14.7	14.7	14.7	14.7	14.7
Actuated g/C Ratio	0.15	0.70	0.70	0.07	0.60	0.12	0.12	0.12	0.12	0.12
v/c Ratio	0.78	0.56	0.05	0.42	0.69	0.49	0.25	0.18	0.07	0.47
Control Delay	59.8	3.8	0.0	63.8	20.6	56.4	19.0	45.7	42.5	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.8	3.8	0.0	63.8	20.6	56.4	19.0	45.7	42.5	11.1
LOS	E	A	A	E	C	E	B	D	D	B
Approach Delay		10.8			22.0		40.7		18.8	
Approach LOS		B			C		D		B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 56 (47%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 17.3

Intersection LOS: B

Intersection Capacity Utilization 71.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: Via Princesa & Murrieta Hot Springs Rd



Timings

N:\2934\Analysis\2. Ex PM.syn

Synchro 10 Report

Existing PM
2: Via Princesa & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	195	1272	56	47	1292	40	76	14	41	27	16	141
Future Volume (veh/h)	195	1272	56	47	1292	40	76	14	41	27	16	141
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	212	1383	61	51	1404	43	83	15	45	29	17	153
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	237	2553	1139	73	2205	67	191	48	143	171	216	183
Arrive On Green	0.27	1.00	1.00	0.04	0.63	0.63	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	1781	3554	1585	1781	3520	108	1215	412	1236	1343	1870	1585
Grp Volume(v), veh/h	212	1383	61	51	708	739	83	0	60	29	17	153
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1851	1215	0	1648	1343	1870	1585
Q Serve(g_s), s	13.8	0.0	0.0	3.4	29.7	29.8	7.9	0.0	4.0	2.4	1.0	11.3
Cycle Q Clear(g_c), s	13.8	0.0	0.0	3.4	29.7	29.8	8.8	0.0	4.0	6.4	1.0	11.3
Prop In Lane	1.00		1.00	1.00		0.06	1.00		0.75	1.00		1.00
Lane Grp Cap(c), veh/h	237	2553	1139	73	1113	1159	191	0	191	171	216	183
V/C Ratio(X)	0.90	0.54	0.05	0.70	0.64	0.64	0.44	0.00	0.31	0.17	0.08	0.83
Avail Cap(c_a), veh/h	288	2553	1139	134	1113	1159	344	0	398	340	452	383
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.2	0.0	0.0	56.8	13.9	13.9	51.3	0.0	48.7	51.6	47.3	51.9
Incr Delay (d2), s/veh	3.2	0.1	0.0	11.5	2.8	2.7	1.6	0.0	0.9	0.5	0.2	9.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	0.0	0.0	1.8	12.1	12.7	2.5	0.0	1.7	0.8	0.5	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.5	0.1	0.0	68.3	16.7	16.6	52.8	0.0	49.6	52.1	47.5	61.4
LnGrp LOS	D	A	A	E	B	B	D	A	D	D	D	E
Approach Vol, veh/h		1656			1498			143			199	
Approach Delay, s/veh		6.0			18.4			51.5			58.8	
Approach LOS		A			B			D			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	92.0		18.5	20.5	81.0		18.5				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		4.6				
Max Green Setting (Gmax), s	9.0	67.0		29.0	19.4	56.6		29.0				
Max Q Clear Time (g_c+I1), s	5.4	2.0		13.3	15.8	31.8		10.8				
Green Ext Time (p_c), s	0.0	17.0		0.6	0.2	11.9		0.5				
Intersection Summary												
HCM 6th Ctrl Delay			16.2									
HCM 6th LOS			B									

Existing PM
3: Calle Del Lago & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	1312	35	35	1373	11	4	0	43	3	0	11
Future Vol, veh/h	8	1312	35	35	1373	11	4	0	43	3	0	11
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	180	-	-	160	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	1426	38	38	1492	12	4	0	47	3	0	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1504	0	0	1464	0	0	2285	3043	732	2305	3056	752
Stage 1	-	-	-	-	-	-	1463	1463	-	1574	1574	-
Stage 2	-	-	-	-	-	-	822	1580	-	731	1482	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	441	-	-	*790	-	-	*39	*6	*528	*36	*5	353
Stage 1	-	-	-	-	-	-	*498	*437	-	*115	*169	-
Stage 2	-	-	-	-	-	-	*334	*168	-	*498	*437	-
Platoon blocked, %		-	-	1	-	-	1	1	1	1	1	
Mov Cap-1 Maneuver	441	-	-	*790	-	-	*35	*5	*528	*31	*5	353
Mov Cap-2 Maneuver	-	-	-	-	-	-	*35	*5	-	*31	*5	-
Stage 1	-	-	-	-	-	-	*488	*428	-	*113	*161	-
Stage 2	-	-	-	-	-	-	*307	*160	-	*445	*428	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.2			24			43.3		
HCM LOS							C			E		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	240	441	-	-	*790	-	-	109
HCM Lane V/C Ratio	0.213	0.02	-	-	0.048	-	-	0.14
HCM Control Delay (s)	24	13.3	-	-	9.8	-	-	43.3
HCM Lane LOS	C	B	-	-	A	-	-	E
HCM 95th %tile Q(veh)	0.8	0.1	-	-	0.2	-	-	0.5

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Existing PM
5: Delhaven St & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

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	32	1331	15	10	1396	36	13	1	12	5	2	12
Future Vol, veh/h	32	1331	15	10	1396	36	13	1	12	5	2	12
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	190	-	-	120	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	35	1447	16	11	1517	39	14	1	13	5	2	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1556	0	0	1463	0	0	2307	3103	732	2353	3092	778
Stage 1	-	-	-	-	-	-	1525	1525	-	1559	1559	-
Stage 2	-	-	-	-	-	-	782	1578	-	794	1533	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	421	-	-	458	-	-	21	11	364	19	12	339
Stage 1	-	-	-	-	-	-	123	178	-	117	172	-
Stage 2	-	-	-	-	-	-	353	168	-	348	177	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	421	-	-	458	-	-	16	10	364	15	11	339
Mov Cap-2 Maneuver	-	-	-	-	-	-	16	10	-	15	11	-
Stage 1	-	-	-	-	-	-	113	163	-	107	168	-
Stage 2	-	-	-	-	-	-	327	164	-	306	162	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.1			275.8			148.5		
HCM LOS							F			F		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	16	98	421	-	-	458	-	-	15	64
HCM Lane V/C Ratio	0.883	0.144	0.083	-	-	0.024	-	-	0.362	0.238
HCM Control Delay (s)	\$ 503.9	47.8	14.3	-	-	13.1	-	-	\$ 345.9	78
HCM Lane LOS	F	E	B	-	-	B	-	-	F	F
HCM 95th %tile Q(veh)	2.2	0.5	0.3	-	-	0.1	-	-	0.9	0.8

Existing PM
6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	510	671	148	277	683	113	203	1539	252	191	914	537
Future Volume (vph)	510	671	148	277	683	113	203	1539	252	191	914	537
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.1	22.5	22.5	10.1	49.2	49.2	10.1	47.5	47.5	10.1	49.5	49.5
Total Split (s)	29.1	53.0	53.0	25.3	49.2	49.2	17.6	56.9	56.9	14.8	54.1	54.1
Total Split (%)	19.4%	35.3%	35.3%	16.9%	32.8%	32.8%	11.7%	37.9%	37.9%	9.9%	36.1%	36.1%
Yellow Time (s)	4.1	5.2	5.2	4.1	5.2	5.2	4.1	5.5	5.5	4.1	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	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	0.0	0.0
Total Lost Time (s)	5.1	6.2	6.2	5.1	6.2	6.2	5.1	6.5	6.5	5.1	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	24.0	43.3	43.3	17.2	36.5	36.5	12.1	50.5	50.5	9.7	48.1	48.1
Actuated g/C Ratio	0.17	0.30	0.30	0.12	0.25	0.25	0.08	0.35	0.35	0.07	0.33	0.33
v/c Ratio	0.97	0.48	0.27	0.73	0.83	0.26	0.76	0.94	0.38	0.90	0.58	0.78
Control Delay	88.9	42.3	6.6	72.3	59.1	11.6	82.5	56.2	6.2	103.7	41.9	27.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.9	42.3	6.6	72.3	59.1	11.6	82.5	56.2	6.2	103.7	41.9	27.4
LOS	F	D	A	E	E	B	F	E	A	F	D	C
Approach Delay		56.2			57.5			52.5			44.3	
Approach LOS		E			E			D			D	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 143.6

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 52.0

Intersection LOS: D

Intersection Capacity Utilization 87.7%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd

			
Ø1	Ø2	Ø3	Ø4
14.8 s	56.9 s	25.3 s	53 s
			
Ø5	Ø6	Ø7	Ø8
17.6 s	54.1 s	29.1 s	49.2 s

Timings

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Synchro 10 Report

Existing PM
6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd

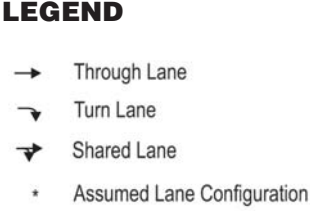
Murrieta Hot Springs Road Widening

03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	510	671	148	277	683	113	203	1539	252	191	914	537
Future Volume (veh/h)	510	671	148	277	683	113	203	1539	252	191	914	537
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	554	729	152	301	742	116	221	1673	260	208	993	555
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	588	1593	495	358	872	389	270	1804	560	238	1757	545
Arrive On Green	0.17	0.31	0.31	0.10	0.25	0.25	0.08	0.35	0.35	0.07	0.34	0.34
Sat Flow, veh/h	3456	5106	1585	3456	3554	1585	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	554	729	152	301	742	116	221	1673	260	208	993	555
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1777	1585	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	22.3	16.2	10.3	12.1	28.1	8.4	8.9	44.5	17.9	8.4	22.3	48.5
Cycle Q Clear(g_c), s	22.3	16.2	10.3	12.1	28.1	8.4	8.9	44.5	17.9	8.4	22.3	48.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	588	1593	495	358	872	389	270	1804	560	238	1757	545
V/C Ratio(X)	0.94	0.46	0.31	0.84	0.85	0.30	0.82	0.93	0.46	0.88	0.57	1.02
Avail Cap(c_a), veh/h	588	1694	526	495	1083	483	306	1824	566	238	1757	545
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	57.8	38.9	36.9	62.1	50.7	43.3	64.1	43.9	35.3	65.1	37.7	46.3
Incr Delay (d2), s/veh	23.7	0.2	0.3	9.1	5.5	0.4	14.5	8.8	0.6	28.4	0.4	43.1
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	11.7	6.9	4.1	5.8	13.2	3.4	4.5	20.1	7.1	4.7	9.4	25.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.6	39.2	37.3	71.2	56.2	43.7	78.6	52.6	35.9	93.5	38.1	89.3
LnGrp LOS	F	D	D	E	E	D	E	D	D	F	D	F
Approach Vol, veh/h		1435			1159			2154			1756	
Approach Delay, s/veh		55.3			58.9			53.3			60.9	
Approach LOS		E			E			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.8	56.3	19.7	50.2	16.1	55.0	29.1	40.8				
Change Period (Y+Rc), s	5.1	6.5	5.1	6.2	5.1	6.5	5.1	6.2				
Max Green Setting (Gmax), s	9.7	50.4	20.2	46.8	12.5	47.6	24.0	43.0				
Max Q Clear Time (g_c+I1), s	10.4	46.5	14.1	18.2	10.9	50.5	24.3	30.1				
Green Ext Time (p_c), s	0.0	3.4	0.6	6.2	0.1	0.0	0.0	4.5				
Intersection Summary												
HCM 6th Ctrl Delay			56.8									
HCM 6th LOS			E									

APPENDIX C

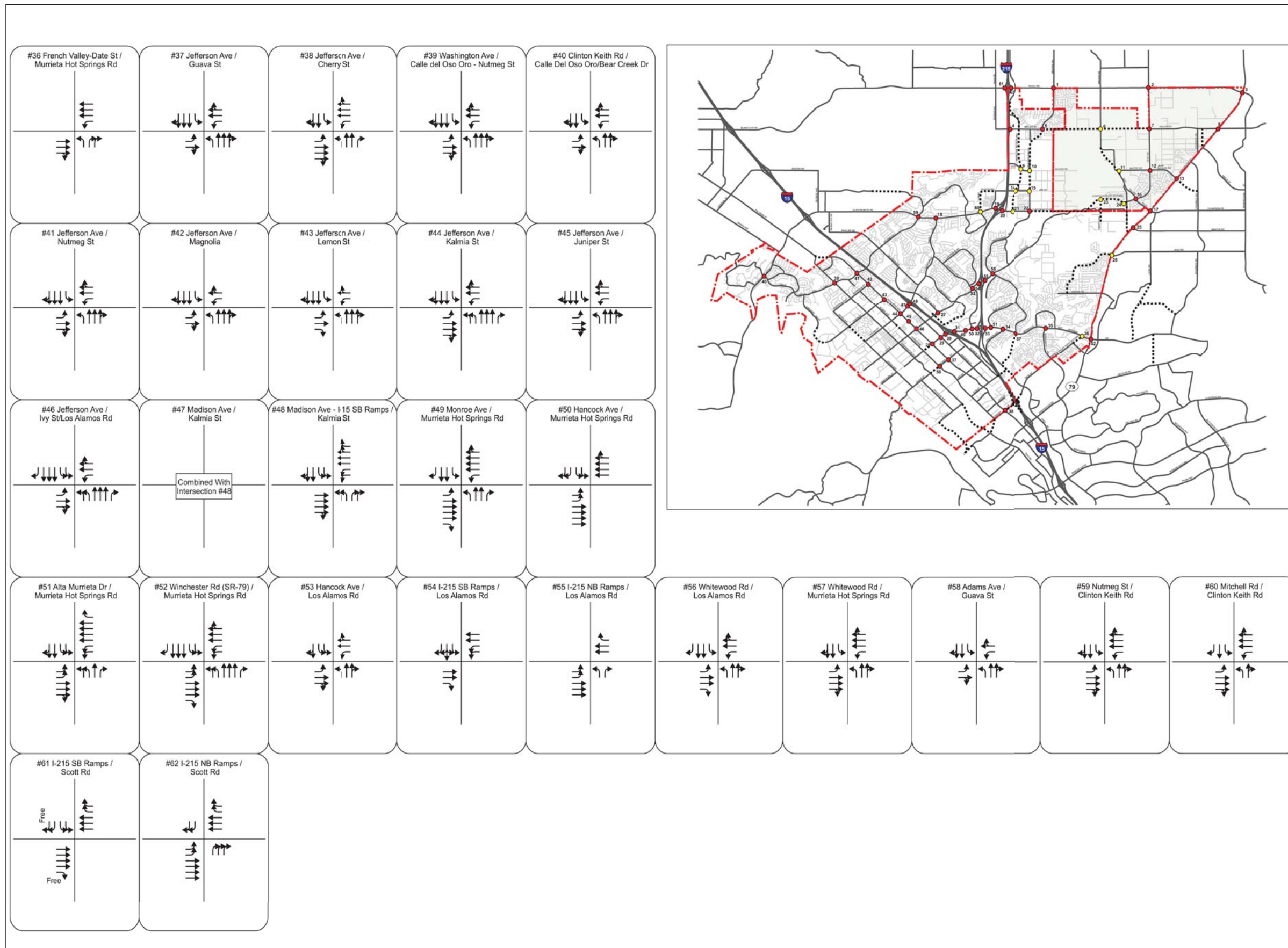
EXHIBITS 5A AND 5B FROM THE CITY OF MURRIETA GENERAL PLAN AND PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – EXISTING WITH PROJECT





LEGEND

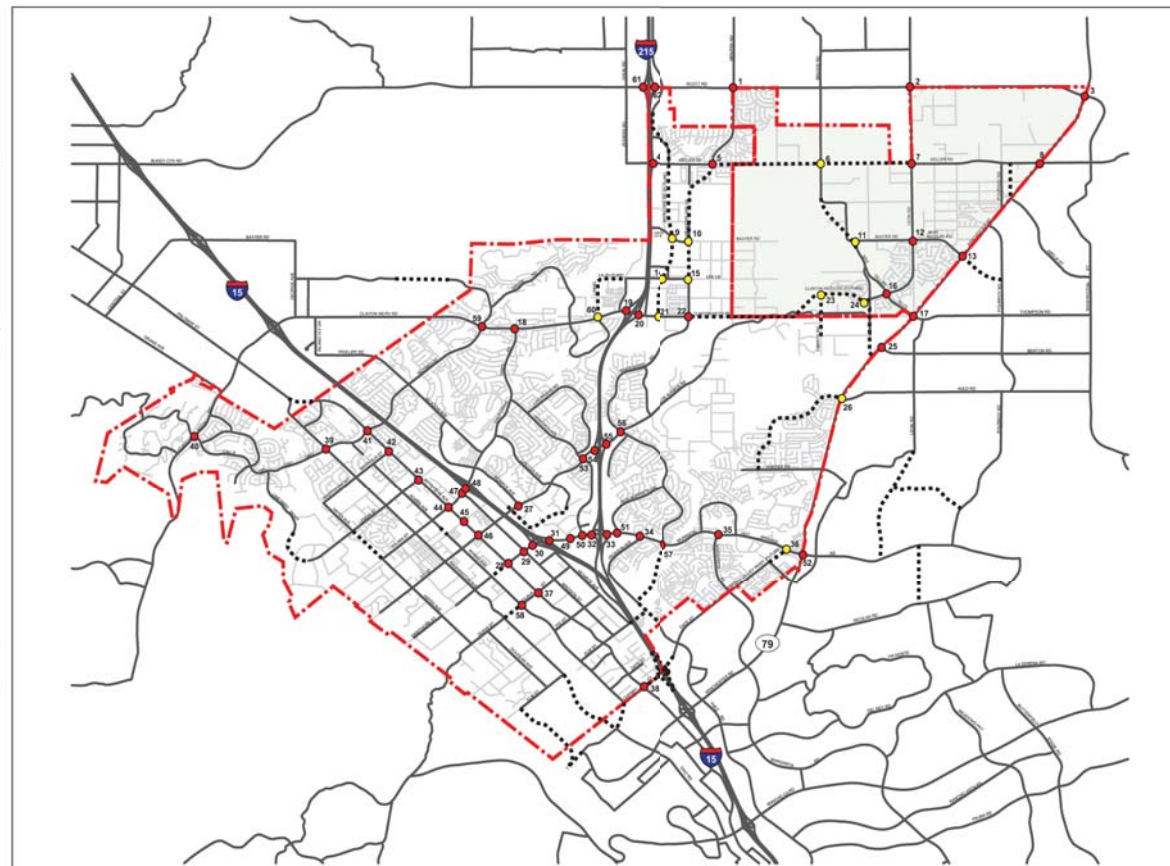
- Through Lane
- ↪ Turn Lane
- ↔ Shared Lane
- * Assumed Lane Configuration





LEGEND

- Existing Study Intersection
- Future Study Intersection
- City of Murrieta Boundary
- Sphere of Influence
- Future Roadway Alignment
- ←31/20 AM Peak Hr/PM Peak Hr

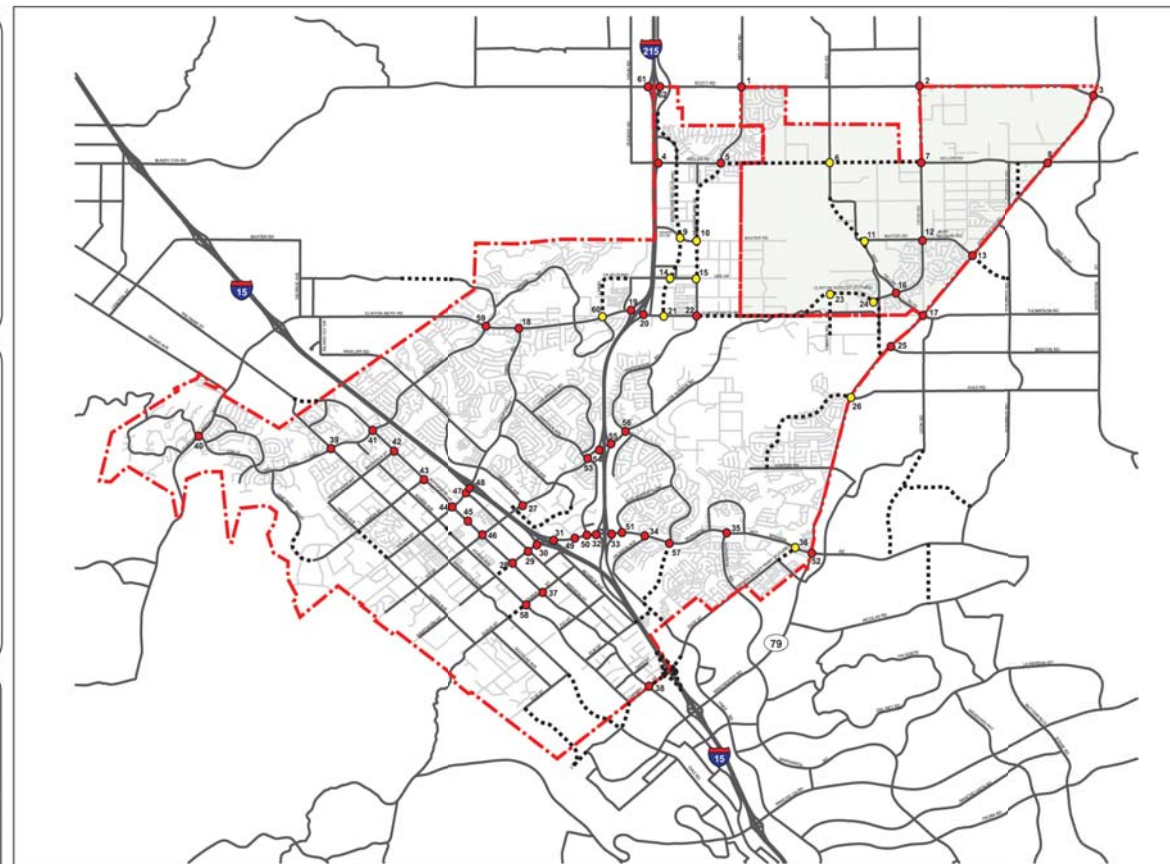


#1 Menifee Rd / Scott Rd 93 (99) 251 (566) 479 (546) 864 (408) 102 (272) 510 (967) 316 (458) 374 (860) 358 (672) 238 (291)	#2 Leon Rd / Scott Rd 189 (373) 101 (63) 157 (155) 360 (374) 14 (4) 353 (580) 438 (525) 498 (505) 198 (411) 104 (563) 2 (18)	#3 Winchester Rd - SR-79 / Scott Rd 111 (113) 178 (286) 68 (119) 1376 (2492) 110 (126) 51 (29) 963 (1066) 151 (222) 17 (0)	#4 Antelope Rd / Keller Rd 405 (828) 791 (753) 1203 (209) 328 (870) 43 (556) 66 (923) 27 (167) 467 (658) 758 (228)	#5 Menifee-Meadowlark Rd / Keller Rd 495 (765) 199 (314) 565 (468) 125 (121) 400 (392) 299 (176) 261 (822) 226 (1077) 23 (174)
#6 Briggs Rd / Keller Rd 1 (20) 72 (347) 492 (765) 1 (6) 344 (295) 15 (9) 53 (105) 17 (122) 346 (300)	#7 Leon Rd / Keller Rd 2 (88) 60 (81) 106 (281) 5 (3) 65 (190) 7 (17) 18 (1) 330 (926) 111 (62)	#8 Winchester Rd - SR-79 / Keller Rd 1 (2) 10 (59) 1 (2) 25 (28) 1512 (2693) 1 (1) 50 (25) 20 (16) 13 (10)	#9 Antelope Rd / Golden City Drive - Baxter Rd 1 (5) 75 (202) 11 (46) 604 (896) 203 (178) 397 (354) 515 (941) 88 (428) 1 (4)	#10 Whitewood-Meadowlark / Golden City Dr - Baxter Rd 59 (319) 4 (12) 739 (967) 2 (2) 15 (7) 1 (0) 688 (1410) 316 (280)
#11 Briggs Rd / Baxter Rd - Jean Nicholas 75 (87) 9 (10) 43 (89) 206 (430) 534 (659) 38 (19)	#12 Leon Rd / Jean Nicholas 2 (2) 145 (128) 13 (12) 249 (446) 22 (123) 157 (114) 126 (263) 183 (530) 5 (2)	#13 Winchester Rd - SR-79 / Nicholas - Skyview 37 (37) 330 (650) 132 (118) 166 (125) 327 (439) 106 (150) 338 (209) 1381 (2680) 138 (196)	#14 Antelope Rd / Linnel Lane Extension 199 (117) 507 (363) 125 (394) 220 (426) 120 (562) 6 (58) 96 (99) 757 (637) 21 (42)	#15 Whitewood-Meadowlark / Linnel Lane Extension 33 (22) 556 (335) 114 (154) 324 (779) 144 (775) 45 (223) 678 (636) 797 (819) 18 (41)
#16 Leon Rd / Max Gillis Rd 100 (100) 470 (199) 767 (465) 182 (365) 322 (344) 631 (565) 396 (605) 107 (437) 417 (546)	#17 Winchester Rd - SR-79 / Max Gillis - Thompson 609 (759) 165 (310) 279 (140) 39 (87) 298 (242) 31 (32) 46 (80) 1300 (2443) 200 (226)	#18 California Oaks Rd / Clinton Keith Rd 2680 (2396) 307 (112) 1675 (2820) 773 (439) 669 (1024) 204 (312)	#19 I-215 SB Off-Ramp / Clinton Keith Rd 2401 (2930) 496 (784) 227 (219) 2089 (2369) 1393 (492) 162 (409)	#20 I-215 NB Off-Ramp / Clinton Keith Rd 1797 (1562) 334 (280) 233 (314) 2305 (2836) 1393 (492) 162 (409)
#21 Antelope Rd / Clinton Keith Rd 388 (117) 1869 (2128) 296 (427) 1643 (1645) 1386 (352) 486 (1452) 82 (506)	#22 Meadowlark-Whitewood Rd / Clinton Keith Rd 1386 (352) 486 (1452) 82 (506) 594 (1031) 1187 (701) 943 (314) 1083 (589) 230 (337) 133 (748)	#23 Liberty Rd / Clinton Keith Rd 1615 (2323) 205 (323) 2610 (2078) 44 (41) 217 (286) 65 (81)	#24 Leon Rd / Clinton Keith Rd 396 (638) 1420 (1950) 561 (877) 858 (913) 368 (738) 1366 (2486) 490 (462)	#25 Winchester Rd - SR-79 / Benton Rd 38 (83) 470 (704) 978 (1387) 32 (92) 614 (720) 344 (241) 96 (75) 100 (485) 100 (485)
#26 Winchester Rd - SR-79 / Via Mira Mosa 358 (229) 49 (28) 95 (54) 29 (129) 19 (40) 177 (229) 798 (228) 1583 (3255) 28 (69)	#27 Monroe Ave / Los Alamos 46 (229) 351 (1460) 134 (165) 473 (467) 994 (975) 63 (84) 188 (264) 223 (469) 28 (29)	#28 Jefferson Ave / Murrieta Hot Springs Rd 15 (40) 76 (210) 21 (111) 921 (891) 93 (90) 876 (581) 496 (1226) 1074 (2300) 10 (6)	#29 Madison Ave / Murrieta Hot Springs Rd 117 (346) 1137 (1505) 271 (279) 74 (189) 1769 (1185) 754 (791) 324 (1218) 67 (600) 127 (316)	#30 I-15 SB Off-Ramp / Murrieta Hot Springs Rd 1385 (2533) 215 (487) 47 (112) 2301 (2188) 60 (239) 292 (213)
#31 I-15 NB Off-Ramp / Murrieta Hot Springs Rd 2202 (2848) 210 (370) 598 (1637) 1546 (1582) 1838 (3377) 53 (139)	#32 I-215 SB Off-Ramp / Murrieta Hot Springs Rd 1838 (3377) 53 (139) 378 (238) 2599 (2338) 24 (465) 343 (84)	#33 I-215 NB Off-Ramp / Murrieta Hot Springs Rd 1583 (2331) 115 (104) 663 (383) 2623 (2361) 52 (169) 68 (207)	#34 Jackson Ave / Murrieta Hot Springs Rd 1217 (1910) 38 (59) 2024 (2568) 149 (213) 128 (383) 60 (69) 640 (333)	#35 Margarita Rd / Murrieta Hot Springs Rd 161 (51) 750 (1752) 462 (538) 71 (38) 1793 (1609) 302 (273) 128 (383) 60 (69) 640 (333)



LEGEND

- Existing Study Intersection
- Future Study Intersection
- City of Murrieta Boundary
- Sphere of Influence
- Future Roadway Alignment
- ←31/20 AM Peak Hr/PM Peak Hr



#36 French Valley-Date St / Murrieta Hot Springs Rd ←2004 (1697) ←805 (453) ↖829 (1110) ↗19 (32) ↖1182 (1808) ↗269 (343)	#37 Jefferson Ave / Guava St ↖306 (349) ↖420 (1174) ↖7 (11) ↖10 (16) ↖32 (71) ↖2 (2) ↖176 (103) ↖108 (86) ↖89 (133) ↖3 (10) ↖1363 (3281) ↖22 (14)	#38 Jefferson Ave / Cherry St ↖893 (666) ↖1311 (793) ↖147 (122) ↖186 (823) ↖620 (1226) ↖86 (29) ↖1 (2) ↖48 (1360) ↖6 (40)	#39 Washington Ave / Calle del Oso Oro - Nutmeg St ↖38 (163) ↖189 (635) ↖151 (164) ↖126 (134) ↖164 (306) ↖262 (421) ↖64 (28) ↖602 (209) ↖742 (276)	#40 Clinton Keith Rd / Calle Del Oso Oro/Bear Creek Dr ↖19 (9) ↖598 (747) ↖420 (226) ↖268 (206) ↖107 (179) ↖63 (80) ↖269 (187) ↖613 (520) ↖172 (142)
#41 Jefferson Ave / Nutmeg St ↖67 (145) ↖171 (223) ↖366 (300) ↖272 (377) ↖321 (1208) ↖181 (624) ↖93 (61) ↖223 (133) ↖509 (249)	#42 Jefferson Ave / Magnolia ↖1 (14) ↖3 (5) ↖27 (7) ↖8 (11) ↖637 (2070) ↖81 (137) ↖158 (159) ↖1 (5) ↖155 (56)	#43 Jefferson Ave / Lemon St ↖6 (13) ↖13 (21) ↖8 (16) ↖28 (2) ↖733 (2124) ↖320 (418) ↖31 (42) ↖3 (39) ↖334 (270)	#44 Jefferson Ave / Kalmia St ↖556 (869) ↖355 (533) ↖223 (313) ↖246 (951) ↖957 (1763) ↖261 (412) ↖55 (34) ↖502 (658) ↖349 (281)	#45 Jefferson Ave / Juniper St ↖22 (82) ↖101 (72) ↖7 (18) ↖35 (67) ↖1298 (2787) ↖471 (192) ↖137 (338) ↖99 (90) ↖188 (378)
#46 Jefferson Ave / Ivy St/Los Alamos Rd ↖400 (494) ↖121 (274) ↖363 (259) ↖111 (685) ↖1336 (2389) ↖259 (312) ↖49 (90) ↖95 (224) ↖129 (187)	#47 Madison Ave / Kalmia St Does Not Exist	#48 Madison Ave - I-15 SB Ramps / Kalmia St ↖505 (614) ↖1139 (1505) ↖386 (265) ↖219 (898) ↖119 (392) ↖1459 (2534) ↖245 (265)	#49 Monroe Ave / Murrieta Hot Springs Rd ↖21 (26) ↖1552 (2043) ↖7 (37) ↖48 (199) ↖73 (236) ↖46 (178) ↖101 (164) ↖1156 (2579) ↖34 (154)	#50 Hancock Ave / Murrieta Hot Springs Rd ↖566 (311) ↖2602 (2482) ↖697 (755) ↖1520 (3291)
#51 Alta Murrieta Dr / Murrieta Hot Springs Rd ↖169 (153) ↖1871 (2320) ↖131 (173) ↖19 (53) ↖82 (221) ↖221 (387) ↖258 (698) ↖982 (1702) ↖282 (518)	#52 Winchester Rd (SR-79) / Murrieta Hot Springs Rd ↖83 (99) ↖897 (754) ↖276 (244) ↖155 (195) ↖1507 (1970) ↖288 (334) ↖768 (1478) ↖265 (1036) ↖95 (280)	#53 Hancock Ave / Los Alamos Rd ↖614 (703) ↖1682 (1361) ↖916 (538) ↖221 (871) ↖120 (438) ↖48 (124) ↖71 (05) ↖969 (1967) ↖72 (46)	#54 I-215 SB Ramps / Los Alamos Rd ↖1506 (1263) ↖220 (146) ↖1419 (3121) ↖478 (446)	#55 I-215 NB Ramps / Los Alamos Rd ↖160 (331) ↖1185 (1182) ↖591 (1589) ↖1233 (1996) ↖377 (171) ↖550 (229)
#61 I-215 SB Ramps / Scott Rd ↖384 (445) ↖866 (1529) ↖1052 (756) ↖385 (392)	#62 I-215 NB Ramps / Scott Rd ↖329 (395) ↖978 (1761) ↖156 (80) ↖1199 (1012) ↖600 (963) ↖15 (7)			

Existing with Project AM
1: Margarita Rd & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	8	1001	207	1123	523	6	140	3	3
Future Volume (vph)	8	1001	207	1123	523	6	140	3	3
Turn Type	Prot	NA	Prot	NA	Split	NA	pm+ov	NA	Perm
Protected Phases	5	2	1	6	8	8	1	4	
Permitted Phases							8		4
Detector Phase	5	2	1	6	8	8	1	4	4
Switch Phase									
Minimum Initial (s)	6.0	10.0	6.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.6	34.8	10.6	27.8	34.8	34.8	10.6	22.6	22.6
Total Split (s)	10.6	42.5	20.1	52.0	34.8	34.8	20.1	22.6	22.6
Total Split (%)	8.8%	35.4%	16.8%	43.3%	29.0%	29.0%	16.8%	18.8%	18.8%
Yellow Time (s)	3.6	4.8	3.6	4.8	4.8	4.8	3.6	3.6	3.6
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	5.8	4.6	5.8	5.8	5.8	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	C-Min	None	C-Min	None	None	None	None	None
Act Effect Green (s)	6.4	52.9	22.7	77.9	25.9	25.9	54.4	6.2	6.2
Actuated g/C Ratio	0.05	0.44	0.19	0.65	0.22	0.22	0.45	0.05	0.05
v/c Ratio	0.10	0.78	0.67	0.37	0.77	0.02	0.19	0.05	0.01
Control Delay	56.0	30.9	53.7	7.1	51.3	34.2	3.0	55.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.0	30.9	53.7	7.1	51.3	34.2	3.0	55.2	0.0
LOS	E	C	D	A	D	C	A	E	A
Approach Delay		31.0		14.3		41.0		34.5	
Approach LOS		C		B		D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 85 (71%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 26.7

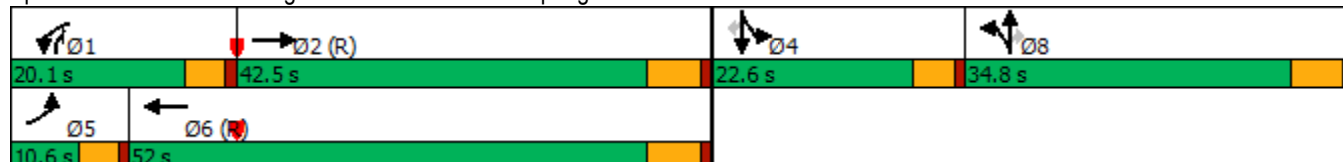
Intersection LOS: C

Intersection Capacity Utilization 78.7%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Margarita Rd & Murrieta Hot Springs Rd



Timings

N:\2934\Analysis\3. Ex+P AM.syn

Synchro 10 Report

Existing with Project AM
1: Margarita Rd & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	8	1001	571	207	1123	2	523	6	140	2	3	3
Future Volume (veh/h)	8	1001	571	207	1123	2	523	6	140	2	3	3
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	9	1088	621	225	1221	2	568	7	152	2	3	3
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	23	1684	784	230	3216	5	660	357	508	9	13	19
Arrive On Green	0.01	0.49	0.49	0.26	1.00	1.00	0.19	0.19	0.19	0.01	0.01	0.01
Sat Flow, veh/h	1781	3404	1585	1781	5264	9	3456	1870	1585	733	1100	1585
Grp Volume(v), veh/h	9	1088	621	225	790	433	568	7	152	5	0	3
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1702	1869	1728	1870	1585	1834	0	1585
Q Serve(g_s), s	0.6	28.5	39.1	15.0	0.0	0.0	19.1	0.4	8.7	0.3	0.0	0.2
Cycle Q Clear(g_c), s	0.6	28.5	39.1	15.0	0.0	0.0	19.1	0.4	8.7	0.3	0.0	0.2
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.40		1.00
Lane Grp Cap(c), veh/h	23	1684	784	230	2080	1142	660	357	508	21	0	19
V/C Ratio(X)	0.39	0.65	0.79	0.98	0.38	0.38	0.86	0.02	0.30	0.23	0.00	0.16
Avail Cap(c_a), veh/h	89	1684	784	230	2080	1142	835	452	588	275	0	238
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.92	0.92	0.92	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	58.8	22.5	25.2	44.3	0.0	0.0	47.0	39.4	30.7	58.8	0.0	58.7
Incr Delay (d2), s/veh	10.4	1.9	8.0	50.5	0.5	0.9	7.5	0.0	0.3	5.4	0.0	4.0
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	0.3	11.6	16.0	8.9	0.1	0.3	8.9	0.2	3.4	0.2	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.1	24.4	33.2	94.9	0.5	0.9	54.5	39.4	31.0	64.2	0.0	62.7
LnGrp LOS	E	C	C	F	A	A	D	D	C	E	A	E
Approach Vol, veh/h		1718			1448			727			8	
Approach Delay, s/veh		27.9			15.3			49.4			63.6	
Approach LOS		C			B			D			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	20.1	65.2		6.0	6.2	79.1		28.7				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		5.8				
Max Green Setting (Gmax), s	15.5	36.7		18.0	6.0	46.2		29.0				
Max Q Clear Time (g_c+I1), s	17.0	41.1		2.3	2.6	2.0		21.1				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	11.1		1.8				
Intersection Summary												
HCM 6th Ctrl Delay			27.3									
HCM 6th LOS			C									

Existing with Project AM
2: Via Princesa & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		  			  					
Traffic Volume (vph)	86	958	35	44	1099	85	5	22	11	179
Future Volume (vph)	86	958	35	44	1099	85	5	22	11	179
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6		8		4	
Permitted Phases			2			8		4		4
Detector Phase	5	2	2	1	6	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.6	25.8	25.8	10.6	25.8	27.6	27.6	33.6	33.6	33.6
Total Split (s)	19.0	71.0	71.0	14.0	66.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	15.8%	59.2%	59.2%	11.7%	55.0%	29.2%	29.2%	29.2%	29.2%	29.2%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	None	None	None	None	None
Act Effct Green (s)	11.6	83.1	83.1	8.7	78.1	15.3	15.3	15.3	15.3	15.3
Actuated g/C Ratio	0.10	0.69	0.69	0.07	0.65	0.13	0.13	0.13	0.13	0.13
v/c Ratio	0.54	0.30	0.03	0.38	0.37	0.52	0.15	0.14	0.05	0.53
Control Delay	39.1	25.0	13.5	59.2	12.4	57.2	17.4	44.1	41.4	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	25.0	13.5	59.2	12.4	57.2	17.4	44.1	41.4	11.6
LOS	D	C	B	E	B	E	B	D	D	B
Approach Delay		25.7			14.2		46.3		16.5	
Approach LOS		C			B		D		B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 65 (54%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.54

Intersection Signal Delay: 20.7

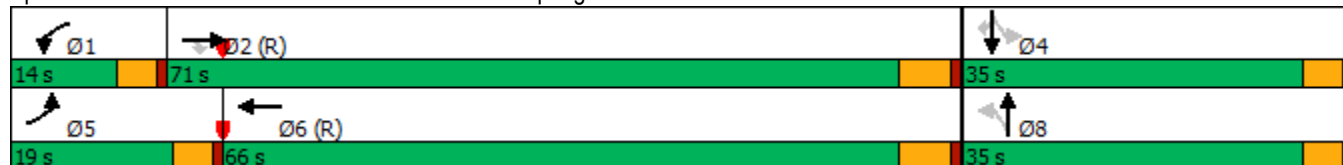
Intersection LOS: C

Intersection Capacity Utilization 50.4%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Via Princesa & Murrieta Hot Springs Rd



Timings

N:\2934\Analysis\3. Ex+P AM.syn

Synchro 10 Report

Existing with Project AM
2: Via Princesa & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	86	958	35	44	1099	15	85	5	28	22	11	179
Future Volume (veh/h)	86	958	35	44	1099	15	85	5	28	22	11	179
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	93	1041	38	48	1195	16	92	5	30	24	12	195
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	116	3538	1098	71	3467	46	221	33	198	229	266	225
Arrive On Green	0.13	1.00	1.00	0.04	0.67	0.67	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1781	5106	1585	1781	5192	70	1175	231	1389	1373	1870	1585
Grp Volume(v), veh/h	93	1041	38	48	783	428	92	0	35	24	12	195
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1702	1858	1175	0	1620	1373	1870	1585
Q Serve(g_s), s	6.1	0.0	0.0	3.2	11.9	11.9	8.8	0.0	2.3	1.9	0.7	14.4
Cycle Q Clear(g_c), s	6.1	0.0	0.0	3.2	11.9	11.9	9.5	0.0	2.3	4.1	0.7	14.4
Prop In Lane	1.00		1.00	1.00		0.04	1.00		0.86	1.00		1.00
Lane Grp Cap(c), veh/h	116	3538	1098	71	2273	1241	221	0	230	229	266	225
V/C Ratio(X)	0.80	0.29	0.03	0.68	0.34	0.34	0.42	0.00	0.15	0.10	0.05	0.87
Avail Cap(c_a), veh/h	214	3538	1098	140	2273	1241	351	0	410	382	474	402
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.60	0.60	0.60	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.4	0.0	0.0	56.8	8.6	8.6	48.5	0.0	45.1	46.9	44.4	50.3
Incr Delay (d2), s/veh	7.5	0.1	0.0	10.6	0.4	0.8	1.3	0.0	0.3	0.2	0.1	9.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	0.0	1.6	4.3	4.8	2.7	0.0	0.9	0.7	0.3	6.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.0	0.1	0.0	67.4	9.0	9.4	49.8	0.0	45.4	47.1	44.5	59.9
LnGrp LOS	E	A	A	E	A	A	D	A	D	D	D	E
Approach Vol, veh/h		1172			1259			127			231	
Approach Delay, s/veh		4.8			11.4			48.6			57.8	
Approach LOS		A			B			D			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	88.9		21.7	12.4	85.9		21.7				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		4.6				
Max Green Setting (Gmax), s	9.4	65.2		30.4	14.4	60.2		30.4				
Max Q Clear Time (g_c+I1), s	5.2	2.0		16.4	8.1	13.9		11.5				
Green Ext Time (p_c), s	0.0	10.1		0.6	0.1	11.0		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			14.1									
HCM 6th LOS			B									

Existing with Project AM
3: Calle Del Lago & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

Intersection													
Int Delay, s/veh	1.2												
Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	□	↑↑↑↑	↑↑↑↑		↑↑↑↑	↑↑↑↑			↑↑			↑↑	
Traffic Vol, veh/h	70	7	982	19	10	1121	8	17	0	52	8	0	14
Future Vol, veh/h	70	7	982	19	10	1121	8	17	0	52	8	0	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	180	-	-	160	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	76	8	1067	21	11	1218	9	18	0	57	9	0	15

Major/Minor	Major1			Major2			Minor1			Minor2			
Conflicting Flow All	896	1227	0	0	1088	0	0	1755	2495	544	1840	2501	614
Stage 1	-	-	-	-	-	-	-	1246	1246	-	1245	1245	-
Stage 2	-	-	-	-	-	-	-	509	1249	-	595	1256	-
Critical Hdwy	5.64	5.34	-	-	5.34	-	-	6.44	6.54	7.14	6.44	6.54	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	7.34	5.54	-	7.34	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.74	5.54	-	6.74	5.54	-
Follow-up Hdwy	2.32	3.12	-	-	3.12	-	-	3.82	4.02	3.92	3.82	4.02	3.92
Pot Cap-1 Maneuver	502	304	-	-	*868	-	-	235	56	*690	*202	56	373
Stage 1	-	-	-	-	-	-	-	543	567	-	*134	244	-
Stage 2	-	-	-	-	-	-	-	470	243	-	*708	559	-
Platoon blocked, %			-	-	1	-	-	1	1	1	1	1	
Mov Cap-1 Maneuver	483	304	-	-	*868	-	-	192	45	*690	*158	45	373
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	192	45	-	*158	45	-
Stage 1	-	-	-	-	-	-	-	444	463	-	*109	241	-
Stage 2	-	-	-	-	-	-	-	445	240	-	*531	457	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	0.1	15.4	20.9
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBU	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	421	483	304	-	-	*868	-	-	250
HCM Lane V/C Ratio	0.178	0.158	0.025	-	-	0.013	-	-	0.096
HCM Control Delay (s)	15.4	13.8	17.1	-	-	9.2	-	-	20.9
HCM Lane LOS	C	B	C	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.6	0.6	0.1	-	-	0	-	-	0.3

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Existing with Project AM
5: Delhaven St & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↱ ↑↑↑			↱ ↑↑↑			↱	↱		↱	↱	
Traffic Vol, veh/h	15	1015	10	7	1109	14	9	0	10	7	0	20
Future Vol, veh/h	15	1015	10	7	1109	14	9	0	10	7	0	20
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	190	-	-	120	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	1103	11	8	1205	15	10	0	11	8	0	22
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1220	0	0	1114	0	0	1639	2377	557	1702	2375	610
Stage 1	-	-	-	-	-	-	1141	1141	-	1229	1229	-
Stage 2	-	-	-	-	-	-	498	1236	-	473	1146	-
Critical Hdwy	5.34	-	-	5.34	-	-	6.44	6.54	7.14	6.44	6.54	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	7.34	5.54	-	7.34	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.74	5.54	-	6.74	5.54	-
Follow-up Hdwy	3.12	-	-	3.12	-	-	3.82	4.02	3.92	3.82	4.02	3.92
Pot Cap-1 Maneuver	306	-	-	345	-	-	106	34	406	97	34	375
Stage 1	-	-	-	-	-	-	159	274	-	138	248	-
Stage 2	-	-	-	-	-	-	478	246	-	494	272	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	306	-	-	345	-	-	94	31	406	89	31	375
Mov Cap-2 Maneuver	-	-	-	-	-	-	94	31	-	89	31	-
Stage 1	-	-	-	-	-	-	151	260	-	131	242	-
Stage 2	-	-	-	-	-	-	440	240	-	456	258	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.1			30			24		
HCM LOS							D			C		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	94	406	306	-	-	345	-	-	89	375		
HCM Lane V/C Ratio	0.104	0.027	0.053	-	-	0.022	-	-	0.085	0.058		
HCM Control Delay (s)	47.7	14.1	17.4	-	-	15.7	-	-	49.2	15.2		
HCM Lane LOS	E	B	C	-	-	C	-	-	E	C		
HCM 95th %tile Q(veh)	0.3	0.1	0.2	-	-	0.1	-	-	0.3	0.2		

Existing with Project AM
6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	400	459	87	245	480	123	732	203	203	1700	553
Future Volume (vph)	400	459	87	245	480	123	732	203	203	1700	553
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4		3	8	5	2		1	6	7
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.1	22.5	22.5	10.1	49.2	10.1	47.5	47.5	10.1	49.5	10.1
Total Split (s)	23.0	49.9	49.9	22.3	49.2	11.3	50.8	50.8	17.0	56.5	23.0
Total Split (%)	16.4%	35.6%	35.6%	15.9%	35.1%	8.1%	36.3%	36.3%	12.1%	40.4%	16.4%
Yellow Time (s)	4.1	5.2	5.2	4.1	5.2	4.1	5.5	5.5	4.1	5.5	4.1
All-Red Time (s)	1.0	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	0.0
Total Lost Time (s)	5.1	6.2	6.2	5.1	6.2	5.1	6.5	6.5	5.1	6.5	5.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	Min	None	Min	None
Act Effect Green (s)	18.0	27.1	27.1	14.0	23.1	6.2	45.1	45.1	11.4	50.3	74.9
Actuated g/C Ratio	0.15	0.22	0.22	0.12	0.19	0.05	0.37	0.37	0.09	0.42	0.62
v/c Ratio	0.85	0.44	0.20	0.67	0.63	0.76	0.42	0.30	0.68	0.87	0.59
Control Delay	67.1	41.2	1.8	60.9	45.3	83.5	30.2	5.2	65.4	38.6	15.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.1	41.2	1.8	60.9	45.3	83.5	30.2	5.2	65.4	38.6	15.5
LOS	E	D	A	E	D	F	C	A	E	D	B
Approach Delay		48.5			50.1		31.6			35.6	
Approach LOS		D			D		C			D	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 120.7

Natural Cycle: 140

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 39.3

Intersection LOS: D

Intersection Capacity Utilization 78.7%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd

			
Ø1	Ø2	Ø3	Ø4
17 s	50.8 s	22.3 s	49.9 s
			
Ø5	Ø6	Ø7	Ø8
11.3 s	56.5 s	23 s	49.2 s

Timings

N:\2934\Analysis\3. Ex+P AM.syn

Synchro 10 Report

Existing with Project AM
6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	400	459	87	245	480	84	123	732	203	203	1700	553
Future Volume (veh/h)	400	459	87	245	480	84	123	732	203	203	1700	553
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	435	499	90	266	522	87	134	796	210	221	1848	576
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	498	1103	343	337	748	122	190	2048	636	284	2187	907
Arrive On Green	0.14	0.22	0.22	0.10	0.17	0.17	0.06	0.40	0.40	0.08	0.43	0.43
Sat Flow, veh/h	3456	5106	1585	3456	4421	723	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	435	499	90	266	400	209	134	796	210	221	1848	576
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1740	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	13.9	9.6	5.3	8.5	12.5	12.8	4.3	12.5	10.3	7.1	36.5	27.5
Cycle Q Clear(g_c), s	13.9	9.6	5.3	8.5	12.5	12.8	4.3	12.5	10.3	7.1	36.5	27.5
Prop In Lane	1.00		1.00	1.00		0.42	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	498	1103	343	337	576	295	190	2048	636	284	2187	907
V/C Ratio(X)	0.87	0.45	0.26	0.79	0.69	0.71	0.70	0.39	0.33	0.78	0.85	0.63
Avail Cap(c_a), veh/h	549	1980	615	527	1299	664	190	2048	636	365	2266	932
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(l)	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	47.2	38.4	36.7	49.7	44.1	44.2	52.3	23.9	23.3	50.7	28.9	16.2
Incr Delay (d2), s/veh	13.5	0.3	0.4	4.3	1.5	3.2	11.2	0.1	0.3	7.9	3.1	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.9	4.0	2.1	3.9	5.4	5.8	2.2	5.0	3.9	3.4	15.1	9.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.7	38.7	37.1	54.0	45.6	47.4	63.5	24.1	23.6	58.6	31.9	17.5
LnGrp LOS	E	D	D	D	D	D	E	C	C	E	C	B
Approach Vol, veh/h		1024			875			1140			2645	
Approach Delay, s/veh		47.9			48.6			28.6			31.0	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.4	51.7	16.1	30.6	11.3	54.8	21.4	25.3				
Change Period (Y+Rc), s	5.1	6.5	5.1	6.2	5.1	6.5	5.1	6.2				
Max Green Setting (Gmax), s	11.9	44.3	17.2	43.7	6.2	50.0	17.9	43.0				
Max Q Clear Time (g_c+I1), s	9.1	14.5	10.5	11.6	6.3	38.5	15.9	14.8				
Green Ext Time (p_c), s	0.2	7.2	0.5	4.0	0.0	9.7	0.4	4.3				
Intersection Summary												
HCM 6th Ctrl Delay			36.3									
HCM 6th LOS			D									

Existing with Project PM
1: Margarita Rd & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Configurations		  		  	 			 	
Traffic Volume (vph)	22	1327	182	1306	703	10	234	21	17
Future Volume (vph)	22	1327	182	1306	703	10	234	21	17
Turn Type	Prot	NA	Prot	NA	Split	NA	pm+ov	NA	Perm
Protected Phases	5	2	1	6	8	8	1	4	
Permitted Phases							8		4
Detector Phase	5	2	1	6	8	8	1	4	4
Switch Phase									
Minimum Initial (s)	6.0	10.0	6.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.6	34.8	10.6	27.8	34.8	34.8	10.6	22.6	22.6
Total Split (s)	10.6	47.6	15.0	52.0	34.8	34.8	15.0	22.6	22.6
Total Split (%)	8.8%	39.7%	12.5%	43.3%	29.0%	29.0%	12.5%	18.8%	18.8%
Yellow Time (s)	3.6	4.8	3.6	4.8	4.8	4.8	3.6	3.6	3.6
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	5.8	4.6	5.8	5.8	5.8	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	C-Min	None	C-Min	None	None	None	None	None
Act Effect Green (s)	6.2	42.6	16.8	57.4	33.5	33.5	56.1	8.5	8.5
Actuated g/C Ratio	0.05	0.36	0.14	0.48	0.28	0.28	0.47	0.07	0.07
v/c Ratio	0.26	1.16	0.80	0.59	0.80	0.02	0.29	0.35	0.08
Control Delay	62.2	113.9	80.9	28.5	46.9	29.9	3.4	59.9	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.2	113.9	80.9	28.5	46.9	29.9	3.4	59.9	0.7
LOS	E	F	F	C	D	C	A	E	A
Approach Delay		113.3		34.8		36.0		43.0	
Approach LOS		F		C		D		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 36 (30%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.16

Intersection Signal Delay: 69.3

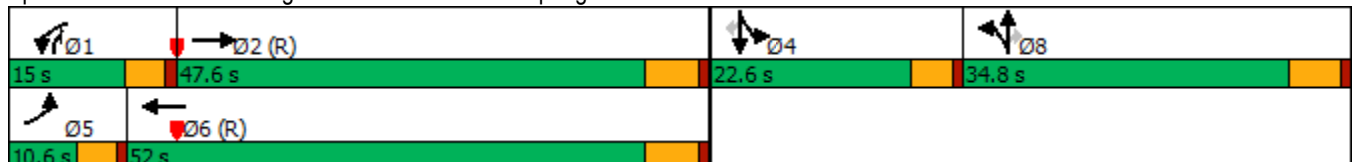
Intersection LOS: E

Intersection Capacity Utilization 89.0%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: Margarita Rd & Murrieta Hot Springs Rd



Timings

N:\2934\Analysis\4. Ex+P PM.syn

Synchro 10 Report

Existing with Project PM
1: Margarita Rd & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	22	1327	582	182	1306	14	703	10	234	20	21	17
Future Volume (veh/h)	22	1327	582	182	1306	14	703	10	234	20	21	17
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	24	1442	633	198	1420	15	764	11	254	22	23	18
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	49	1608	688	154	2698	28	820	444	514	39	41	70
Arrive On Green	0.03	0.46	0.46	0.17	1.00	1.00	0.24	0.24	0.24	0.04	0.04	0.04
Sat Flow, veh/h	1781	3504	1500	1781	5209	55	3456	1870	1585	893	933	1585
Grp Volume(v), veh/h	24	1400	675	198	928	507	764	11	254	45	0	18
Grp Sat Flow(s),veh/h/ln	1781	1702	1600	1781	1702	1860	1728	1870	1585	1826	0	1585
Q Serve(g_s), s	1.6	45.4	47.4	10.4	0.0	0.0	26.0	0.5	15.5	2.9	0.0	1.3
Cycle Q Clear(g_c), s	1.6	45.4	47.4	10.4	0.0	0.0	26.0	0.5	15.5	2.9	0.0	1.3
Prop In Lane	1.00		0.94	1.00		0.03	1.00		1.00	0.49		1.00
Lane Grp Cap(c), veh/h	49	1562	734	154	1763	964	820	444	514	80	0	70
V/C Ratio(X)	0.49	0.90	0.92	1.28	0.53	0.53	0.93	0.02	0.49	0.56	0.00	0.26
Avail Cap(c_a), veh/h	89	1562	734	154	1763	964	835	452	520	274	0	238
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.87	0.87	0.87	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.5	29.8	30.4	49.6	0.0	0.0	44.8	35.1	32.6	56.2	0.0	55.5
Incr Delay (d2), s/veh	7.4	8.4	18.6	163.1	1.0	1.8	16.7	0.0	0.7	6.0	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	19.8	21.5	11.2	0.2	0.5	13.0	0.3	6.0	1.5	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.9	38.3	49.0	212.7	1.0	1.8	61.5	35.1	33.4	62.3	0.0	57.4
LnGrp LOS	E	D	D	F	A	A	E	D	C	E	A	E
Approach Vol, veh/h	2099				1633				1029			
Approach Delay, s/veh	42.0				26.9				54.3			
Approach LOS	D				C				D			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.0	60.9		9.9	7.9	67.9		34.3				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		5.8				
Max Green Setting (Gmax), s	10.4	41.8		18.0	6.0	46.2		29.0				
Max Q Clear Time (g_c+I1), s	12.4	49.4		4.9	3.6	2.0		28.0				
Green Ext Time (p_c), s	0.0	0.0		0.1	0.0	14.1		0.5				
Intersection Summary												
HCM 6th Ctrl Delay	39.8											
HCM 6th LOS	D											

Existing with Project PM
2: Via Princesa & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		  			  				 	
Traffic Volume (vph)	195	1292	56	47	1292	76	14	27	16	141
Future Volume (vph)	195	1292	56	47	1292	76	14	27	16	141
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6		8		4	
Permitted Phases			2			8		4		4
Detector Phase	5	2	2	1	6	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.6	25.8	25.8	10.6	25.8	27.6	27.6	33.6	33.6	33.6
Total Split (s)	24.0	72.8	72.8	13.6	62.4	33.6	33.6	33.6	33.6	33.6
Total Split (%)	20.0%	60.7%	60.7%	11.3%	52.0%	28.0%	28.0%	28.0%	28.0%	28.0%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	None	None	None	None	None
Act Effect Green (s)	18.5	84.1	84.1	8.3	71.8	14.7	14.7	14.7	14.7	14.7
Actuated g/C Ratio	0.15	0.70	0.70	0.07	0.60	0.12	0.12	0.12	0.12	0.12
v/c Ratio	0.78	0.39	0.05	0.41	0.48	0.49	0.25	0.18	0.07	0.47
Control Delay	51.9	6.6	0.8	64.3	15.8	56.4	19.0	45.7	42.5	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.9	6.6	0.8	64.3	15.8	56.4	19.0	45.7	42.5	11.1
LOS	D	A	A	E	B	E	B	D	D	B
Approach Delay		12.1			17.4		40.7		18.8	
Approach LOS		B			B		D		B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 56 (47%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 15.9

Intersection LOS: B

Intersection Capacity Utilization 60.0%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: Via Princesa & Murrieta Hot Springs Rd



Timings

N:\2934\Analysis\4. Ex+P PM.syn

Synchro 10 Report

Existing with Project PM
2: Via Princesa & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	195	1292	56	47	1292	40	76	14	41	27	16	141
Future Volume (veh/h)	195	1292	56	47	1292	40	76	14	41	27	16	141
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	212	1404	61	51	1404	43	83	15	45	29	17	153
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	237	3668	1139	73	3188	98	191	48	143	171	216	183
Arrive On Green	0.27	1.00	1.00	0.04	0.63	0.63	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	1781	5106	1585	1781	5090	156	1215	412	1236	1343	1870	1585
Grp Volume(v), veh/h	212	1404	61	51	939	508	83	0	60	29	17	153
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1702	1842	1215	0	1648	1343	1870	1585
Q Serve(g_s), s	13.8	0.0	0.0	3.4	17.1	17.1	7.9	0.0	4.0	2.4	1.0	11.3
Cycle Q Clear(g_c), s	13.8	0.0	0.0	3.4	17.1	17.1	8.8	0.0	4.0	6.4	1.0	11.3
Prop In Lane	1.00		1.00	1.00		0.08	1.00		0.75	1.00		1.00
Lane Grp Cap(c), veh/h	237	3668	1139	73	2132	1154	191	0	191	171	216	183
V/C Ratio(X)	0.90	0.38	0.05	0.70	0.44	0.44	0.44	0.00	0.31	0.17	0.08	0.83
Avail Cap(c_a), veh/h	288	3668	1139	134	2132	1154	344	0	398	340	452	383
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.2	0.0	0.0	56.8	11.6	11.6	51.3	0.0	48.7	51.6	47.3	51.9
Incr Delay (d2), s/veh	3.2	0.0	0.0	11.5	0.7	1.2	1.6	0.0	0.9	0.5	0.2	9.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	0.0	0.0	1.8	6.4	7.1	2.5	0.0	1.7	0.8	0.5	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.5	0.0	0.0	68.3	12.2	12.8	52.8	0.0	49.6	52.1	47.5	61.4
LnGrp LOS	D	A	A	E	B	B	D	A	D	D	D	E
Approach Vol, veh/h		1677			1498			143			199	
Approach Delay, s/veh		5.9			14.3			51.5			58.8	
Approach LOS		A			B			D			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	92.0		18.5	20.5	81.0		18.5				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		4.6				
Max Green Setting (Gmax), s	9.0	67.0		29.0	19.4	56.6		29.0				
Max Q Clear Time (g_c+I1), s	5.4	2.0		13.3	15.8	19.1		10.8				
Green Ext Time (p_c), s	0.0	16.4		0.6	0.2	13.7		0.5				
Intersection Summary												
HCM 6th Ctrl Delay			14.3									
HCM 6th LOS			B									

Existing with Project PM
3: Calle Del Lago & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

Intersection													
Int Delay, s/veh	1												
Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	85	8	1312	35	35	1373	11	4	0	43	3	0	11
Future Vol, veh/h	85	8	1312	35	35	1373	11	4	0	43	3	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	180	-	-	160	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	92	9	1426	38	38	1492	12	4	0	47	3	0	12
Major/Minor	Major1			Major2			Minor1			Minor2			
Conflicting Flow All	1098	1504	0	0	1464	0	0	2320	3227	732	2346	3240	752
Stage 1	-	-	-	-	-	-	-	1647	1647	-	1574	1574	-
Stage 2	-	-	-	-	-	-	-	673	1580	-	772	1666	-
Critical Hdwy	5.64	5.34	-	-	5.34	-	-	6.44	6.54	7.14	6.44	6.54	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	7.34	5.54	-	7.34	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.74	5.54	-	6.74	5.54	-
Follow-up Hdwy	2.32	3.12	-	-	3.12	-	-	3.82	4.02	3.92	3.82	4.02	3.92
Pot Cap-1 Maneuver	388	222	-	-	*757	-	-	132	17	*602	*125	16	303
Stage 1	-	-	-	-	-	-	-	491	505	-	*78	169	-
Stage 2	-	-	-	-	-	-	-	374	168	-	*618	491	-
Platoon blocked, %			-	-	1	-	-	1	1	1	1	1	
Mov Cap-1 Maneuver	374	222	-	-	*757	-	-	95	12	*602	*86	11	303
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	95	12	-	*86	11	-
Stage 1	-	-	-	-	-	-	-	350	361	-	*56	161	-
Stage 2	-	-	-	-	-	-	-	341	160	-	*407	350	-
Approach	EB			WB			NB			SB			
HCM Control Delay, s	1.2			0.2			14.9			24.8			
HCM LOS							B			C			
Minor Lane/Major Mvmt	NBLn1	EBU	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	414	374	222	-	-	* 757	-	-	197				
HCM Lane V/C Ratio	0.123	0.247	0.039	-	-	0.05	-	-	0.077				
HCM Control Delay (s)	14.9	17.8	21.9	-	-	10	-	-	24.8				
HCM Lane LOS	B	C	C	-	-	B	-	-	C				
HCM 95th %tile Q(veh)	0.4	1	0.1	-	-	0.2	-	-	0.2				
Notes													
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon							

Existing with Project PM
5: Delhaven St & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵ ↑↑↑			↵ ↑↑↑			↵	↵		↵	↵	
Traffic Vol, veh/h	32	1331	15	10	1396	36	13	1	12	5	2	12
Future Vol, veh/h	32	1331	15	10	1396	36	13	1	12	5	2	12
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	190	-	-	120	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	35	1447	16	11	1517	39	14	1	13	5	2	13
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1556	0	0	1463	0	0	2155	3103	732	2208	3092	778
Stage 1	-	-	-	-	-	-	1525	1525	-	1559	1559	-
Stage 2	-	-	-	-	-	-	630	1578	-	649	1533	-
Critical Hdwy	5.34	-	-	5.34	-	-	6.44	6.54	7.14	6.44	6.54	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	7.34	5.54	-	7.34	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.74	5.54	-	6.74	5.54	-
Follow-up Hdwy	3.12	-	-	3.12	-	-	3.82	4.02	3.92	3.82	4.02	3.92
Pot Cap-1 Maneuver	209	-	-	232	-	-	51	11	312	47	12	291
Stage 1	-	-	-	-	-	-	85	178	-	80	172	-
Stage 2	-	-	-	-	-	-	397	168	-	387	177	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	209	-	-	232	-	-	34	9	312	34	10	291
Mov Cap-2 Maneuver	-	-	-	-	-	-	34	9	-	34	10	-
Stage 1	-	-	-	-	-	-	71	148	-	67	164	-
Stage 2	-	-	-	-	-	-	356	160	-	306	147	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.6			0.1			113.1			98.9		
HCM LOS							F			F		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	34	87	209	-	-	232	-	-	34	58		
HCM Lane V/C Ratio	0.416	0.162	0.166	-	-	0.047	-	-	0.16	0.262		
HCM Control Delay (s)	172	54.2	25.6	-	-	21.3	-	-	130.1	87.8		
HCM Lane LOS	F	F	D	-	-	C	-	-	F	F		
HCM 95th %tile Q(veh)	1.4	0.5	0.6	-	-	0.1	-	-	0.5	0.9		

Existing with Project PM
6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  	 	  		 	  	
Traffic Volume (vph)	510	671	148	277	683	203	1539	245	191	914	537
Future Volume (vph)	510	671	148	277	683	203	1539	245	191	914	537
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4		3	8	5	2		1	6	7
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.1	22.5	22.5	10.1	49.2	10.1	47.5	47.5	10.1	49.5	10.1
Total Split (s)	29.1	53.0	53.0	25.3	49.2	17.6	56.9	56.9	14.8	54.1	29.1
Total Split (%)	19.4%	35.3%	35.3%	16.9%	32.8%	11.7%	37.9%	37.9%	9.9%	36.1%	19.4%
Yellow Time (s)	4.1	5.2	5.2	4.1	5.2	4.1	5.5	5.5	4.1	5.5	4.1
All-Red Time (s)	1.0	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	0.0
Total Lost Time (s)	5.1	6.2	6.2	5.1	6.2	5.1	6.5	6.5	5.1	6.5	5.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	Min	None	Min	None
Act Effect Green (s)	24.0	39.2	39.2	16.8	32.0	12.1	50.5	50.5	9.7	48.1	78.7
Actuated g/C Ratio	0.17	0.28	0.28	0.12	0.23	0.09	0.36	0.36	0.07	0.35	0.57
v/c Ratio	0.93	0.51	0.29	0.73	0.75	0.74	0.91	0.36	0.87	0.57	0.63
Control Delay	80.8	43.4	6.8	70.0	52.7	78.2	50.7	6.0	96.5	39.3	23.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.8	43.4	6.8	70.0	52.7	78.2	50.7	6.0	96.5	39.3	23.1
LOS	F	D	A	E	D	E	D	A	F	D	C
Approach Delay		53.7			57.2		48.0			40.7	
Approach LOS		D			E		D			D	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 139.2

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 48.9

Intersection LOS: D

Intersection Capacity Utilization 84.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd

			
Ø1	Ø2	Ø3	Ø4
14.8 s	56.9 s	25.3 s	53 s
			
Ø5	Ø6	Ø7	Ø8
17.6 s	54.1 s	29.1 s	49.2 s

Timings

N:\2934\Analysis\4. Ex+P PM.syn

Synchro 10 Report

Existing with Project PM
6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	510	671	148	277	683	113	203	1539	245	191	914	537
Future Volume (veh/h)	510	671	148	277	683	113	203	1539	245	191	914	537
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	554	729	152	301	742	116	221	1673	252	208	993	555
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	602	1457	452	362	962	149	273	1871	581	250	1838	847
Arrive On Green	0.17	0.29	0.29	0.10	0.22	0.22	0.08	0.37	0.37	0.07	0.36	0.36
Sat Flow, veh/h	3456	5106	1585	3456	4459	691	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	554	729	152	301	565	293	221	1673	252	208	993	555
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1746	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	21.1	15.9	10.2	11.4	20.9	21.2	8.4	41.4	16.0	8.0	20.7	33.6
Cycle Q Clear(g_c), s	21.1	15.9	10.2	11.4	20.9	21.2	8.4	41.4	16.0	8.0	20.7	33.6
Prop In Lane	1.00		1.00	1.00		0.40	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	602	1457	452	362	735	377	273	1871	581	250	1838	847
V/C Ratio(X)	0.92	0.50	0.34	0.83	0.77	0.78	0.81	0.89	0.43	0.83	0.54	0.66
Avail Cap(c_a), veh/h	619	1784	554	521	1093	560	322	1921	596	250	1838	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	54.4	39.9	37.8	58.8	49.4	49.5	60.7	40.0	32.0	61.3	34.1	22.4
Incr Delay (d2), s/veh	18.8	0.3	0.4	7.5	1.9	4.0	12.4	5.8	0.5	20.5	0.3	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.8	6.8	4.0	5.4	9.1	9.7	4.2	18.2	6.3	4.2	8.7	12.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.2	40.2	38.3	66.3	51.3	53.5	73.1	45.8	32.5	81.8	34.4	24.2
LnGrp LOS	E	D	D	E	D	D	E	D	C	F	C	C
Approach Vol, veh/h	1435			1159			2146			1756		
Approach Delay, s/veh	52.7			55.8			47.0			36.8		
Approach LOS	D			E			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.8	55.6	19.1	44.4	15.7	54.7	28.4	35.1				
Change Period (Y+Rc), s	5.1	6.5	5.1	6.2	5.1	6.5	5.1	6.2				
Max Green Setting (Gmax), s	9.7	50.4	20.2	46.8	12.5	47.6	24.0	43.0				
Max Q Clear Time (g_c+I1), s	10.0	43.4	13.4	17.9	10.4	35.6	23.1	23.2				
Green Ext Time (p_c), s	0.0	5.7	0.6	6.2	0.1	7.0	0.2	5.7				
Intersection Summary												
HCM 6th Ctrl Delay	47.1											
HCM 6th LOS	D											

APPENDIX D

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – OPENING DAY WITHOUT PROJECT

Year 2020 w/o Project AM
1: Margarita Rd & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	8	1119	594	231	1264	544	6	150	3	3
Future Volume (vph)	8	1119	594	231	1264	544	6	150	3	3
Turn Type	Prot	NA	Perm	Prot	NA	Split	NA	Perm	NA	Perm
Protected Phases	5	2		1	6	8	8		4	
Permitted Phases			2					8		4
Detector Phase	5	2	2	1	6	8	8	8	4	4
Switch Phase										
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.6	34.8	34.8	10.6	27.8	34.8	34.8	34.8	22.6	22.6
Total Split (s)	10.6	42.5	42.5	20.1	52.0	34.8	34.8	34.8	22.6	22.6
Total Split (%)	8.8%	35.4%	35.4%	16.8%	43.3%	29.0%	29.0%	29.0%	18.8%	18.8%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	4.8	4.8	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	5.8	5.8	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	None	None	None	None	None
Act Effect Green (s)	6.4	48.1	48.1	25.8	76.1	27.6	27.6	27.6	6.2	6.2
Actuated g/C Ratio	0.05	0.40	0.40	0.22	0.63	0.23	0.23	0.23	0.05	0.05
v/c Ratio	0.10	0.86	0.70	0.66	0.43	0.75	0.02	0.33	0.05	0.01
Control Delay	56.0	41.0	12.9	59.3	11.2	48.8	32.5	6.9	55.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.0	41.0	12.9	59.3	11.2	48.8	32.5	6.9	55.2	0.0
LOS	E	D	B	E	B	D	C	A	E	A
Approach Delay		31.4			18.6		39.7		34.5	
Approach LOS		C			B		D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 85 (71%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 135

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 28.0

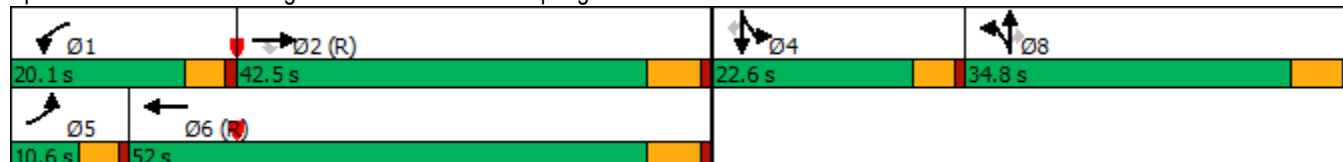
Intersection LOS: C

Intersection Capacity Utilization 79.4%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Margarita Rd & Murrieta Hot Springs Rd



Timings

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Synchro 10 Report

Year 2020 w/o Project AM
1: Margarita Rd & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	1119	594	231	1264	2	544	6	150	2	3	3
Future Volume (veh/h)	8	1119	594	231	1264	2	544	6	150	2	3	3
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	9	1216	646	251	1374	2	591	7	163	2	3	3
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	23	1736	774	230	3183	5	682	369	313	9	13	19
Arrive On Green	0.01	0.49	0.49	0.26	1.00	1.00	0.20	0.20	0.20	0.01	0.01	0.01
Sat Flow, veh/h	1781	3554	1585	1781	5265	8	3456	1870	1585	733	1100	1585
Grp Volume(v), veh/h	9	1216	646	251	888	488	591	7	163	5	0	3
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1702	1869	1728	1870	1585	1834	0	1585
Q Serve(g_s), s	0.6	31.9	42.2	15.5	0.0	0.0	19.9	0.4	11.0	0.3	0.0	0.2
Cycle Q Clear(g_c), s	0.6	31.9	42.2	15.5	0.0	0.0	19.9	0.4	11.0	0.3	0.0	0.2
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.40		1.00
Lane Grp Cap(c), veh/h	23	1736	774	230	2058	1130	682	369	313	21	0	19
V/C Ratio(X)	0.39	0.70	0.83	1.09	0.43	0.43	0.87	0.02	0.52	0.23	0.00	0.16
Avail Cap(c_a), veh/h	89	1736	774	230	2058	1130	835	452	383	275	0	238
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.77	0.77	0.77	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	58.8	23.9	26.5	44.5	0.0	0.0	46.6	38.8	43.1	58.8	0.0	58.7
Incr Delay (d2), s/veh	10.4	2.4	10.3	78.6	0.5	0.9	8.2	0.0	1.3	5.4	0.0	4.0
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	0.3	13.7	17.6	10.9	0.1	0.3	9.3	0.2	4.5	0.2	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.1	26.3	36.8	123.1	0.5	0.9	54.8	38.8	44.4	64.2	0.0	62.7
LnGrp LOS	E	C	D	F	A	A	D	D	D	E	A	E
Approach Vol, veh/h		1871			1627			761			8	
Approach Delay, s/veh		30.1			19.5			52.4			63.6	
Approach LOS		C			B			D			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	20.1	64.4		6.0	6.2	78.4		29.5				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		5.8				
Max Green Setting (Gmax), s	15.5	36.7		18.0	6.0	46.2		29.0				
Max Q Clear Time (g_c+I1), s	17.5	44.2		2.3	2.6	2.0		21.9				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	13.2		1.8				
Intersection Summary												
HCM 6th Ctrl Delay			30.1									
HCM 6th LOS			C									

Year 2020 w/o Project AM
2: Via Princesa & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	89	1078	36	46	1255	88	5	23	11	186
Future Volume (vph)	89	1078	36	46	1255	88	5	23	11	186
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6		8		4	
Permitted Phases			2			8		4		4
Detector Phase	5	2	2	1	6	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.6	25.8	25.8	10.6	25.8	27.6	27.6	33.6	33.6	33.6
Total Split (s)	19.0	71.0	71.0	14.0	66.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	15.8%	59.2%	59.2%	11.7%	55.0%	29.2%	29.2%	29.2%	29.2%	29.2%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	None	None	None	None	None
Act Effect Green (s)	11.7	83.0	83.0	8.6	77.8	15.5	15.5	15.5	15.5	15.5
Actuated g/C Ratio	0.10	0.69	0.69	0.07	0.65	0.13	0.13	0.13	0.13	0.13
v/c Ratio	0.56	0.48	0.04	0.39	0.60	0.53	0.16	0.14	0.05	0.57
Control Delay	39.6	26.0	10.5	61.0	16.3	57.6	16.9	44.0	41.2	15.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	26.0	10.5	61.0	16.3	57.6	16.9	44.0	41.2	15.4
LOS	D	C	B	E	B	E	B	D	D	B
Approach Delay		26.6			17.8		46.2		19.7	
Approach LOS		C			B		D		B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 65 (54%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 22.9

Intersection LOS: C

Intersection Capacity Utilization 64.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: Via Princesa & Murrieta Hot Springs Rd



Timings

N:\2934\Analysis\5. 2020 AM.syn

Synchro 10 Report

Year 2020 w/o Project AM
2: Via Princesa & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	1078	36	46	1255	16	88	5	29	23	11	186
Future Volume (veh/h)	89	1078	36	46	1255	16	88	5	29	23	11	186
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	97	1172	39	50	1364	17	96	5	32	25	12	202
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	120	2444	1090	72	2375	30	225	32	205	234	274	232
Arrive On Green	0.14	1.00	1.00	0.04	0.66	0.66	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	1781	3554	1585	1781	3594	45	1167	219	1400	1371	1870	1585
Grp Volume(v), veh/h	97	1172	39	50	674	707	96	0	37	25	12	202
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1862	1167	0	1618	1371	1870	1585
Q Serve(g_s), s	6.3	0.0	0.0	3.3	24.9	24.9	9.2	0.0	2.4	1.9	0.7	15.0
Cycle Q Clear(g_c), s	6.3	0.0	0.0	3.3	24.9	24.9	9.9	0.0	2.4	4.3	0.7	15.0
Prop In Lane	1.00		1.00	1.00		0.02	1.00		0.86	1.00		1.00
Lane Grp Cap(c), veh/h	120	2444	1090	72	1174	1231	225	0	237	234	274	232
V/C Ratio(X)	0.81	0.48	0.04	0.69	0.57	0.57	0.43	0.00	0.16	0.11	0.04	0.87
Avail Cap(c_a), veh/h	214	2444	1090	140	1174	1231	349	0	410	380	474	402
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.51	0.51	0.51	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.1	0.0	0.0	56.8	11.1	11.1	48.2	0.0	44.7	46.6	44.0	50.1
Incr Delay (d2), s/veh	6.4	0.3	0.0	11.2	2.0	2.0	1.3	0.0	0.3	0.2	0.1	9.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.1	0.0	1.7	9.8	10.3	2.8	0.0	1.0	0.7	0.3	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.5	0.3	0.0	68.0	13.2	13.1	49.5	0.0	45.0	46.8	44.0	59.8
LnGrp LOS	E	A	A	E	B	B	D	A	D	D	D	E
Approach Vol, veh/h		1308			1431			133			239	
Approach Delay, s/veh		4.6			15.0			48.3			57.7	
Approach LOS		A			B			D			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	88.3		22.2	12.7	85.1		22.2				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		4.6				
Max Green Setting (Gmax), s	9.4	65.2		30.4	14.4	60.2		30.4				
Max Q Clear Time (g_c+I1), s	5.3	2.0		17.0	8.3	26.9		11.9				
Green Ext Time (p_c), s	0.0	12.6		0.6	0.1	12.6		0.5				
Intersection Summary												
HCM 6th Ctrl Delay			15.3									
HCM 6th LOS			B									

Year 2020 w/o Project AM
3: Calle Del Lago & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening
03/04/2020

Intersection													
Int Delay, s/veh	4.5												
Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	⬇	⬇	⬆		⬇	⬆			⬆			⬆	
Traffic Vol, veh/h	70	7	1103	20	10	1278	8	18	0	54	8	0	15
Future Vol, veh/h	70	7	1103	20	10	1278	8	18	0	54	8	0	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	180	-	-	160	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	76	8	1199	22	11	1389	9	20	0	59	9	0	16

Major/Minor	Major1			Major2			Minor1			Minor2			
Conflicting Flow All	1398	1398	0	0	1221	0	0	2095	2798	611	2184	2805	699
Stage 1	-	-	-	-	-	-	-	1378	1378	-	1416	1416	-
Stage 2	-	-	-	-	-	-	-	717	1420	-	768	1389	-
Critical Hdwy	6.44	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.52	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	184	485	-	-	*946	-	-	54	13	*633	*41	13	382
Stage 1	-	-	-	-	-	-	-	443	419	-	*144	202	-
Stage 2	-	-	-	-	-	-	-	387	201	-	*596	411	-
Platoon blocked, %			-	-	1	-	-	1	1	1	1	1	
Mov Cap-1 Maneuver	177	485	-	-	*946	-	-	33	7	*633	*24	7	382
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	33	7	-	*24	7	-
Stage 1	-	-	-	-	-	-	-	245	232	-	*80	200	-
Stage 2	-	-	-	-	-	-	-	366	199	-	*299	227	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.4	0.1	87.4	97.8
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBU	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	114	177	485	-	-	*946	-	-	62
HCM Lane V/C Ratio	0.686	0.43	0.016	-	-	0.011	-	-	0.403
HCM Control Delay (s)	87.4	39.9	12.5	-	-	8.8	-	-	97.8
HCM Lane LOS	F	E	B	-	-	A	-	-	F
HCM 95th %tile Q(veh)	3.6	2	0	-	-	0	-	-	1.5

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Year 2020 w/o Project AM
4: Date St & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

	→	↖	←	↗	↘
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑↑	↑	↑
Traffic Volume (vph)	1148	400	1287	10	410
Future Volume (vph)	1148	400	1287	10	410
Turn Type	NA	Prot	NA	Prot	Perm
Protected Phases	2	1	6	8	
Permitted Phases					8
Detector Phase	2	1	6	8	8
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	9.5	22.5	22.5	22.5
Total Split (s)	40.2	27.2	67.4	22.6	22.6
Total Split (%)	44.7%	30.2%	74.9%	25.1%	25.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	Min	Min	None	None	None
Act Effect Green (s)	35.8	22.8	63.1	9.1	9.1
Actuated g/C Ratio	0.44	0.28	0.78	0.11	0.11
v/c Ratio	0.90	0.88	0.51	0.06	0.80
Control Delay	31.6	49.9	4.7	31.1	15.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	31.6	49.9	4.7	31.1	15.5
LOS	C	D	A	C	B
Approach Delay	31.6		15.4	15.8	
Approach LOS	C		B	B	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 81.2

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 21.6

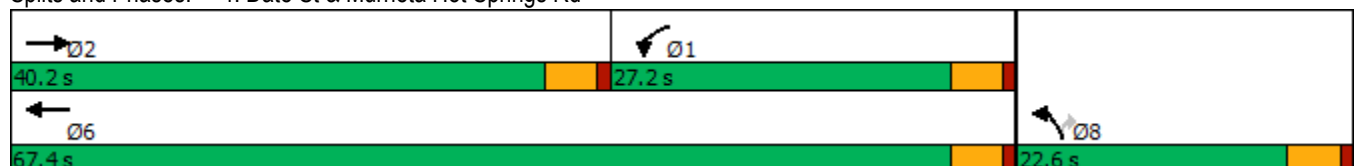
Intersection LOS: C

Intersection Capacity Utilization 73.6%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 4: Date St & Murrieta Hot Springs Rd



Year 2020 w/o Project AM
4: Date St & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (veh/h)	1148	135	400	1287	10	410
Future Volume (veh/h)	1148	135	400	1287	10	410
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1248	147	435	1399	11	379
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1271	149	449	2484	358	319
Arrive On Green	0.40	0.40	0.25	0.70	0.20	0.20
Sat Flow, veh/h	3297	376	1781	3647	1781	1585
Grp Volume(v), veh/h	690	705	435	1399	11	379
Grp Sat Flow(s),veh/h/ln	1777	1803	1781	1777	1781	1585
Q Serve(g_s), s	34.5	34.9	21.7	17.6	0.4	18.1
Cycle Q Clear(g_c), s	34.5	34.9	21.7	17.6	0.4	18.1
Prop In Lane		0.21	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	705	715	449	2484	358	319
V/C Ratio(X)	0.98	0.99	0.97	0.56	0.03	1.19
Avail Cap(c_a), veh/h	705	715	449	2484	358	319
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	26.8	26.9	33.3	6.7	28.9	36.0
Incr Delay (d2), s/veh	28.6	30.0	34.2	0.3	0.0	112.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.3	20.1	13.4	5.4	0.2	16.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	55.4	56.9	67.5	7.0	28.9	147.9
LnGrp LOS	E	E	E	A	C	F
Approach Vol, veh/h	1395			1834	390	
Approach Delay, s/veh	56.2			21.4	144.6	
Approach LOS	E			C	F	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	27.2	40.2			67.4	22.6
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	22.7	35.7			62.9	18.1
Max Q Clear Time (g_c+I1), s	23.7	36.9			19.6	20.1
Green Ext Time (p_c), s	0.0	0.0			15.4	0.0
Intersection Summary						
HCM 6th Ctrl Delay			48.1			
HCM 6th LOS			D			

Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	1122	26	46	1265	15	0	0	53	0	0	28
Future Vol, veh/h	16	1122	26	46	1265	15	0	0	53	0	0	28
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	190	-	150	120	-	150	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	1220	28	50	1375	16	0	0	58	0	0	30

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1391	0	0	1248	0	0	-	-	610	-	-	688
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	488	-	-	553	-	-	0	0	437	0	0	389
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	488	-	-	553	-	-	-	-	437	-	-	389
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.4	14.5	15
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	437	488	-	-	553	-	-	389
HCM Lane V/C Ratio	0.132	0.036	-	-	0.09	-	-	0.078
HCM Control Delay (s)	14.5	12.6	-	-	12.2	-	-	15
HCM Lane LOS	B	B	-	-	B	-	-	C
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0.3	-	-	0.3

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	487	496	100	255	559	115	132	779	223	223	1786	642
Future Volume (vph)	487	496	100	255	559	115	132	779	223	223	1786	642
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.1	22.5	22.5	10.1	49.2	49.2	10.1	47.5	47.5	10.1	49.5	49.5
Total Split (s)	23.0	49.9	49.9	22.3	49.2	49.2	11.3	50.8	50.8	17.0	56.5	56.5
Total Split (%)	16.4%	35.6%	35.6%	15.9%	35.1%	35.1%	8.1%	36.3%	36.3%	12.1%	40.4%	40.4%
Yellow Time (s)	4.1	5.2	5.2	4.1	5.2	5.2	4.1	5.5	5.5	4.1	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	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	0.0	0.0
Total Lost Time (s)	5.1	6.2	6.2	5.1	6.2	6.2	5.1	6.5	6.5	5.1	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	18.0	32.7	32.7	14.8	29.5	29.5	6.2	44.7	44.7	11.7	50.2	50.2
Actuated g/C Ratio	0.14	0.26	0.26	0.12	0.23	0.23	0.05	0.35	0.35	0.09	0.40	0.40
v/c Ratio	1.09	0.41	0.21	0.69	0.74	0.26	0.85	0.47	0.34	0.77	0.97	0.84
Control Delay	117.6	40.0	2.9	64.2	50.6	4.8	99.4	33.9	5.3	73.6	51.4	29.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	117.6	40.0	2.9	64.2	50.6	4.8	99.4	33.9	5.3	73.6	51.4	29.0
LOS	F	D	A	E	D	A	F	C	A	E	D	C
Approach Delay		71.5			48.7			35.9			47.8	
Approach LOS		E			D			D			D	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 126.9

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.09

Intersection Signal Delay: 50.1

Intersection LOS: D

Intersection Capacity Utilization 87.1%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd

			
Ø1	Ø2	Ø3	Ø4
17 s	50.8 s	22.3 s	49.9 s
			
Ø5	Ø6	Ø7	Ø8
11.3 s	56.5 s	23 s	49.2 s

Year 2020 w/o Project AM
6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	487	496	100	255	559	115	132	779	223	223	1786	642
Future Volume (veh/h)	487	496	100	255	559	115	132	779	223	223	1786	642
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	529	539	104	277	608	118	143	847	230	242	1941	664
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	500	1336	415	340	765	341	173	1883	584	297	2066	641
Arrive On Green	0.14	0.26	0.26	0.10	0.22	0.22	0.05	0.37	0.37	0.09	0.40	0.40
Sat Flow, veh/h	3456	5106	1585	3456	3554	1585	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	529	539	104	277	608	118	143	847	230	242	1941	664
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1777	1585	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	17.9	10.8	6.4	9.7	20.0	7.8	5.1	15.5	13.2	8.5	45.1	50.0
Cycle Q Clear(g_c), s	17.9	10.8	6.4	9.7	20.0	7.8	5.1	15.5	13.2	8.5	45.1	50.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	500	1336	415	340	765	341	173	1883	584	297	2066	641
V/C Ratio(X)	1.06	0.40	0.25	0.81	0.80	0.35	0.82	0.45	0.39	0.81	0.94	1.04
Avail Cap(c_a), veh/h	500	1805	560	481	1236	551	173	1883	584	333	2066	641
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	52.8	37.7	36.1	54.6	45.9	41.1	58.2	29.5	28.8	55.5	35.3	36.8
Incr Delay (d2), s/veh	56.1	0.2	0.3	7.2	1.9	0.6	26.5	0.2	0.4	13.2	9.2	45.0
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	11.6	4.5	2.5	4.6	9.0	3.1	2.9	6.4	5.1	4.3	20.1	26.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	109.0	37.9	36.4	61.8	47.9	41.7	84.7	29.7	29.2	68.7	44.5	81.8
LnGrp LOS	F	D	D	E	D	D	F	C	C	E	D	F
Approach Vol, veh/h		1172			1003			1220			2847	
Approach Delay, s/veh		69.8			51.0			36.1			55.3	
Approach LOS		E			D			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.7	52.1	17.3	38.5	11.3	56.5	23.0	32.8				
Change Period (Y+Rc), s	5.1	6.5	5.1	6.2	5.1	6.5	5.1	6.2				
Max Green Setting (Gmax), s	11.9	44.3	17.2	43.7	6.2	50.0	17.9	43.0				
Max Q Clear Time (g_c+I1), s	10.5	17.5	11.7	12.8	7.1	52.0	19.9	22.0				
Green Ext Time (p_c), s	0.1	7.6	0.5	4.4	0.0	0.0	0.0	4.6				
Intersection Summary												
HCM 6th Ctrl Delay			53.6									
HCM 6th LOS			D									

Year 2020 w/o Project PM
1: Margarita Rd & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	23	1496	605	198	1457	731	10	259	22	18
Future Volume (vph)	23	1496	605	198	1457	731	10	259	22	18
Turn Type	Prot	NA	Perm	Prot	NA	Split	NA	Perm	NA	Perm
Protected Phases	5	2		1	6	8	8		4	
Permitted Phases			2					8		4
Detector Phase	5	2	2	1	6	8	8	8	4	4
Switch Phase										
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.6	34.8	34.8	10.6	27.8	34.8	34.8	34.8	22.6	22.6
Total Split (s)	10.6	47.6	47.6	15.0	52.0	34.8	34.8	34.8	22.6	22.6
Total Split (%)	8.8%	39.7%	39.7%	12.5%	43.3%	29.0%	29.0%	29.0%	18.8%	18.8%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	4.8	4.8	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	5.8	5.8	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	None	None	None	None	None
Act Effect Green (s)	6.0	41.8	41.8	15.5	55.5	35.4	35.4	35.4	8.6	8.6
Actuated g/C Ratio	0.05	0.35	0.35	0.13	0.46	0.30	0.30	0.30	0.07	0.07
v/c Ratio	0.28	1.32	0.82	0.94	0.68	0.78	0.02	0.42	0.36	0.09
Control Delay	63.3	183.2	23.6	86.7	44.0	45.0	29.5	5.7	60.1	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.3	183.2	23.6	86.7	44.0	45.0	29.5	5.7	60.1	0.8
LOS	E	F	C	F	D	D	C	A	E	A
Approach Delay		136.4			49.0		34.7		42.4	
Approach LOS		F			D		C		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 36 (30%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.32

Intersection Signal Delay: 84.2

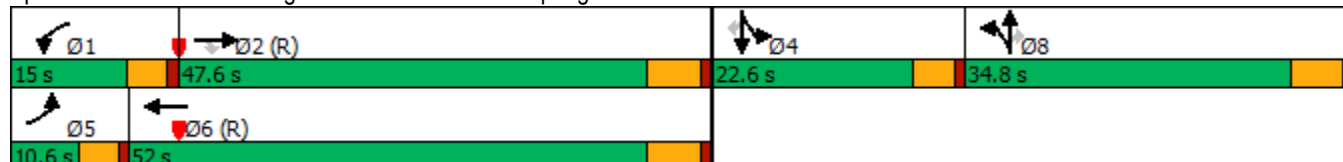
Intersection LOS: F

Intersection Capacity Utilization 93.3%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 1: Margarita Rd & Murrieta Hot Springs Rd



Timings

N:\2934\Analysis\6. 2020 PM.syn

Synchro 10 Report

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	1496	605	198	1457	15	731	10	259	21	22	18
Future Volume (veh/h)	23	1496	605	198	1457	15	731	10	259	21	22	18
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	25	1626	625	215	1584	16	795	11	268	23	24	20
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	50	1612	719	154	2669	27	835	452	383	40	42	71
Arrive On Green	0.03	0.45	0.45	0.17	1.00	1.00	0.24	0.24	0.24	0.04	0.04	0.04
Sat Flow, veh/h	1781	3554	1585	1781	5212	53	3456	1870	1585	893	932	1585
Grp Volume(v), veh/h	25	1626	625	215	1034	566	795	11	268	47	0	20
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1702	1861	1728	1870	1585	1826	0	1585
Q Serve(g_s), s	1.7	54.4	42.7	10.4	0.0	0.0	27.2	0.5	18.5	3.0	0.0	1.5
Cycle Q Clear(g_c), s	1.7	54.4	42.7	10.4	0.0	0.0	27.2	0.5	18.5	3.0	0.0	1.5
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	0.49		1.00
Lane Grp Cap(c), veh/h	50	1612	719	154	1743	953	835	452	383	82	0	71
V/C Ratio(X)	0.50	1.01	0.87	1.39	0.59	0.59	0.95	0.02	0.70	0.58	0.00	0.28
Avail Cap(c_a), veh/h	89	1612	719	154	1743	953	835	452	383	274	0	238
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.59	0.59	0.59	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.5	32.8	29.6	49.6	0.0	0.0	44.8	34.7	41.5	56.2	0.0	55.5
Incr Delay (d2), s/veh	7.4	24.5	13.5	198.4	0.9	1.6	20.3	0.0	5.6	6.3	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	28.1	18.5	12.7	0.2	0.4	13.9	0.3	7.8	1.5	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.8	57.3	43.1	248.0	0.9	1.6	65.2	34.7	47.1	62.5	0.0	57.6
LnGrp LOS	E	F	D	F	A	A	E	C	D	E	A	E
Approach Vol, veh/h		2276			1815			1074			67	
Approach Delay, s/veh		53.5			30.4			60.3			61.0	
Approach LOS		D			C			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.0	60.2		10.0	8.0	67.3		34.8				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		5.8				
Max Green Setting (Gmax), s	10.4	41.8		18.0	6.0	46.2		29.0				
Max Q Clear Time (g_c+I1), s	12.4	56.4		5.0	3.7	2.0		29.2				
Green Ext Time (p_c), s	0.0	0.0		0.2	0.0	16.8		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			47.0									
HCM 6th LOS			D									

Year 2020 w/o Project PM
2: Via Princesa & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	203	1455	58	49	1452	79	15	28	17	147
Future Volume (vph)	203	1455	58	49	1452	79	15	28	17	147
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6		8		4	
Permitted Phases			2			8		4		4
Detector Phase	5	2	2	1	6	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.6	25.8	25.8	10.6	25.8	27.6	27.6	33.6	33.6	33.6
Total Split (s)	22.0	75.4	75.4	11.0	64.4	33.6	33.6	33.6	33.6	33.6
Total Split (%)	18.3%	62.8%	62.8%	9.2%	53.7%	28.0%	28.0%	28.0%	28.0%	28.0%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	None	None	None	None	None
Act Effect Green (s)	19.4	84.3	84.3	7.9	70.7	14.9	14.9	14.9	14.9	14.9
Actuated g/C Ratio	0.16	0.70	0.70	0.07	0.59	0.12	0.12	0.12	0.12	0.12
v/c Ratio	0.78	0.64	0.06	0.45	0.78	0.50	0.26	0.18	0.08	0.48
Control Delay	63.8	5.4	0.0	67.8	24.1	56.7	19.0	45.6	42.5	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.8	5.4	0.0	67.8	24.1	56.7	19.0	45.6	42.5	11.0
LOS	E	A	A	E	C	E	B	D	D	B
Approach Delay		12.1			25.5		40.7		18.7	
Approach LOS		B			C		D		B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 56 (47%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 19.3

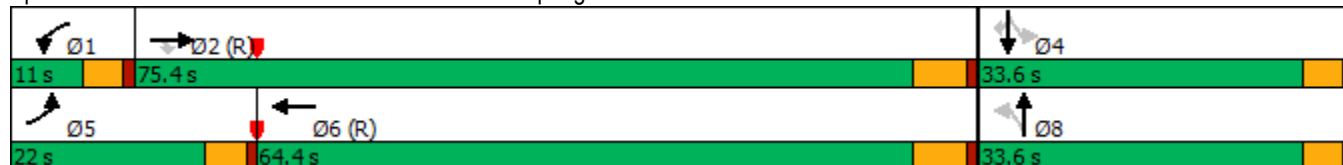
Intersection LOS: B

Intersection Capacity Utilization 76.3%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 2: Via Princesa & Murrieta Hot Springs Rd



Timings

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Synchro 10 Report

Year 2020 w/o Project PM
2: Via Princesa & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	203	1455	58	49	1452	42	79	15	43	28	17	147
Future Volume (veh/h)	203	1455	58	49	1452	42	79	15	43	28	17	147
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	221	1582	63	53	1578	46	86	16	47	30	18	160
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	244	2535	1131	74	2178	63	195	50	148	174	225	191
Arrive On Green	0.27	1.00	1.00	0.04	0.62	0.62	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	1781	3554	1585	1781	3526	103	1206	419	1230	1339	1870	1585
Grp Volume(v), veh/h	221	1582	63	53	793	831	86	0	63	30	18	160
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1852	1206	0	1649	1339	1870	1585
Q Serve(g_s), s	14.4	0.0	0.0	3.5	37.0	37.3	8.2	0.0	4.2	2.5	1.0	11.9
Cycle Q Clear(g_c), s	14.4	0.0	0.0	3.5	37.0	37.3	9.2	0.0	4.2	6.7	1.0	11.9
Prop In Lane	1.00		1.00	1.00		0.06	1.00		0.75	1.00		1.00
Lane Grp Cap(c), veh/h	244	2535	1131	74	1098	1144	195	0	198	174	225	191
V/C Ratio(X)	0.91	0.62	0.06	0.72	0.72	0.73	0.44	0.00	0.32	0.17	0.08	0.84
Avail Cap(c_a), veh/h	258	2535	1131	95	1098	1144	341	0	398	337	452	383
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.8	0.0	0.0	56.8	15.8	15.9	51.0	0.0	48.3	51.4	46.9	51.7
Incr Delay (d2), s/veh	4.5	0.1	0.0	16.8	4.1	4.0	1.6	0.0	0.9	0.5	0.2	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	5.7	0.0	0.0	1.9	15.4	16.1	2.6	0.0	1.8	0.9	0.5	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.3	0.1	0.0	73.6	20.0	19.9	52.5	0.0	49.2	51.8	47.0	61.1
LnGrp LOS	D	A	A	E	B	B	D	A	D	D	D	E
Approach Vol, veh/h		1866			1677			149			208	
Approach Delay, s/veh		5.7			21.6			51.1			58.5	
Approach LOS		A			C			D			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.6	91.4		19.0	21.0	79.9		19.0				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		4.6				
Max Green Setting (Gmax), s	6.4	69.6		29.0	17.4	58.6		29.0				
Max Q Clear Time (g_c+I1), s	5.5	2.0		13.9	16.4	39.3		11.2				
Green Ext Time (p_c), s	0.0	22.2		0.6	0.1	11.9		0.5				
Intersection Summary												
HCM 6th Ctrl Delay			17.1									
HCM 6th LOS			B									

Year 2020 w/o Project PM
3: Calle Del Lago & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

Intersection													
Int Delay, s/veh	22.1												
Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	⬇	⬇	⬆		⬇	⬆			⬆			⬆	
Traffic Vol, veh/h	85	8	1496	36	36	1536	11	4	0	45	3	0	11
Future Vol, veh/h	85	8	1496	36	36	1536	11	4	0	45	3	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	180	-	-	160	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	92	9	1626	39	39	1670	12	4	0	49	3	0	12

Major/Minor	Major1			Major2			Minor1			Minor2			
Conflicting Flow All	1682	1682	0	0	1665	0	0	2761	3608	833	2769	3621	841
Stage 1	-	-	-	-	-	-	-	1848	1848	-	1754	1754	-
Stage 2	-	-	-	-	-	-	-	913	1760	-	1015	1867	-
Critical Hdwy	6.44	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.52	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	120	377	-	-	*673	-	-	7	0	*450	*7	0	308
Stage 1	-	-	-	-	-	-	-	313	297	-	*88	137	-
Stage 2	-	-	-	-	-	-	-	294	136	-	*424	283	-
Platoon blocked, %			-	-	1	-	-	1	1	1	1	1	
Mov Cap-1 Maneuver	116	377	-	-	*673	-	-	~ 2	0	*450	*~ 2	0	308
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 2	0	-	*~ 2	0	-
Stage 1	-	-	-	-	-	-	-	57	54	-	*16	129	-
Stage 2	-	-	-	-	-	-	-	266	128	-	*69	51	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	5.6	0.2	\$ 958.3	\$ 1133.6
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBU	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	23	116	377	-	-	* 673	-	-	9
HCM Lane V/C Ratio	2.316	0.796	0.023	-	-	0.058	-	-	1.691
HCM Control Delay (s)	\$ 958.3	105.2	14.8	-	-	10.7	-	-	\$ 1133.6
HCM Lane LOS	F	F	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	6.7	4.6	0.1	-	-	0.2	-	-	2.8

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Year 2020 w/o Project PM
4: Date St & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening
03/04/2020

	→	↖	←	↗	↘
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑↑	↑	↑
Traffic Volume (vph)	1544	230	1564	16	550
Future Volume (vph)	1544	230	1564	16	550
Turn Type	NA	Prot	NA	Prot	Perm
Protected Phases	2	1	6	8	
Permitted Phases					8
Detector Phase	2	1	6	8	8
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	9.5	22.5	22.5	22.5
Total Split (s)	65.4	21.6	87.0	33.0	33.0
Total Split (%)	54.5%	18.0%	72.5%	27.5%	27.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	Min	None	Min	None	None
Act Effect Green (s)	60.9	17.1	82.5	28.5	28.5
Actuated g/C Ratio	0.51	0.14	0.69	0.24	0.24
v/c Ratio	1.05	0.99	0.70	0.04	1.06
Control Delay	65.0	106.5	13.2	35.8	80.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	65.0	106.5	13.2	35.8	80.6
LOS	E	F	B	D	F
Approach Delay	65.0		25.2	79.4	
Approach LOS	E		C	E	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Natural Cycle: 120
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.06
 Intersection Signal Delay: 49.5
 Intersection LOS: D
 Intersection Capacity Utilization 89.7%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 4: Date St & Murrieta Hot Springs Rd



Year 2020 w/o Project PM
4: Date St & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (veh/h)	1544	170	230	1564	16	550
Future Volume (veh/h)	1544	170	230	1564	16	550
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1678	185	250	1700	17	538
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1641	178	254	2443	423	376
Arrive On Green	0.51	0.51	0.14	0.69	0.24	0.24
Sat Flow, veh/h	3327	351	1781	3647	1781	1585
Grp Volume(v), veh/h	910	953	250	1700	17	538
Grp Sat Flow(s),veh/h/ln	1777	1807	1781	1777	1781	1585
Q Serve(g_s), s	60.9	60.9	16.8	34.4	0.9	28.5
Cycle Q Clear(g_c), s	60.9	60.9	16.8	34.4	0.9	28.5
Prop In Lane		0.19	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	902	917	254	2443	423	376
V/C Ratio(X)	1.01	1.04	0.98	0.70	0.04	1.43
Avail Cap(c_a), veh/h	902	917	254	2443	423	376
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	29.5	29.6	51.3	11.2	35.2	45.7
Incr Delay (d2), s/veh	32.3	40.3	52.1	0.9	0.0	207.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	32.8	35.4	11.1	12.6	0.4	32.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	61.9	69.8	103.4	12.1	35.3	253.7
LnGrp LOS	F	F	F	B	D	F
Approach Vol, veh/h	1863			1950	555	
Approach Delay, s/veh	65.9			23.8	247.0	
Approach LOS	E			C	F	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	21.6	65.4			87.0	33.0
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	17.1	60.9			82.5	28.5
Max Q Clear Time (g_c+I1), s	18.8	62.9			36.4	30.5
Green Ext Time (p_c), s	0.0	0.0			21.7	0.0
Intersection Summary						
HCM 6th Ctrl Delay			70.1			
HCM 6th LOS			E			

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	33	1495	37	67	1560	37	0	0	107	0	0	19
Future Vol, veh/h	33	1495	37	67	1560	37	0	0	107	0	0	19
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	190	-	150	120	-	150	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	36	1625	40	73	1696	40	0	0	116	0	0	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1736	0	0	1665	0	0	-	-	813	-	-	848
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	359	-	-	382	-	-	0	0	322	0	0	305
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	359	-	-	382	-	-	-	-	322	-	-	305
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.7			22.4			17.7		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	322	359	-	-	382	-	-	305
HCM Lane V/C Ratio	0.361	0.1	-	-	0.191	-	-	0.068
HCM Control Delay (s)	22.4	16.1	-	-	16.6	-	-	17.7
HCM Lane LOS	C	C	-	-	C	-	-	C
HCM 95th %tile Q(veh)	1.6	0.3	-	-	0.7	-	-	0.2

Year 2020 w/o Project PM
6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	634	764	176	288	754	133	222	1622	272	223	971	636
Future Volume (vph)	634	764	176	288	754	133	222	1622	272	223	971	636
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.1	22.5	22.5	10.1	49.2	49.2	10.1	47.5	47.5	10.1	49.5	49.5
Total Split (s)	29.1	53.0	53.0	25.3	49.2	49.2	17.6	56.9	56.9	14.8	54.1	54.1
Total Split (%)	19.4%	35.3%	35.3%	16.9%	32.8%	32.8%	11.7%	37.9%	37.9%	9.9%	36.1%	36.1%
Yellow Time (s)	4.1	5.2	5.2	4.1	5.2	5.2	4.1	5.5	5.5	4.1	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	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	0.0	0.0
Total Lost Time (s)	5.1	6.2	6.2	5.1	6.2	6.2	5.1	6.5	6.5	5.1	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	24.0	45.7	45.7	17.8	39.5	39.5	12.4	50.5	50.5	9.7	47.8	47.8
Actuated g/C Ratio	0.16	0.31	0.31	0.12	0.27	0.27	0.08	0.34	0.34	0.07	0.33	0.33
v/c Ratio	1.23	0.52	0.32	0.75	0.86	0.29	0.83	1.01	0.41	1.07	0.64	0.95
Control Delay	166.1	43.0	10.5	74.5	61.1	13.3	89.9	70.8	7.5	140.9	44.5	48.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	166.1	43.0	10.5	74.5	61.1	13.3	89.9	70.8	7.5	140.9	44.5	48.7
LOS	F	D	B	E	E	B	F	E	A	F	D	D
Approach Delay		89.0			59.0			64.7			57.7	
Approach LOS		F			E			E			E	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 146.6

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.23

Intersection Signal Delay: 67.5

Intersection LOS: E

Intersection Capacity Utilization 95.7%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd

			
Ø1	Ø2	Ø3	Ø4
14.8 s	56.9 s	25.3 s	53 s
			
Ø5	Ø6	Ø7	Ø8
17.6 s	54.1 s	29.1 s	49.2 s

Timings

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Synchro 10 Report

Year 2020 w/o Project PM
6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	634	764	176	288	754	133	222	1622	272	223	971	636
Future Volume (veh/h)	634	764	176	288	754	133	222	1622	272	223	971	636
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	689	830	181	313	820	137	241	1763	282	242	1055	657
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	572	1642	510	368	933	416	286	1773	551	231	1692	525
Arrive On Green	0.17	0.32	0.32	0.11	0.26	0.26	0.08	0.35	0.35	0.07	0.33	0.33
Sat Flow, veh/h	3456	5106	1585	3456	3554	1585	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	689	830	181	313	820	137	241	1763	282	242	1055	657
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1777	1585	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	24.0	19.1	12.7	12.9	32.1	10.1	10.0	49.9	20.5	9.7	25.3	48.1
Cycle Q Clear(g_c), s	24.0	19.1	12.7	12.9	32.1	10.1	10.0	49.9	20.5	9.7	25.3	48.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	572	1642	510	368	933	416	286	1773	551	231	1692	525
V/C Ratio(X)	1.21	0.51	0.36	0.85	0.88	0.33	0.84	0.99	0.51	1.05	0.62	1.25
Avail Cap(c_a), veh/h	572	1647	511	481	1053	470	298	1773	551	231	1692	525
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(l)	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	60.6	39.9	37.7	63.7	51.3	43.2	65.6	47.2	37.6	67.7	40.9	48.5
Incr Delay (d2), s/veh	108.3	0.2	0.4	10.9	8.0	0.5	18.6	19.9	0.8	72.3	0.7	128.1
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	19.1	8.1	5.1	6.3	15.3	4.1	5.2	24.3	8.2	6.6	10.8	37.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	168.8	40.1	38.1	74.6	59.2	43.6	84.2	67.1	38.4	140.0	41.6	176.6
LnGrp LOS	F	D	D	E	E	D	F	E	D	F	D	F
Approach Vol, veh/h		1700			1270			2286			1954	
Approach Delay, s/veh		92.1			61.3			65.4			99.2	
Approach LOS		F			E			E			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.8	56.9	20.5	52.9	17.1	54.6	29.1	44.3				
Change Period (Y+Rc), s	5.1	6.5	5.1	6.2	5.1	6.5	5.1	6.2				
Max Green Setting (Gmax), s	9.7	50.4	20.2	46.8	12.5	47.6	24.0	43.0				
Max Q Clear Time (g_c+I1), s	11.7	51.9	14.9	21.1	12.0	50.1	26.0	34.1				
Green Ext Time (p_c), s	0.0	0.0	0.5	7.1	0.0	0.0	0.0	4.0				
Intersection Summary												
HCM 6th Ctrl Delay			80.1									
HCM 6th LOS			F									

APPENDIX E

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – OPENING DAY WITH PROJECT

Year 2020 w/ Project AM
1: Margarita Rd & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	8	1119	231	1264	544	6	150	3	3
Future Volume (vph)	8	1119	231	1264	544	6	150	3	3
Turn Type	Prot	NA	Prot	NA	Split	NA	pm+ov	NA	Perm
Protected Phases	5	2	1	6	8	8	1	4	
Permitted Phases							8		4
Detector Phase	5	2	1	6	8	8	1	4	4
Switch Phase									
Minimum Initial (s)	6.0	10.0	6.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.6	34.8	10.6	27.8	34.8	34.8	10.6	22.6	22.6
Total Split (s)	10.6	44.6	18.0	52.0	34.8	34.8	18.0	22.6	22.6
Total Split (%)	8.8%	37.2%	15.0%	43.3%	29.0%	29.0%	15.0%	18.8%	18.8%
Yellow Time (s)	3.6	4.8	3.6	4.8	4.8	4.8	3.6	3.6	3.6
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	5.8	4.6	5.8	5.8	5.8	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	C-Min	None	C-Min	None	None	None	None	None
Act Effect Green (s)	6.4	46.5	28.3	77.0	26.7	26.7	60.8	6.2	6.2
Actuated g/C Ratio	0.05	0.39	0.24	0.64	0.22	0.22	0.51	0.05	0.05
v/c Ratio	0.10	0.96	0.60	0.42	0.77	0.02	0.18	0.05	0.01
Control Delay	56.0	46.7	51.0	7.3	50.8	33.3	2.9	55.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.0	46.7	51.0	7.3	50.8	33.3	2.9	55.2	0.0
LOS	E	D	D	A	D	C	A	E	A
Approach Delay		46.7		14.1		40.4		34.5	
Approach LOS		D		B		D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 85 (71%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 135

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 33.1

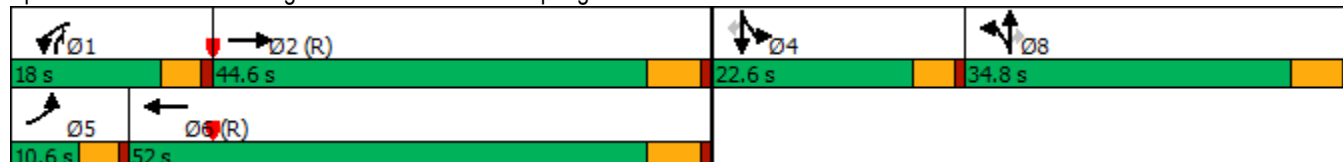
Intersection LOS: C

Intersection Capacity Utilization 83.4%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: Margarita Rd & Murrieta Hot Springs Rd



Timings

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Synchro 10 Report

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	1119	594	231	1264	2	544	6	150	2	3	3
Future Volume (veh/h)	8	1119	594	231	1264	2	544	6	150	2	3	3
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	9	1216	646	251	1374	2	591	7	163	2	3	3
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	23	1722	802	199	3183	5	682	369	490	9	13	19
Arrive On Green	0.01	0.51	0.51	0.22	1.00	1.00	0.20	0.20	0.20	0.01	0.01	0.01
Sat Flow, veh/h	1781	3404	1585	1781	5265	8	3456	1870	1585	733	1100	1585
Grp Volume(v), veh/h	9	1216	646	251	888	488	591	7	163	5	0	3
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1702	1869	1728	1870	1585	1834	0	1585
Q Serve(g_s), s	0.6	33.0	40.8	13.4	0.0	0.0	19.9	0.4	9.5	0.3	0.0	0.2
Cycle Q Clear(g_c), s	0.6	33.0	40.8	13.4	0.0	0.0	19.9	0.4	9.5	0.3	0.0	0.2
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.40		1.00
Lane Grp Cap(c), veh/h	23	1722	802	199	2058	1130	682	369	490	21	0	19
V/C Ratio(X)	0.39	0.71	0.81	1.26	0.43	0.43	0.87	0.02	0.33	0.23	0.00	0.16
Avail Cap(c_a), veh/h	89	1722	802	199	2058	1130	835	452	560	275	0	238
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.90	0.90	0.90	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	58.8	22.8	24.7	46.6	0.0	0.0	46.6	38.8	31.9	58.8	0.0	58.7
Incr Delay (d2), s/veh	10.4	2.5	8.5	148.9	0.6	1.1	8.2	0.0	0.4	5.4	0.0	4.0
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	0.3	13.4	16.7	13.4	0.2	0.3	9.3	0.2	3.7	0.2	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.1	25.3	33.2	195.5	0.6	1.1	54.8	38.8	32.3	64.2	0.0	62.7
LnGrp LOS	E	C	C	F	A	A	D	D	C	E	A	E
Approach Vol, veh/h		1871			1627			761			8	
Approach Delay, s/veh		28.2			30.8			49.8			63.6	
Approach LOS		C			C			D			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.0	66.5		6.0	6.2	78.4		29.5				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		5.8				
Max Green Setting (Gmax), s	13.4	38.8		18.0	6.0	46.2		29.0				
Max Q Clear Time (g_c+I1), s	15.4	42.8		2.3	2.6	2.0		21.9				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	13.2		1.8				
Intersection Summary												
HCM 6th Ctrl Delay			33.1									
HCM 6th LOS			C									

Year 2020 w/ Project AM
2: Via Princesa & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		  			  					
Traffic Volume (vph)	89	1078	36	46	1255	88	5	23	11	186
Future Volume (vph)	89	1078	36	46	1255	88	5	23	11	186
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6		8		4	
Permitted Phases			2			8		4		4
Detector Phase	5	2	2	1	6	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.6	25.8	25.8	10.6	25.8	27.6	27.6	33.6	33.6	33.6
Total Split (s)	19.0	71.0	71.0	14.0	66.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	15.8%	59.2%	59.2%	11.7%	55.0%	29.2%	29.2%	29.2%	29.2%	29.2%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	None	None	None	None	None
Act Effct Green (s)	11.9	82.7	82.7	8.9	77.6	15.5	15.5	15.5	15.5	15.5
Actuated g/C Ratio	0.10	0.69	0.69	0.07	0.65	0.13	0.13	0.13	0.13	0.13
v/c Ratio	0.56	0.33	0.04	0.38	0.42	0.53	0.16	0.14	0.05	0.57
Control Delay	43.5	23.1	12.6	60.6	12.3	57.6	16.9	44.0	41.2	15.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.5	23.1	12.6	60.6	12.3	57.6	16.9	44.0	41.2	15.4
LOS	D	C	B	E	B	E	B	D	D	B
Approach Delay		24.3			13.9		46.2		19.7	
Approach LOS		C			B		D		B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 65 (54%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 20.1

Intersection LOS: C

Intersection Capacity Utilization 53.6%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Via Princesa & Murrieta Hot Springs Rd



Timings

N:\2934\Analysis\7. 2020+P AM.syn

Synchro 10 Report

Year 2020 w/ Project AM
2: Via Princesa & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

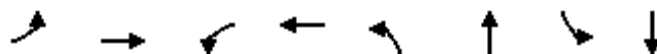
03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Traffic Volume (veh/h)	89	1078	36	46	1255	16	88	5	29	23	11	186
Future Volume (veh/h)	89	1078	36	46	1255	16	88	5	29	23	11	186
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	97	1172	39	50	1364	17	96	5	32	25	12	202
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	120	3512	1090	72	3435	43	225	32	205	234	274	232
Arrive On Green	0.14	1.00	1.00	0.04	0.66	0.66	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	1781	5106	1585	1781	5198	65	1167	219	1400	1371	1870	1585
Grp Volume(v), veh/h	97	1172	39	50	893	488	96	0	37	25	12	202
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1702	1859	1167	0	1618	1371	1870	1585
Q Serve(g_s), s	6.3	0.0	0.0	3.3	14.5	14.5	9.2	0.0	2.4	1.9	0.7	15.0
Cycle Q Clear(g_c), s	6.3	0.0	0.0	3.3	14.5	14.5	9.9	0.0	2.4	4.3	0.7	15.0
Prop In Lane	1.00		1.00	1.00		0.03	1.00		0.86	1.00		1.00
Lane Grp Cap(c), veh/h	120	3512	1090	72	2249	1228	225	0	237	234	274	232
V/C Ratio(X)	0.81	0.33	0.04	0.69	0.40	0.40	0.43	0.00	0.16	0.11	0.04	0.87
Avail Cap(c_a), veh/h	214	3512	1090	140	2249	1228	349	0	410	380	474	402
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.32	0.32	0.32	0.72	0.72	0.72	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.1	0.0	0.0	56.8	9.4	9.4	48.2	0.0	44.7	46.6	44.0	50.1
Incr Delay (d2), s/veh	4.1	0.1	0.0	8.2	0.4	0.7	1.3	0.0	0.3	0.2	0.1	9.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	0.0	1.7	5.2	5.8	2.8	0.0	1.0	0.7	0.3	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.2	0.1	0.0	65.1	9.7	10.1	49.5	0.0	45.0	46.8	44.0	59.8
LnGrp LOS	E	A	A	E	A	B	D	A	D	D	D	E
Approach Vol, veh/h		1308			1431			133			239	
Approach Delay, s/veh		4.2			11.8			48.3			57.7	
Approach LOS		A			B			D			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	88.3		22.2	12.7	85.1		22.2				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		4.6				
Max Green Setting (Gmax), s	9.4	65.2		30.4	14.4	60.2		30.4				
Max Q Clear Time (g_c+I1), s	5.3	2.0		17.0	8.3	16.5		11.9				
Green Ext Time (p_c), s	0.0	12.0		0.6	0.1	13.3		0.5				
Intersection Summary												
HCM 6th Ctrl Delay			13.7									
HCM 6th LOS			B									

Year 2020 w/ Project AM
3: Calle Del Lago & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	77	1103	10	1278	18	0	8	0
Future Volume (vph)	77	1103	10	1278	18	0	8	0
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4	3	8		2		6
Permitted Phases					2		6	
Detector Phase	7	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	18.0	52.0	11.0	45.0	27.0	27.0	27.0	27.0
Total Split (%)	20.0%	57.8%	12.2%	50.0%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5		4.5
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Max	Max	Max	Max
Act Effect Green (s)	9.2	41.2	6.1	32.2		23.3		23.3
Actuated g/C Ratio	0.12	0.54	0.08	0.43		0.31		0.31
v/c Ratio	0.39	0.44	0.08	0.65		0.14		0.04
Control Delay	39.4	10.7	38.8	19.1		2.1		0.1
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	39.4	10.7	38.8	19.1		2.1		0.1
LOS	D	B	D	B		A		A
Approach Delay		12.5		19.2		2.1		0.1
Approach LOS		B		B		A		A

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 75.7

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 15.5

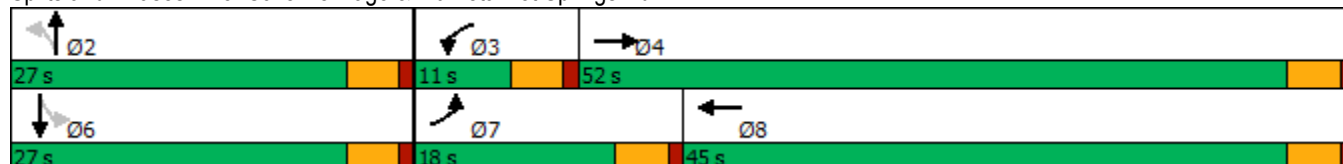
Intersection LOS: B

Intersection Capacity Utilization 45.5%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: Calle Del Lago & Murrieta Hot Springs Rd



Timings

N:\2934\Analysis\7. 2020+P AM.syn

Synchro 10 Report

Year 2020 w/ Project AM
3: Calle Del Lago & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (veh/h)	77	1103	20	10	1278	8	18	0	54	8	0	15
Future Volume (veh/h)	77	1103	20	10	1278	8	18	0	54	8	0	15
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	84	1199	22	11	1389	9	20	0	59	9	0	16
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	110	2339	43	25	2122	14	163	35	389	223	32	324
Arrive On Green	0.06	0.45	0.45	0.01	0.41	0.41	0.33	0.00	0.33	0.33	0.00	0.33
Sat Flow, veh/h	1781	5163	95	1781	5234	34	290	105	1167	452	95	972
Grp Volume(v), veh/h	84	791	430	11	903	495	79	0	0	25	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1853	1781	1702	1864	1562	0	0	1518	0	0
Q Serve(g_s), s	3.1	11.2	11.2	0.4	14.5	14.5	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.1	11.2	11.2	0.4	14.5	14.5	2.3	0.0	0.0	0.7	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.02	0.25		0.75	0.36		0.64
Lane Grp Cap(c), veh/h	110	1542	840	25	1380	756	587	0	0	578	0	0
V/C Ratio(X)	0.77	0.51	0.51	0.45	0.65	0.65	0.13	0.00	0.00	0.04	0.00	0.00
Avail Cap(c_a), veh/h	356	2395	1304	171	2042	1118	587	0	0	578	0	0
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(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	31.2	13.2	13.2	33.0	16.2	16.2	15.8	0.0	0.0	15.2	0.0	0.0
Incr Delay (d2), s/veh	10.6	0.3	0.5	12.2	0.5	1.0	0.5	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	3.9	4.3	0.3	5.2	5.8	0.9	0.0	0.0	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.8	13.4	13.6	45.2	16.8	17.2	16.2	0.0	0.0	15.4	0.0	0.0
LnGrp LOS	D	B	B	D	B	B	B	A	A	B	A	A
Approach Vol, veh/h		1305			1409			79			25	
Approach Delay, s/veh		15.3			17.2			16.2			15.4	
Approach LOS		B			B			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		27.0	5.4	35.1		27.0	8.7	31.9				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		22.5	6.5	47.5		22.5	13.5	40.5				
Max Q Clear Time (g_c+I1), s		4.3	2.4	13.2		2.7	5.1	16.5				
Green Ext Time (p_c), s		0.3	0.0	10.5		0.1	0.1	10.9				
Intersection Summary												
HCM 6th Ctrl Delay			16.3									
HCM 6th LOS			B									

Year 2020 w/ Project AM
4: Date St & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↘	↑↑↑	↘	↗
Traffic Volume (vph)	1148	135	400	1287	10	410
Future Volume (vph)	1148	135	400	1287	10	410
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2				8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	32.0	32.0	34.0	66.0	24.0	24.0
Total Split (%)	35.6%	35.6%	37.8%	73.3%	26.7%	26.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Min	Min	None	Min	None	None
Act Effect Green (s)	25.7	25.7	22.0	52.3	8.6	8.6
Actuated g/C Ratio	0.37	0.37	0.31	0.74	0.12	0.12
v/c Ratio	0.67	0.22	0.79	0.37	0.05	0.76
Control Delay	22.4	6.4	34.3	3.8	29.5	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.4	6.4	34.3	3.8	29.5	12.8
LOS	C	A	C	A	C	B
Approach Delay	20.7			11.0	13.2	
Approach LOS	C			B	B	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 70.3

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 15.0

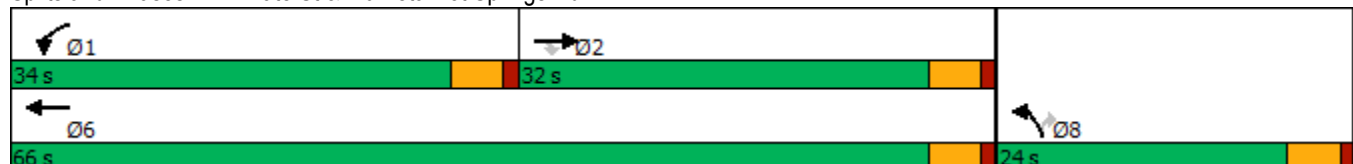
Intersection LOS: B

Intersection Capacity Utilization 59.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 4: Date St & Murrieta Hot Springs Rd



Timings

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Synchro 10 Report

Year 2020 w/ Project AM
4: Date St & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↓	↑↑↑	↓	↑
Traffic Volume (veh/h)	1148	135	400	1287	10	410
Future Volume (veh/h)	1148	135	400	1287	10	410
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1248	147	435	1399	11	379
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1593	495	486	3274	437	389
Arrive On Green	0.31	0.31	0.27	0.64	0.25	0.25
Sat Flow, veh/h	5274	1585	1781	5274	1781	1585
Grp Volume(v), veh/h	1248	147	435	1399	11	379
Grp Sat Flow(s),veh/h/ln	1702	1585	1781	1702	1781	1585
Q Serve(g_s), s	17.7	5.6	18.7	10.8	0.4	18.8
Cycle Q Clear(g_c), s	17.7	5.6	18.7	10.8	0.4	18.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1593	495	486	3274	437	389
V/C Ratio(X)	0.78	0.30	0.90	0.43	0.03	0.97
Avail Cap(c_a), veh/h	1767	549	661	3953	437	389
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	24.9	20.7	27.8	7.0	22.8	29.7
Incr Delay (d2), s/veh	2.2	0.3	11.8	0.1	0.0	38.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	2.0	9.2	3.3	0.2	11.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	27.0	21.1	39.6	7.1	22.8	68.4
LnGrp LOS	C	C	D	A	C	E
Approach Vol, veh/h	1395			1834	390	
Approach Delay, s/veh	26.4			14.8	67.1	
Approach LOS	C			B	E	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	26.2	29.3			55.4	24.0
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	29.5	27.5			61.5	19.5
Max Q Clear Time (g_c+I1), s	20.7	19.7			12.8	20.8
Green Ext Time (p_c), s	1.0	5.1			15.0	0.0
Intersection Summary						
HCM 6th Ctrl Delay			24.9			
HCM 6th LOS			C			

Year 2020 w/ Project AM
5: Delhaven St & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰ ↱ ↱ ↱			↰ ↱ ↱ ↱					↰			↰
Traffic Vol, veh/h	16	1122	26	46	1265	15	0	0	53	0	0	28
Future Vol, veh/h	16	1122	26	46	1265	15	0	0	53	0	0	28
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	190	-	-	120	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	1220	28	50	1375	16	0	0	58	0	0	30
Major/Minor	Major1		Major2			Minor1			Minor2			
Conflicting Flow All	1391	0	0	1248	0	0	-	-	624	-	-	696
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	5.34	-	-	5.34	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.12	-	-	3.12	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	252	-	-	297	-	-	0	0	367	0	0	329
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	252	-	-	297	-	-	-	-	367	-	-	329
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	0.3		0.7			16.6			17.1			
HCM LOS						C			C			
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	367	252	-	-	297	-	-	329				
HCM Lane V/C Ratio	0.157	0.069	-	-	0.168	-	-	0.093				
HCM Control Delay (s)	16.6	20.3	-	-	19.6	-	-	17.1				
HCM Lane LOS	C	C	-	-	C	-	-	C				
HCM 95th %tile Q(veh)	0.6	0.2	-	-	0.6	-	-	0.3				

Year 2020 w/ Project AM
6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	487	496	100	255	559	132	779	223	223	1786	642
Future Volume (vph)	487	496	100	255	559	132	779	223	223	1786	642
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4		3	8	5	2		1	6	7
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.1	22.5	22.5	10.1	49.2	10.1	47.5	47.5	10.1	49.5	10.1
Total Split (s)	23.0	49.9	49.9	22.3	49.2	11.3	50.8	50.8	17.0	56.5	23.0
Total Split (%)	16.4%	35.6%	35.6%	15.9%	35.1%	8.1%	36.3%	36.3%	12.1%	40.4%	16.4%
Yellow Time (s)	4.1	5.2	5.2	4.1	5.2	4.1	5.5	5.5	4.1	5.5	4.1
All-Red Time (s)	1.0	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	0.0
Total Lost Time (s)	5.1	6.2	6.2	5.1	6.2	5.1	6.5	6.5	5.1	6.5	5.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	Min	None	Min	None
Act Effect Green (s)	18.0	29.9	29.9	14.5	26.4	6.2	44.8	44.8	11.7	50.2	74.8
Actuated g/C Ratio	0.15	0.24	0.24	0.12	0.21	0.05	0.36	0.36	0.09	0.41	0.60
v/c Ratio	1.06	0.44	0.22	0.69	0.68	0.83	0.46	0.33	0.75	0.94	0.71
Control Delay	108.4	40.9	3.0	62.7	45.6	94.4	32.3	5.2	70.5	46.2	21.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	108.4	40.9	3.0	62.7	45.6	94.4	32.3	5.2	70.5	46.2	21.8
LOS	F	D	A	E	D	F	C	A	E	D	C
Approach Delay		67.8			50.3		34.2			42.3	
Approach LOS		E			D		C			D	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 123.9

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.06

Intersection Signal Delay: 46.8

Intersection LOS: D

Intersection Capacity Utilization 85.0%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd

			
Ø1	Ø2	Ø3	Ø4
17 s	50.8 s	22.3 s	49.9 s
			
Ø5	Ø6	Ø7	Ø8
11.3 s	56.5 s	23 s	49.2 s

Timings

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Synchro 10 Report

Year 2020 w/ Project AM
6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	487	496	100	255	559	115	132	779	223	223	1786	642
Future Volume (veh/h)	487	496	100	255	559	115	132	779	223	223	1786	642
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	529	539	104	277	608	118	143	847	230	242	1941	664
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	516	1248	387	343	836	160	179	1935	601	299	2113	893
Arrive On Green	0.15	0.24	0.24	0.10	0.19	0.19	0.05	0.38	0.38	0.09	0.41	0.41
Sat Flow, veh/h	3456	5106	1585	3456	4304	822	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	529	539	104	277	479	247	143	847	230	242	1941	664
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1722	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	17.9	10.7	6.4	9.4	15.8	16.2	4.9	14.8	12.6	8.2	43.1	37.8
Cycle Q Clear(g_c), s	17.9	10.7	6.4	9.4	15.8	16.2	4.9	14.8	12.6	8.2	43.1	37.8
Prop In Lane	1.00		1.00	1.00		0.48	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	516	1248	387	343	661	335	179	1935	601	299	2113	893
V/C Ratio(X)	1.03	0.43	0.27	0.81	0.72	0.74	0.80	0.44	0.38	0.81	0.92	0.74
Avail Cap(c_a), veh/h	516	1860	578	496	1220	618	179	1935	601	343	2129	897
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	51.0	38.3	36.6	52.9	45.3	45.5	56.3	27.7	27.1	53.8	33.2	19.7
Incr Delay (d2), s/veh	46.3	0.2	0.4	6.4	1.5	3.2	22.3	0.2	0.4	12.0	7.0	3.4
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	11.0	4.5	2.5	4.4	6.8	7.2	2.7	6.1	4.9	4.1	18.7	14.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	97.3	38.5	37.0	59.3	46.8	48.7	78.5	27.9	27.5	65.8	40.2	23.1
LnGrp LOS	F	D	D	E	D	D	E	C	C	E	D	C
Approach Vol, veh/h		1172			1003			1220			2847	
Approach Delay, s/veh		64.9			50.7			33.7			38.4	
Approach LOS		E			D			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.5	52.0	17.0	35.5	11.3	56.1	23.0	29.5				
Change Period (Y+Rc), s	5.1	6.5	5.1	6.2	5.1	6.5	5.1	6.2				
Max Green Setting (Gmax), s	11.9	44.3	17.2	43.7	6.2	50.0	17.9	43.0				
Max Q Clear Time (g_c+I1), s	10.2	16.8	11.4	12.7	6.9	45.1	19.9	18.2				
Green Ext Time (p_c), s	0.1	7.6	0.5	4.4	0.0	4.5	0.0	5.1				
Intersection Summary												
HCM 6th Ctrl Delay			44.4									
HCM 6th LOS			D									

Year 2020 w/ Project PM
1: Margarita Rd & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	23	1496	198	1457	731	10	259	22	18
Future Volume (vph)	23	1496	198	1457	731	10	259	22	18
Turn Type	Prot	NA	Prot	NA	Split	NA	pm+ov	NA	Perm
Protected Phases	5	2	1	6	8	8	1	4	
Permitted Phases							8		4
Detector Phase	5	2	1	6	8	8	1	4	4
Switch Phase									
Minimum Initial (s)	6.0	10.0	6.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.6	34.8	10.6	27.8	34.8	34.8	10.6	22.6	22.6
Total Split (s)	10.6	47.6	15.0	52.0	34.8	34.8	15.0	22.6	22.6
Total Split (%)	8.8%	39.7%	12.5%	43.3%	29.0%	29.0%	12.5%	18.8%	18.8%
Yellow Time (s)	3.6	4.8	3.6	4.8	4.8	4.8	3.6	3.6	3.6
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	5.8	4.6	5.8	5.8	5.8	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	C-Min	None	C-Min	None	None	None	None	None
Act Effect Green (s)	6.3	41.8	16.2	56.1	34.7	34.7	56.7	8.6	8.6
Actuated g/C Ratio	0.05	0.35	0.14	0.47	0.29	0.29	0.47	0.07	0.07
v/c Ratio	0.27	1.30	0.90	0.67	0.80	0.02	0.32	0.36	0.09
Control Delay	62.5	172.5	89.9	35.2	46.4	29.7	3.9	60.1	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.5	172.5	89.9	35.2	46.4	29.7	3.9	60.1	0.8
LOS	E	F	F	D	D	C	A	E	A
Approach Delay		171.3		41.7		35.2		42.4	
Approach LOS		F		D		D		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 36 (30%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.30

Intersection Signal Delay: 97.0

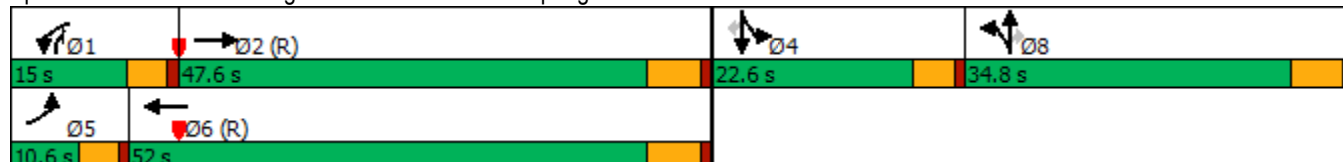
Intersection LOS: F

Intersection Capacity Utilization 94.4%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 1: Margarita Rd & Murrieta Hot Springs Rd



Timings

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Synchro 10 Report

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	1496	605	198	1457	15	731	10	259	21	22	18
Future Volume (veh/h)	23	1496	605	198	1457	15	731	10	259	21	22	18
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	25	1626	625	215	1584	16	795	11	282	23	24	20
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	50	1665	617	154	2669	27	835	452	520	40	42	71
Arrive On Green	0.03	0.45	0.45	0.17	1.00	1.00	0.24	0.24	0.24	0.04	0.04	0.04
Sat Flow, veh/h	1781	3669	1360	1781	5212	53	3456	1870	1585	893	932	1585
Grp Volume(v), veh/h	25	1504	747	215	1034	566	795	11	282	47	0	20
Grp Sat Flow(s),veh/h/ln	1781	1702	1626	1781	1702	1861	1728	1870	1585	1826	0	1585
Q Serve(g_s), s	1.7	51.9	54.4	10.4	0.0	0.0	27.2	0.5	17.4	3.0	0.0	1.5
Cycle Q Clear(g_c), s	1.7	51.9	54.4	10.4	0.0	0.0	27.2	0.5	17.4	3.0	0.0	1.5
Prop In Lane	1.00		0.84	1.00		0.03	1.00		1.00	0.49		1.00
Lane Grp Cap(c), veh/h	50	1544	737	154	1743	953	835	452	520	82	0	71
V/C Ratio(X)	0.50	0.97	1.01	1.39	0.59	0.59	0.95	0.02	0.54	0.58	0.00	0.28
Avail Cap(c_a), veh/h	89	1544	737	154	1743	953	835	452	520	274	0	238
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.83	0.83	0.83	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.5	32.1	32.8	49.6	0.0	0.0	44.8	34.7	32.9	56.2	0.0	55.5
Incr Delay (d2), s/veh	7.4	17.5	36.4	206.1	1.2	2.3	20.3	0.0	1.1	6.3	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	24.4	28.1	13.0	0.3	0.6	13.9	0.3	6.8	1.5	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.8	49.6	69.1	255.7	1.2	2.3	65.2	34.7	34.1	62.5	0.0	57.6
LnGrp LOS	E	D	F	F	A	A	E	C	C	E	A	E
Approach Vol, veh/h		2276			1815			1088			67	
Approach Delay, s/veh		56.2			31.7			56.8			61.0	
Approach LOS		E			C			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.0	60.2		10.0	8.0	67.3		34.8				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		5.8				
Max Green Setting (Gmax), s	10.4	41.8		18.0	6.0	46.2		29.0				
Max Q Clear Time (g_c+I1), s	12.4	56.4		5.0	3.7	2.0		29.2				
Green Ext Time (p_c), s	0.0	0.0		0.2	0.0	16.8		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			47.9									
HCM 6th LOS			D									

Year 2020 w/ Project PM
2: Via Princesa & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		  			  					
Traffic Volume (vph)	203	1455	58	49	1452	79	15	28	17	147
Future Volume (vph)	203	1455	58	49	1452	79	15	28	17	147
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6		8		4	
Permitted Phases			2			8		4		4
Detector Phase	5	2	2	1	6	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.6	25.8	25.8	10.6	25.8	27.6	27.6	33.6	33.6	33.6
Total Split (s)	24.0	72.8	72.8	13.6	62.4	33.6	33.6	33.6	33.6	33.6
Total Split (%)	20.0%	60.7%	60.7%	11.3%	52.0%	28.0%	28.0%	28.0%	28.0%	28.0%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	None	None	None	None	None
Act Effect Green (s)	19.1	83.8	83.8	8.4	71.0	14.9	14.9	14.9	14.9	14.9
Actuated g/C Ratio	0.16	0.70	0.70	0.07	0.59	0.12	0.12	0.12	0.12	0.12
v/c Ratio	0.79	0.45	0.06	0.43	0.54	0.50	0.26	0.18	0.08	0.48
Control Delay	56.1	4.3	0.1	64.1	17.0	56.7	19.0	45.6	42.5	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.1	4.3	0.1	64.1	17.0	56.7	19.0	45.6	42.5	11.0
LOS	E	A	A	E	B	E	B	D	D	B
Approach Delay		10.3			18.5		40.7		18.7	
Approach LOS		B			B		D		B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 56 (47%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 15.4

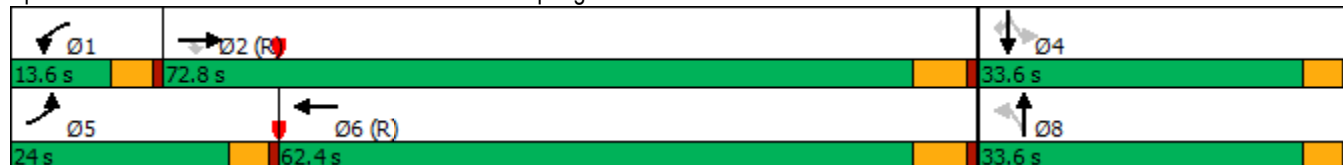
Intersection LOS: B

Intersection Capacity Utilization 63.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: Via Princesa & Murrieta Hot Springs Rd



Timings

N:\2934\Analysis\8. 2020+P PM.syn

Synchro 10 Report

Year 2020 w/ Project PM
2: Via Princesa & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	203	1455	58	49	1452	42	79	15	43	28	17	147
Future Volume (veh/h)	203	1455	58	49	1452	42	79	15	43	28	17	147
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	221	1582	63	53	1578	46	86	16	47	30	18	160
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	245	3642	1131	74	3146	92	195	50	148	174	225	191
Arrive On Green	0.28	1.00	1.00	0.04	0.62	0.62	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	1781	5106	1585	1781	5099	149	1206	419	1230	1339	1870	1585
Grp Volume(v), veh/h	221	1582	63	53	1053	571	86	0	63	30	18	160
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1702	1844	1206	0	1649	1339	1870	1585
Q Serve(g_s), s	14.3	0.0	0.0	3.5	20.6	20.6	8.2	0.0	4.2	2.5	1.0	11.9
Cycle Q Clear(g_c), s	14.3	0.0	0.0	3.5	20.6	20.6	9.2	0.0	4.2	6.7	1.0	11.9
Prop In Lane	1.00		1.00	1.00		0.08	1.00		0.75	1.00		1.00
Lane Grp Cap(c), veh/h	245	3642	1131	74	2101	1138	195	0	198	174	225	191
V/C Ratio(X)	0.90	0.43	0.06	0.72	0.50	0.50	0.44	0.00	0.32	0.17	0.08	0.84
Avail Cap(c_a), veh/h	288	3642	1131	134	2101	1138	341	0	398	337	452	383
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.09	0.09	0.09	0.66	0.66	0.66	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.7	0.0	0.0	56.8	12.7	12.7	51.0	0.0	48.3	51.4	46.9	51.7
Incr Delay (d2), s/veh	3.5	0.0	0.0	8.3	0.6	1.0	1.6	0.0	0.9	0.5	0.2	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	5.6	0.0	0.0	1.8	7.7	8.5	2.6	0.0	1.8	0.9	0.5	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.2	0.0	0.0	65.1	13.3	13.8	52.5	0.0	49.2	51.8	47.0	61.1
LnGrp LOS	D	A	A	E	B	B	D	A	D	D	D	E
Approach Vol, veh/h	1866				1677				149			
Approach Delay, s/veh	5.5				15.1				51.1			
Approach LOS	A				B				D			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.6	91.4		19.0	21.1	79.8		19.0				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		4.6				
Max Green Setting (Gmax), s	9.0	67.0		29.0	19.4	56.6		29.0				
Max Q Clear Time (g_c+I1), s	5.5	2.0		13.9	16.3	22.6		11.2				
Green Ext Time (p_c), s	0.0	20.2		0.6	0.2	15.6		0.5				
Intersection Summary												
HCM 6th Ctrl Delay	14.2											
HCM 6th LOS	B											

Year 2020 w/ Project PM
3: Calle Del Lago & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		  		  		 		 
Traffic Volume (vph)	93	1496	36	1536	4	0	3	0
Future Volume (vph)	93	1496	36	1536	4	0	3	0
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4	3	8		2		6
Permitted Phases					2		6	
Detector Phase	7	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	18.0	53.0	12.0	47.0	25.0	25.0	25.0	25.0
Total Split (%)	20.0%	58.9%	13.3%	52.2%	27.8%	27.8%	27.8%	27.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5		4.5
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Max	Max	Max	Max
Act Effect Green (s)	10.0	43.6	6.9	38.6		21.2		21.2
Actuated g/C Ratio	0.12	0.54	0.09	0.48		0.26		0.26
v/c Ratio	0.46	0.61	0.26	0.69		0.10		0.03
Control Delay	42.7	14.0	42.8	18.6		0.4		0.1
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	42.7	14.0	42.8	18.6		0.4		0.1
LOS	D	B	D	B		A		A
Approach Delay		15.6		19.2		0.4		0.1
Approach LOS		B		B		A		A

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 80.6

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 17.0

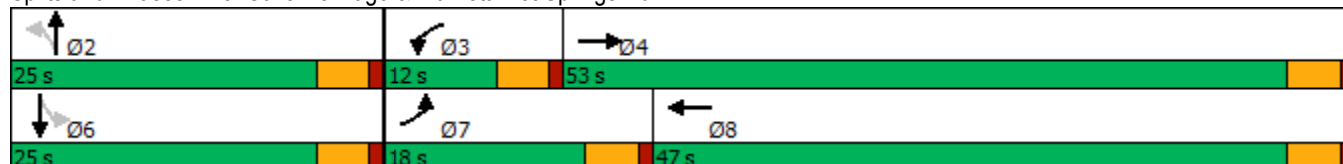
Intersection LOS: B

Intersection Capacity Utilization 50.5%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: Calle Del Lago & Murrieta Hot Springs Rd



Timings

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Synchro 10 Report

Year 2020 w/ Project PM
3: Calle Del Lago & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (veh/h)	93	1496	36	36	1536	11	4	0	45	3	0	11
Future Volume (veh/h)	93	1496	36	36	1536	11	4	0	45	3	0	11
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	101	1626	39	39	1670	12	4	0	49	3	0	12
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	131	2538	61	67	2398	17	65	23	415	116	32	354
Arrive On Green	0.07	0.49	0.49	0.04	0.46	0.46	0.28	0.00	0.28	0.28	0.00	0.28
Sat Flow, veh/h	1781	5129	123	1781	5230	38	40	80	1472	199	115	1255
Grp Volume(v), veh/h	101	1079	586	39	1087	595	53	0	0	15	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1848	1781	1702	1864	1592	0	0	1569	0	0
Q Serve(g_s), s	4.0	17.0	17.0	1.6	18.5	18.5	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.0	17.0	17.0	1.6	18.5	18.5	1.8	0.0	0.0	0.5	0.0	0.0
Prop In Lane	1.00		0.07	1.00		0.02	0.08		0.92	0.20		0.80
Lane Grp Cap(c), veh/h	131	1684	914	67	1561	854	502	0	0	502	0	0
V/C Ratio(X)	0.77	0.64	0.64	0.58	0.70	0.70	0.11	0.00	0.00	0.03	0.00	0.00
Avail Cap(c_a), veh/h	331	2271	1233	184	1990	1090	502	0	0	502	0	0
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	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	33.1	13.6	13.6	34.4	15.7	15.7	19.4	0.0	0.0	18.9	0.0	0.0
Incr Delay (d2), s/veh	9.0	0.4	0.8	7.8	0.8	1.4	0.4	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	5.9	6.5	0.8	6.6	7.4	0.7	0.0	0.0	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.1	14.0	14.3	42.3	16.4	17.0	19.8	0.0	0.0	19.0	0.0	0.0
LnGrp LOS	D	B	B	D	B	B	B	A	A	B	A	A
Approach Vol, veh/h		1766			1721			53			15	
Approach Delay, s/veh		15.7			17.2			19.8			19.0	
Approach LOS		B			B			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		25.0	7.2	40.5		25.0	9.9	37.8				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		20.5	7.5	48.5		20.5	13.5	42.5				
Max Q Clear Time (g_c+I1), s		3.8	3.6	19.0		2.5	6.0	20.5				
Green Ext Time (p_c), s		0.2	0.0	15.0		0.0	0.1	12.9				
Intersection Summary												
HCM 6th Ctrl Delay			16.5									
HCM 6th LOS			B									

Year 2020 w/ Project PM
4: Date St & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening
03/04/2020

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↘	↑↑↑	↘	↑
Traffic Volume (vph)	1544	170	230	1564	16	550
Future Volume (vph)	1544	170	230	1564	16	550
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2				8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	40.0	40.0	20.0	60.0	30.0	30.0
Total Split (%)	44.4%	44.4%	22.2%	66.7%	33.3%	33.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Min	Min	None	Min	None	None
Act Effect Green (s)	34.6	34.6	14.7	53.9	21.2	21.2
Actuated g/C Ratio	0.41	0.41	0.17	0.64	0.25	0.25
v/c Ratio	0.80	0.25	0.81	0.52	0.04	0.92
Control Delay	26.3	6.7	56.6	9.5	23.8	35.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.3	6.7	56.6	9.5	23.8	35.3
LOS	C	A	E	A	C	D
Approach Delay	24.4			15.5	34.9	
Approach LOS	C			B	C	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 84.2

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 21.9

Intersection LOS: C

Intersection Capacity Utilization 71.4%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 4: Date St & Murrieta Hot Springs Rd



Timings

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Synchro 10 Report

Year 2020 w/ Project PM
4: Date St & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↓	↑↑↑	↓	↑
Traffic Volume (veh/h)	1544	170	230	1564	16	550
Future Volume (veh/h)	1544	170	230	1564	16	550
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1678	185	250	1700	17	538
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1995	619	287	3081	522	465
Arrive On Green	0.39	0.39	0.16	0.60	0.29	0.29
Sat Flow, veh/h	5274	1585	1781	5274	1781	1585
Grp Volume(v), veh/h	1678	185	250	1700	17	538
Grp Sat Flow(s),veh/h/ln	1702	1585	1781	1702	1781	1585
Q Serve(g_s), s	25.9	7.0	11.9	17.2	0.6	25.5
Cycle Q Clear(g_c), s	25.9	7.0	11.9	17.2	0.6	25.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1995	619	287	3081	522	465
V/C Ratio(X)	0.84	0.30	0.87	0.55	0.03	1.16
Avail Cap(c_a), veh/h	2084	647	317	3258	522	465
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	24.1	18.3	35.6	10.3	21.9	30.7
Incr Delay (d2), s/veh	3.2	0.3	20.9	0.2	0.0	92.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.5	2.5	6.7	5.7	0.2	21.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	27.2	18.5	56.5	10.4	22.0	123.6
LnGrp LOS	C	B	E	B	C	F
Approach Vol, veh/h	1863			1950	555	
Approach Delay, s/veh	26.4			16.3	120.4	
Approach LOS	C			B	F	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	18.5	38.5			57.0	30.0
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	15.5	35.5			55.5	25.5
Max Q Clear Time (g_c+I1), s	13.9	27.9			19.2	27.5
Green Ext Time (p_c), s	0.1	6.0			18.1	0.0
Intersection Summary						
HCM 6th Ctrl Delay			33.8			
HCM 6th LOS			C			

Year 2020 w/ Project PM
5: Delhaven St & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰ ↑↑↑			↰ ↑↑↑					↰			↰
Traffic Vol, veh/h	33	1495	37	67	1560	37	0	0	107	0	0	19
Future Vol, veh/h	33	1495	37	67	1560	37	0	0	107	0	0	19
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	190	-	-	120	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	36	1625	40	73	1696	40	0	0	116	0	0	21
Major/Minor	Major1		Major2			Minor1			Minor2			
Conflicting Flow All	1736	0	0	1665	0	0	-	-	833	-	-	868
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	5.34	-	-	5.34	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.12	-	-	3.12	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	170	-	-	184	-	-	0	0	268	0	0	254
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	170	-	-	184	-	-	-	-	268	-	-	254
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	0.7		1.5			28.3			20.4			
HCM LOS						D			C			
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	268	170	-	-	184	-	-	254				
HCM Lane V/C Ratio	0.434	0.211	-	-	0.396	-	-	0.081				
HCM Control Delay (s)	28.3	31.8	-	-	36.8	-	-	20.4				
HCM Lane LOS	D	D	-	-	E	-	-	C				
HCM 95th %tile Q(veh)	2.1	0.8	-	-	1.7	-	-	0.3				

Year 2020 w/ Project PM
6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	634	764	176	288	754	222	1622	272	223	971	636
Future Volume (vph)	634	764	176	288	754	222	1622	272	223	971	636
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4		3	8	5	2		1	6	7
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.1	22.5	22.5	10.1	49.2	10.1	47.5	47.5	10.1	49.5	10.1
Total Split (s)	29.1	53.0	53.0	25.3	49.2	17.6	56.9	56.9	14.8	54.1	29.1
Total Split (%)	19.4%	35.3%	35.3%	16.9%	32.8%	11.7%	37.9%	37.9%	9.9%	36.1%	19.4%
Yellow Time (s)	4.1	5.2	5.2	4.1	5.2	4.1	5.5	5.5	4.1	5.5	4.1
All-Red Time (s)	1.0	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	0.0
Total Lost Time (s)	5.1	6.2	6.2	5.1	6.2	5.1	6.5	6.5	5.1	6.5	5.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	Min	None	Min	None
Act Effect Green (s)	24.0	41.6	41.6	17.4	35.0	12.3	50.5	50.5	9.7	47.9	78.4
Actuated g/C Ratio	0.17	0.29	0.29	0.12	0.25	0.09	0.36	0.36	0.07	0.34	0.55
v/c Ratio	1.19	0.56	0.33	0.75	0.78	0.81	0.98	0.40	1.03	0.62	0.77
Control Delay	150.5	44.3	10.8	72.0	53.4	85.1	61.6	7.3	130.6	42.0	30.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	150.5	44.3	10.8	72.0	53.4	85.1	61.6	7.3	130.6	42.0	30.6
LOS	F	D	B	E	D	F	E	A	F	D	C
Approach Delay		83.3			58.0		57.0			48.8	
Approach LOS		F			E		E			D	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 142.1

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.19

Intersection Signal Delay: 61.1

Intersection LOS: E

Intersection Capacity Utilization 92.4%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd

			
Ø1	Ø2	Ø3	Ø4
14.8 s	56.9 s	25.3 s	53 s
			
Ø5	Ø6	Ø7	Ø8
17.6 s	54.1 s	29.1 s	49.2 s

Timings

N:\2934\Analysis\8. 2020+P PM.syn

Synchro 10 Report

Year 2020 w/ Project PM
6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	634	764	176	288	754	133	222	1622	272	223	971	636
Future Volume (veh/h)	634	764	176	288	754	133	222	1622	272	223	971	636
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	689	830	181	313	820	137	241	1763	282	242	1055	657
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	595	1524	473	371	1030	171	289	1841	572	240	1769	822
Arrive On Green	0.17	0.30	0.30	0.11	0.23	0.23	0.08	0.36	0.36	0.07	0.35	0.35
Sat Flow, veh/h	3456	5106	1585	3456	4411	732	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	689	830	181	313	632	325	241	1763	282	242	1055	657
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1739	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	24.0	19.0	12.6	12.4	24.4	24.6	9.6	47.0	19.3	9.7	23.7	47.5
Cycle Q Clear(g_c), s	24.0	19.0	12.6	12.4	24.4	24.6	9.6	47.0	19.3	9.7	23.7	47.5
Prop In Lane	1.00		1.00	1.00		0.42	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	595	1524	473	371	795	406	289	1841	572	240	1769	822
V/C Ratio(X)	1.16	0.54	0.38	0.84	0.79	0.80	0.83	0.96	0.49	1.01	0.60	0.80
Avail Cap(c_a), veh/h	595	1714	532	501	1050	536	310	1846	573	240	1769	822
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	57.7	41.0	38.7	61.1	50.3	50.4	62.9	43.5	34.7	64.9	37.5	27.6
Incr Delay (d2), s/veh	89.0	0.3	0.5	9.6	3.2	6.4	16.7	12.4	0.7	59.7	0.5	5.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.8	8.1	5.0	5.9	10.7	11.4	4.9	21.8	7.6	6.3	10.0	19.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	146.7	41.3	39.3	70.7	53.5	56.8	79.6	56.0	35.3	124.6	38.1	33.2
LnGrp LOS	F	D	D	E	D	E	E	E	D	F	D	C
Approach Vol, veh/h		1700			1270			2286			1954	
Approach Delay, s/veh		83.8			58.6			55.9			47.2	
Approach LOS		F			E			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.8	56.8	20.1	47.8	16.8	54.8	29.1	38.8				
Change Period (Y+Rc), s	5.1	6.5	5.1	6.2	5.1	6.5	5.1	6.2				
Max Green Setting (Gmax), s	9.7	50.4	20.2	46.8	12.5	47.6	24.0	43.0				
Max Q Clear Time (g_c+I1), s	11.7	49.0	14.4	21.0	11.6	49.5	26.0	26.6				
Green Ext Time (p_c), s	0.0	1.3	0.6	7.1	0.1	0.0	0.0	6.0				
Intersection Summary												
HCM 6th Ctrl Delay			60.6									
HCM 6th LOS			E									

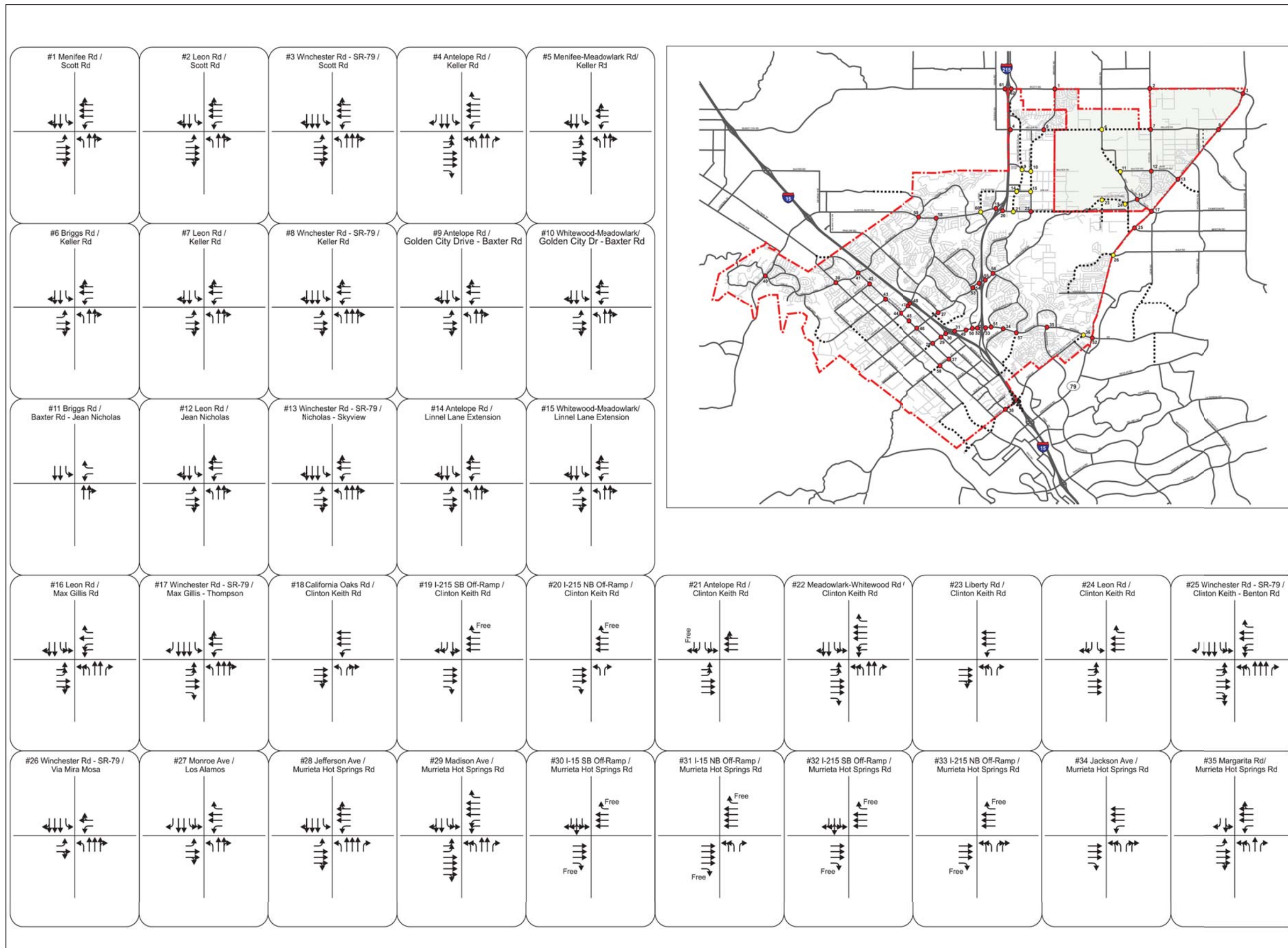
APPENDIX F

COPY OF THE YEAR 2035 INTERSECTION GEOMETRY AND PEAK HOUR VOLUMES FROM THE CITY OF MURRIETA GENERAL PLAN, PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – YEAR 2035



LEGEND

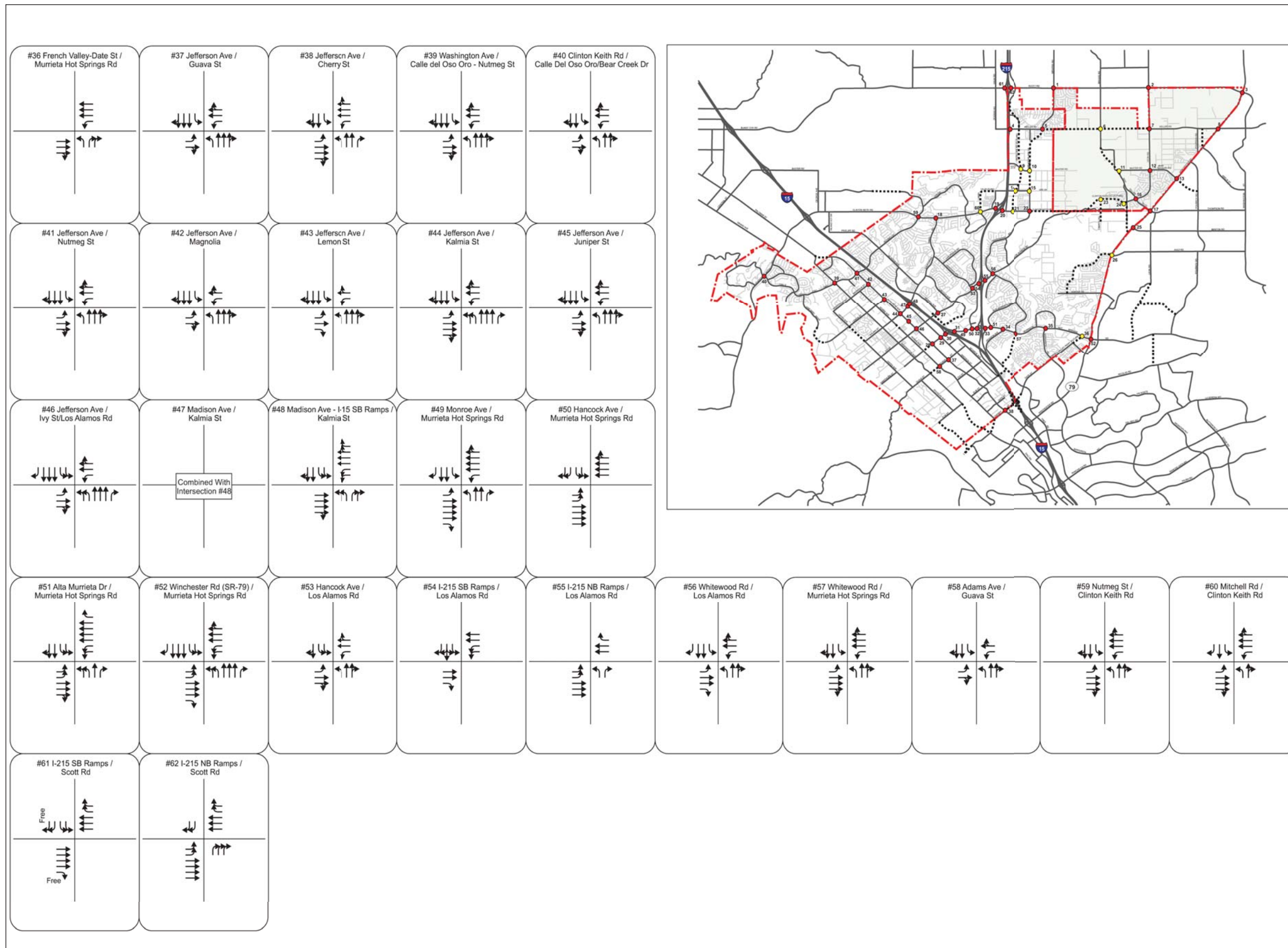
- Through Lane
- ↪ Turn Lane
- ↔ Shared Lane
- * Assumed Lane Configuration





LEGEND

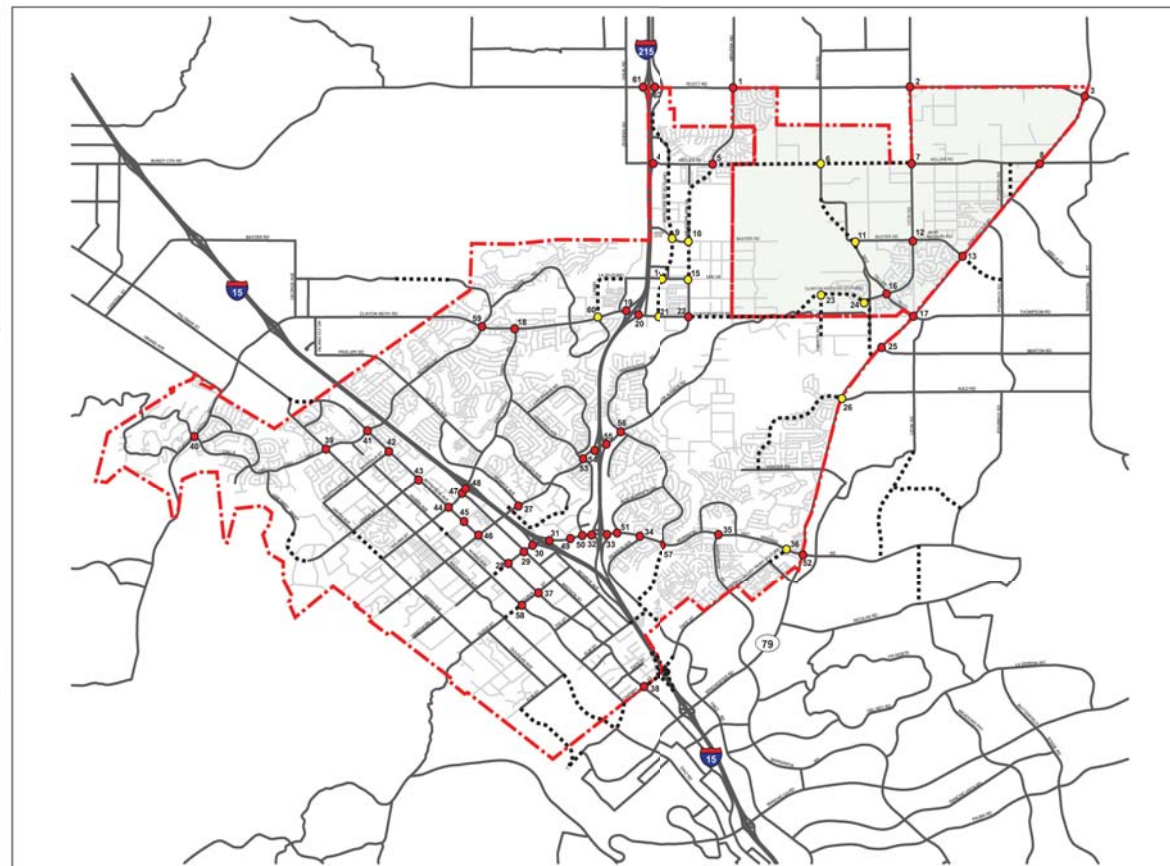
- Through Lane
- ↪ Turn Lane
- ↔ Shared Lane
- * Assumed Lane Configuration





LEGEND

- Existing Study Intersection
- Future Study Intersection
- City of Murrieta Boundary
- Sphere of Influence
- Future Roadway Alignment
- ←31/20 AM Peak Hr/PM Peak Hr

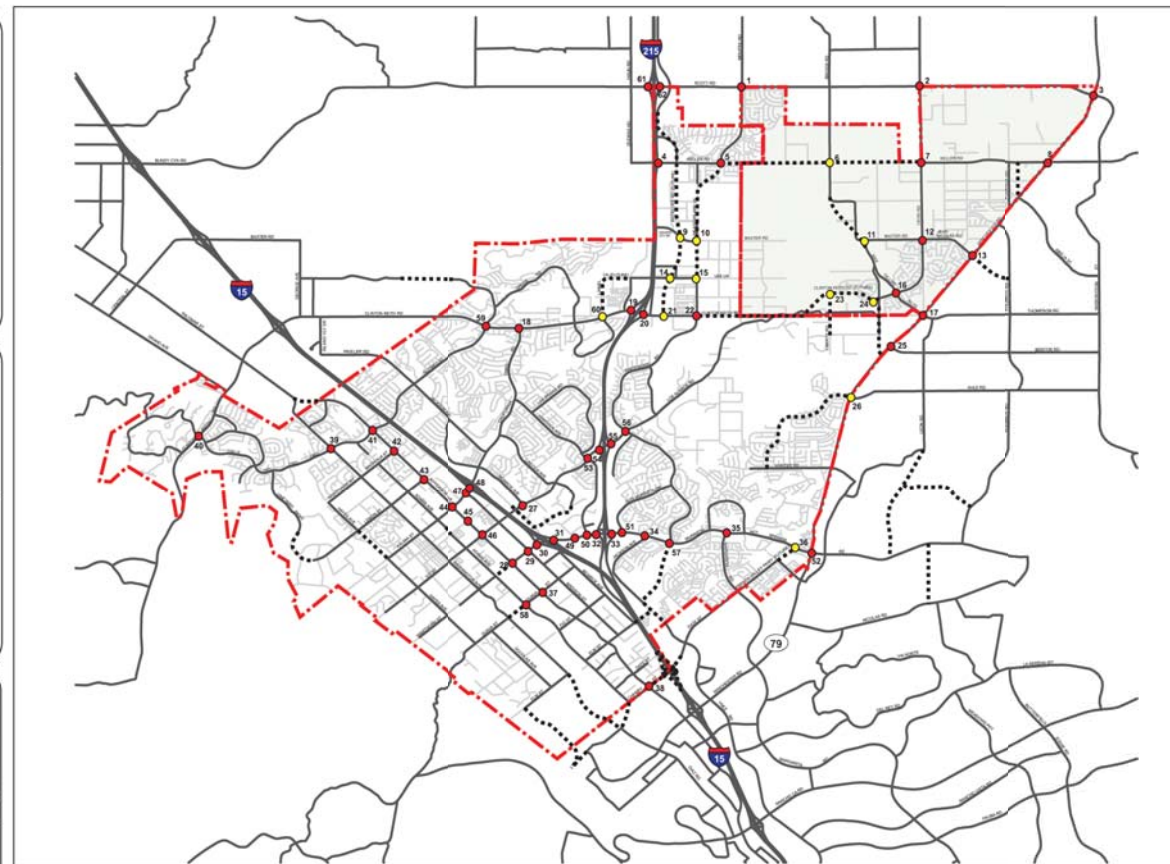


#1 Menifee Rd / Scott Rd 93 (99) 251 (566) 845 (284) 479 (546) 253 (96) 864 (408) 102 (272) 374 (860) 510 (967) 358 (672) 316 (458) 238 (291)	#2 Leon Rd / Scott Rd 189 (73) 157 (155) 101 (63) 360 (374) 104 (209) 14 (4) 353 (580) 2 (18) 438 (525) 198 (411) 498 (505) 104 (563)	#3 Winchester Rd - SR-79 / Scott Rd 111 (113) 963 (1066) 178 (286) 151 (222) 68 (119) 17 (0) 51 (29) 1376 (2492) 110 (126) 1376 (2492)	#4 Antelope Rd / Keller Rd 27 (167) 467 (658) 758 (228) 66 (923) 328 (870) 43 (556) 405 (828) 791 (753) 1203 (209) 66 (923)	#5 Menifee-Meadowlark Rd / Keller Rd 125 (121) 400 (392) 299 (176) 251 (822) 226 (1077) 23 (174) 495 (765) 199 (314) 565 (468) 251 (822)
#6 Briggs Rd / Keller Rd 1 (6) 344 (295) 15 (9) 15 (9) 1 (20) 53 (105) 72 (347) 17 (122) 492 (765) 346 (300)	#7 Leon Rd / Keller Rd 5 (3) 65 (190) 1 (1) 18 (1) 2 (88) 330 (926) 60 (81) 111 (62) 106 (281) 111 (62)	#8 Winchester Rd - SR-79 / Keller Rd 50 (25) 20 (16) 13 (10) 13 (10) 1 (2) 25 (28) 10 (59) 1512 (2693) 1 (2) 1 (1)	#9 Antelope Rd / Golden City Drive - Baxter Rd 604 (896) 203 (178) 397 (354) 515 (941) 88 (428) 1 (4) 75 (202) 11 (46)	#10 Whitewood-Meadowlark / Golden City Dr - Baxter Rd 2 (2) 15 (7) 1 (0) 2 (3) 688 (1410) 316 (280) 59 (319) 4 (12) 739 (967) 316 (280)
#11 Briggs Rd / Baxter Rd - Jean Nicholas 75 (87) 9 (10) 43 (89) 206 (430) 145 (128) 13 (12)	#12 Leon Rd / Jean Nicholas 249 (446) 22 (123) 157 (114) 126 (263) 183 (530) 5 (2) 2 (2) 132 (118)	#13 Winchester Rd - SR-79 / Nicholas - Skyview 166 (125) 327 (439) 106 (150) 338 (209) 330 (650) 138 (196) 37 (37) 132 (118)	#14 Antelope Rd / Linnel Lane Extension 220 (426) 120 (562) 6 (58) 96 (99) 757 (637) 21 (42) 199 (117) 507 (363) 125 (394) 114 (154)	#15 Whitewood-Meadowlark / Linnel Lane Extension 324 (779) 144 (775) 45 (223) 678 (636) 797 (819) 18 (41) 556 (335) 114 (154)
#16 Leon Rd / Max Gillis Rd 182 (365) 322 (344) 631 (565) 100 (100) 470 (199) 767 (465)	#17 Winchester Rd - SR-79 / Max Gillis - Thompson 39 (87) 298 (242) 31 (32) 46 (80) 609 (759) 165 (310) 279 (140) 200 (226)	#18 California Oaks Rd / Clinton Keith Rd 1675 (2820) 773 (439) 2680 (2396) 307 (112) 669 (1024) 204 (312)	#19 I-215 SB Off-Ramp / Clinton Keith Rd 227 (219) 2089 (2369) 2401 (2930) 496 (784) 1393 (492) 162 (409)	#20 I-215 NB Off-Ramp / Clinton Keith Rd 233 (314) 2305 (2836) 1797 (1562) 334 (280) 1393 (492) 162 (409)
#21 Antelope Rd / Clinton Keith Rd 296 (427) 1643 (1645) 388 (117) 1869 (2128)	#22 Meadowlark-Whitewood Rd / Clinton Keith Rd 594 (1031) 1187 (701) 943 (314) 1083 (589) 1386 (352) 230 (337) 486 (1452) 133 (748)	#23 Liberty Rd / Clinton Keith Rd 2610 (2078) 44 (41) 1615 (2323) 205 (323) 217 (286) 65 (81)	#24 Leon Rd / Clinton Keith Rd 561 (877) 858 (913) 396 (638) 1420 (1950) 368 (738) 1366 (2486) 490 (462) 978 (1387)	#25 Winchester Rd - SR-79 / Benton Rd 32 (92) 614 (720) 344 (241) 38 (83) 470 (704) 978 (1387)
#26 Winchester Rd - SR-79 / Via Mira Mosa 29 (129) 19 (40) 177 (229) 358 (229) 49 (28) 95 (54)	#27 Monroe Ave / Los Alamos 473 (467) 994 (975) 63 (84) 46 (229) 351 (1460) 134 (165)	#28 Jefferson Ave / Murrieta Hot Springs Rd 921 (891) 93 (90) 876 (581) 15 (40) 76 (210) 21 (111)	#29 Madison Ave / Murrieta Hot Springs Rd 74 (189) 1769 (1185) 754 (791) 117 (346) 1137 (1505) 271 (279)	#30 I-15 SB Off-Ramp / Murrieta Hot Springs Rd 47 (112) 2301 (2188) 1385 (2533) 215 (487)
#31 I-15 NB Off-Ramp / Murrieta Hot Springs Rd 598 (1637) 1546 (1582) 2202 (2848) 210 (370)	#32 I-215 SB Off-Ramp / Murrieta Hot Springs Rd 378 (238) 2599 (2338) 1838 (3377) 53 (139)	#33 I-215 NB Off-Ramp / Murrieta Hot Springs Rd 663 (383) 2623 (2361) 1583 (2331) 115 (104)	#34 Jackson Ave / Murrieta Hot Springs Rd 2024 (2568) 149 (213) 1217 (1910) 38 (59)	#35 Margarita Rd / Murrieta Hot Springs Rd 71 (38) 1793 (1609) 302 (273) 128 (383) 60 (69) 640 (333)



LEGEND

- Existing Study Intersection
- Future Study Intersection
- City of Murrieta Boundary
- Sphere of Influence
- Future Roadway Alignment
- ←31/20 AM Peak Hr/PM Peak Hr



#36 French Valley-Date St / Murrieta Hot Springs Rd 1182 (1808) 269 (343)	#37 Jefferson Ave / Guava St 176 (103) 108 (86) 89 (133)	#38 Jefferson Ave / Cherry St 48 (1360) 6 (40)	#39 Washington Ave / Calle del Oso Oro - Nutmeg St 64 (28) 602 (209) 742 (276)	#40 Clinton Keith Rd / Calle Del Oso Oro/Bear Creek Dr 269 (187) 613 (520) 172 (142)
#41 Jefferson Ave / Nutmeg St 93 (61) 223 (133) 509 (249)	#42 Jefferson Ave / Magnolia 158 (159) 1 (5) 155 (56)	#43 Jefferson Ave / Lemon St 31 (42) 3 (39) 334 (270)	#44 Jefferson Ave / Kalmia St 55 (34) 502 (658) 349 (281)	#45 Jefferson Ave / Juniper St 137 (338) 99 (90) 188 (378)
#46 Jefferson Ave / Ivy St/Los Alamos Rd 49 (90) 95 (224) 129 (187)	#47 Madison Ave / Kalmia St Does Not Exist	#48 Madison Ave - I-15 SB Ramps / Kalmia St 1459 (2534) 245 (265)	#49 Monroe Ave / Murrieta Hot Springs Rd 101 (164) 1156 (2579) 34 (154)	#50 Hancock Ave / Murrieta Hot Springs Rd 697 (755) 1520 (3291)
#51 Alta Murrieta Dr / Murrieta Hot Springs Rd 258 (698) 982 (1702) 282 (518)	#52 Winchester Rd (SR-79) / Murrieta Hot Springs Rd 768 (1478) 265 (1036) 95 (280)	#53 Hancock Ave / Los Alamos Rd 71 (05) 969 (1967) 72 (46)	#54 I-215 SB Ramps / Los Alamos Rd 1419 (3121) 478 (446)	#55 I-215 NB Ramps / Los Alamos Rd 591 (1589) 1233 (1996)
#56 Whitewood Rd / Los Alamos Rd 823 (867) 232 (361) 109 (298)	#57 Whitewood Rd / Murrieta Hot Springs Rd 32 (166) 1001 (1645) 132 (172)	#58 Adams Ave / Guava St 23 (59) 324 (243) 46 (181)	#59 Nutmeg St / Clinton Keith Rd 50 (92) 2123 (1775) 110 (61)	#60 Mitchell Rd / Clinton Keith Rd 203 (135) 2903 (3159) 312 (18)
#61 I-215 SB Ramps / Scott Rd 1052 (756) 385 (392)	#62 I-215 NB Ramps / Scott Rd 156 (80) 1199 (1012)			

Year 2035 w/o Project AM
1: Margarita Rd & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	161	750	462	302	1793	649	60	128	17	7
Future Volume (vph)	161	750	462	302	1793	649	60	128	17	7
Turn Type	Prot	NA	Perm	Prot	NA	Split	NA	Perm	NA	Perm
Protected Phases	5	2		1	6	8	8		4	
Permitted Phases			2					8		4
Detector Phase	5	2	2	1	6	8	8	8	4	4
Switch Phase										
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.6	34.8	34.8	10.6	27.8	34.8	34.8	34.8	22.6	22.6
Total Split (s)	15.0	40.6	40.6	22.0	47.6	34.8	34.8	34.8	22.6	22.6
Total Split (%)	12.5%	33.8%	33.8%	18.3%	39.7%	29.0%	29.0%	29.0%	18.8%	18.8%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	4.8	4.8	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	5.8	5.8	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	None	None	None	None	None
Act Effect Green (s)	15.7	34.8	34.8	25.5	44.6	31.4	31.4	31.4	9.6	9.6
Actuated g/C Ratio	0.13	0.29	0.29	0.21	0.37	0.26	0.26	0.26	0.08	0.08
v/c Ratio	0.76	0.79	0.62	0.87	1.08	0.79	0.13	0.26	0.44	0.03
Control Delay	73.1	46.1	6.5	73.5	74.3	47.8	33.3	5.5	61.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.1	46.1	6.5	73.5	74.3	47.8	33.3	5.5	61.4	0.1
LOS	E	D	A	E	E	D	C	A	E	A
Approach Delay		35.9			74.2		40.3		54.5	
Approach LOS		D			E		D		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 85 (71%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 135

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 55.7

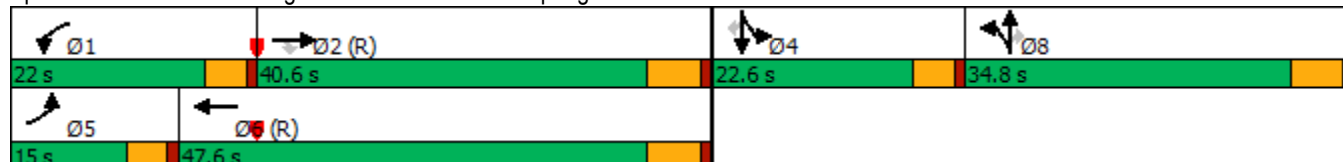
Intersection LOS: E

Intersection Capacity Utilization 83.8%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: Margarita Rd & Murrieta Hot Springs Rd



Year 2035 w/o Project AM
1: Margarita Rd & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	161	750	462	302	1793	71	649	60	128	41	17	7
Future Volume (veh/h)	161	750	462	302	1793	71	649	60	128	41	17	7
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	175	815	502	328	1949	77	705	65	139	45	18	8
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	154	1451	647	258	2352	93	780	422	358	61	25	76
Arrive On Green	0.09	0.41	0.41	0.29	0.93	0.93	0.23	0.23	0.23	0.05	0.05	0.05
Sat Flow, veh/h	1781	3554	1585	1781	5040	199	3456	1870	1585	1290	516	1585
Grp Volume(v), veh/h	175	815	502	328	1315	711	705	65	139	63	0	8
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1702	1835	1728	1870	1585	1806	0	1585
Q Serve(g_s), s	10.4	21.1	32.9	17.4	13.6	13.8	23.8	3.3	8.9	4.1	0.0	0.6
Cycle Q Clear(g_c), s	10.4	21.1	32.9	17.4	13.6	13.8	23.8	3.3	8.9	4.1	0.0	0.6
Prop In Lane	1.00		1.00	1.00		0.11	1.00		1.00	0.71		1.00
Lane Grp Cap(c), veh/h	154	1451	647	258	1589	856	780	422	358	86	0	76
V/C Ratio(X)	1.13	0.56	0.78	1.27	0.83	0.83	0.90	0.15	0.39	0.73	0.00	0.11
Avail Cap(c_a), veh/h	154	1451	647	258	1589	856	835	452	383	271	0	238
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.8	27.3	30.7	42.6	2.6	2.6	45.2	37.3	39.4	56.4	0.0	54.7
Incr Delay (d2), s/veh	112.8	1.6	8.8	131.5	1.8	3.3	12.7	0.2	0.7	11.3	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.5	9.2	13.9	15.9	1.7	2.2	11.5	1.6	3.6	2.2	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	167.6	28.8	39.6	174.1	4.3	5.8	57.9	37.4	40.1	67.7	0.0	55.3
LnGrp LOS	F	C	D	F	A	A	E	D	D	E	A	E
Approach Vol, veh/h		1492			2354			909			71	
Approach Delay, s/veh		48.7			28.4			53.7			66.3	
Approach LOS		D			C			D			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	22.0	54.8		10.3	15.0	61.8		32.9				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		5.8				
Max Green Setting (Gmax), s	17.4	34.8		18.0	10.4	41.8		29.0				
Max Q Clear Time (g_c+I1), s	19.4	34.9		6.1	12.4	15.8		25.8				
Green Ext Time (p_c), s	0.0	0.0		0.2	0.0	17.6		1.3				
Intersection Summary												
HCM 6th Ctrl Delay			40.0									
HCM 6th LOS			D									

Year 2035 w/o Project AM
2: Via Princesa & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	100	1300	50	60	1900	100	10	35	20	200
Future Volume (vph)	100	1300	50	60	1900	100	10	35	20	200
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6		8		4	
Permitted Phases			2			8		4		4
Detector Phase	5	2	2	1	6	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.6	25.8	25.8	10.6	25.8	27.6	27.6	33.6	33.6	33.6
Total Split (s)	12.8	71.8	71.8	14.6	73.6	33.6	33.6	33.6	33.6	33.6
Total Split (%)	10.7%	59.8%	59.8%	12.2%	61.3%	28.0%	28.0%	28.0%	28.0%	28.0%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	None	None	None	None	None
Act Effect Green (s)	12.3	81.7	81.7	9.1	76.3	16.4	16.4	16.4	16.4	16.4
Actuated g/C Ratio	0.10	0.68	0.68	0.08	0.64	0.14	0.14	0.14	0.14	0.14
v/c Ratio	0.60	0.59	0.05	0.49	0.93	0.58	0.21	0.21	0.09	0.67
Control Delay	58.3	14.9	5.2	65.3	29.8	59.0	17.4	45.2	41.9	29.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.3	14.9	5.2	65.3	29.8	59.0	17.4	45.2	41.9	29.6
LOS	E	B	A	E	C	E	B	D	D	C
Approach Delay		17.6			30.8		45.2		32.7	
Approach LOS		B			C		D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 65 (54%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 26.5

Intersection LOS: C

Intersection Capacity Utilization 83.7%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 2: Via Princesa & Murrieta Hot Springs Rd



Year 2035 w/o Project AM
2: Via Princesa & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	1300	50	60	1900	25	100	10	40	35	20	200
Future Volume (veh/h)	100	1300	50	60	1900	25	100	10	40	35	20	200
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	109	1413	54	65	2065	27	109	11	43	38	22	217
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	122	2387	1065	84	2336	30	227	52	204	232	292	248
Arrive On Green	0.14	1.00	1.00	0.05	0.65	0.65	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1781	3554	1585	1781	3592	47	1141	333	1303	1350	1870	1585
Grp Volume(v), veh/h	109	1413	54	65	1019	1073	109	0	54	38	22	217
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1862	1141	0	1636	1350	1870	1585
Q Serve(g_s), s	7.2	0.0	0.0	4.3	56.4	57.0	10.8	0.0	3.5	3.0	1.2	16.1
Cycle Q Clear(g_c), s	7.2	0.0	0.0	4.3	56.4	57.0	12.0	0.0	3.5	6.5	1.2	16.1
Prop In Lane	1.00		1.00	1.00		0.03	1.00		0.80	1.00		1.00
Lane Grp Cap(c), veh/h	122	2387	1065	84	1156	1211	227	0	256	232	292	248
V/C Ratio(X)	0.90	0.59	0.05	0.78	0.88	0.89	0.48	0.00	0.21	0.16	0.08	0.88
Avail Cap(c_a), veh/h	122	2387	1065	148	1156	1211	324	0	395	347	452	383
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.63	0.63	0.63	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.4	0.0	0.0	56.6	17.2	17.3	48.3	0.0	44.2	47.0	43.2	49.5
Incr Delay (d2), s/veh	37.2	0.7	0.1	14.2	9.8	9.7	1.6	0.0	0.4	0.3	0.1	13.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	0.2	0.0	2.3	24.1	25.5	3.2	0.0	1.4	1.0	0.6	7.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.6	0.7	0.1	70.8	27.0	27.0	49.9	0.0	44.6	47.3	43.3	62.7
LnGrp LOS	F	A	A	E	C	C	D	A	D	D	D	E
Approach Vol, veh/h		1576			2157			163			277	
Approach Delay, s/veh		6.7			28.3			48.1			59.1	
Approach LOS		A			C			D			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.2	86.4		23.4	12.8	83.8		23.4				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		4.6				
Max Green Setting (Gmax), s	10.0	66.0		29.0	8.2	67.8		29.0				
Max Q Clear Time (g_c+I1), s	6.3	2.0		18.1	9.2	59.0		14.0				
Green Ext Time (p_c), s	0.0	17.6		0.7	0.0	7.7		0.6				
Intersection Summary												
HCM 6th Ctrl Delay			23.0									
HCM 6th LOS			C									

Year 2035 w/o Project AM
3: Calle Del Lago & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

Intersection												
Int Delay, s/veh	138.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	1361	30	20	1983	20	20	10	70	20	10	20
Future Vol, veh/h	20	1361	30	20	1983	20	20	10	70	20	10	20
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	180	-	-	160	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	1479	33	22	2155	22	22	11	76	22	11	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	2177	0	0	1512	0	0	2667	3761	756	2999	3766	1089
Stage 1	-	-	-	-	-	-	1540	1540	-	2210	2210	-
Stage 2	-	-	-	-	-	-	1127	2221	-	789	1556	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	241	-	-	*751	-	-	*~ 10	*~ 0	*502	*~ 3	*~ 0	211
Stage 1	-	-	-	-	-	-	*474	*415	-	*45	*81	-
Stage 2	-	-	-	-	-	-	*218	*79	-	*474	*415	-
Platoon blocked, %		-	-	1	-	-	1	1	1	1	1	
Mov Cap-1 Maneuver	241	-	-	*751	-	-	*~ 8	*0	*502	*~ 2	*0	211
Mov Cap-2 Maneuver	-	-	-	-	-	-	*~ 8	*0	-	*~ 2	*0	-
Stage 1	-	-	-	-	-	-	*430	*377	-	*41	*79	-
Stage 2	-	-	-	-	-	-	*164	*77	-	*355	*377	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.1	\$ 1235	\$ 7414.5
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	34	241	-	-	* 751	-	-	4
HCM Lane V/C Ratio	3.197	0.09	-	-	0.029	-	-	13.587
HCM Control Delay (s)	\$ 1235	21.4	-	-	9.9	-	-	\$ 7414.5
HCM Lane LOS	F	C	-	-	A	-	-	F
HCM 95th %tile Q(veh)	12.6	0.3	-	-	0.1	-	-	8.7

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Year 2035 w/o Project AM
4: Date St & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

	→	↖	←	↗	↘
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑↑	↑	↑↑
Traffic Volume (vph)	1182	805	2004	19	829
Future Volume (vph)	1182	805	2004	19	829
Turn Type	NA	Prot	NA	Prot	Perm
Protected Phases	2	1	6	8	
Permitted Phases					8
Detector Phase	2	1	6	8	8
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	9.5	22.5	22.5	22.5
Total Split (s)	62.5	65.0	127.5	22.5	22.5
Total Split (%)	41.7%	43.3%	85.0%	15.0%	15.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	Min	None	Min	None	None
Act Effect Green (s)	58.1	60.6	123.1	10.5	10.5
Actuated g/C Ratio	0.41	0.42	0.86	0.07	0.07
v/c Ratio	1.12	1.17	0.71	0.16	0.87
Control Delay	101.5	125.7	5.6	63.7	13.5
Queue Delay	0.0	0.0	0.2	0.0	0.0
Total Delay	101.5	125.7	5.7	63.7	13.5
LOS	F	F	A	E	B
Approach Delay	101.5		40.1	14.7	
Approach LOS	F		D	B	

Intersection Summary

Cycle Length: 150	
Actuated Cycle Length: 142.6	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.17	
Intersection Signal Delay: 53.3	Intersection LOS: D
Intersection Capacity Utilization 101.3%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 4: Date St & Murrieta Hot Springs Rd

↖ Ø1	→ Ø2	
65 s	62.5 s	
← Ø6		↗ Ø8
127.5 s		22.5 s

Year 2035 w/o Project AM
4: Date St & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1182	269	805	2004	19	829
Future Volume (veh/h)	1182	269	805	2004	19	829
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1285	292	875	2178	21	771
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1116	250	718	2914	214	335
Arrive On Green	0.39	0.39	0.40	0.82	0.12	0.12
Sat Flow, veh/h	2979	646	1781	3647	1781	2790
Grp Volume(v), veh/h	784	793	875	2178	21	771
Grp Sat Flow(s),veh/h/ln	1777	1754	1781	1777	1781	1395
Q Serve(g_s), s	58.0	58.0	60.5	42.7	1.6	18.0
Cycle Q Clear(g_c), s	58.0	58.0	60.5	42.7	1.6	18.0
Prop In Lane		0.37	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	687	678	718	2914	214	335
V/C Ratio(X)	1.14	1.17	1.22	0.75	0.10	2.30
Avail Cap(c_a), veh/h	687	678	718	2914	214	335
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	46.0	46.0	44.8	6.3	58.8	66.0
Incr Delay (d2), s/veh	80.3	91.4	110.5	1.1	0.2	595.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	40.7	42.3	48.5	13.4	0.7	34.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	126.3	137.4	155.2	7.4	59.0	661.8
LnGrp LOS	F	F	F	A	E	F
Approach Vol, veh/h	1577			3053	792	
Approach Delay, s/veh	131.9			49.7	645.8	
Approach LOS	F			D	F	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	65.0	62.5			127.5	22.5
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	60.5	58.0			123.0	18.0
Max Q Clear Time (g_c+I1), s	62.5	60.0			44.7	20.0
Green Ext Time (p_c), s	0.0	0.0			43.8	0.0
Intersection Summary						
HCM 6th Ctrl Delay			160.7			
HCM 6th LOS			F			

Year 2035 w/o Project AM
5: Delhaven St & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

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	20	1951	40	60	2769	20	0	0	80	0	0	40
Future Vol, veh/h	20	1951	40	60	2769	20	0	0	80	0	0	40
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	190	-	150	120	-	150	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	2121	43	65	3010	22	0	0	87	0	0	43
Major/Minor	Major1		Major2			Minor1			Minor2			
Conflicting Flow All	3032	0	0	2164	0	0	-	-	1061	-	-	1505
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	110	-	-	244	-	-	0	0	220	0	0	110
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	110	-	-	244	-	-	-	-	220	-	-	110
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	0.5		0.5			31.7			57.7			
HCM LOS						D			F			
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	220	110	-	-	244	-	-	110				
HCM Lane V/C Ratio	0.395	0.198	-	-	0.267	-	-	0.395				
HCM Control Delay (s)	31.7	45.6	-	-	25.1	-	-	57.7				
HCM Lane LOS	D	E	-	-	D	-	-	F				
HCM 95th %tile Q(veh)	1.8	0.7	-	-	1	-	-	1.6				

Year 2035 w/o Project AM
6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	768	265	95	276	897	83	288	1507	155	161	1461	1426
Future Volume (vph)	768	265	95	276	897	83	288	1507	155	161	1461	1426
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.1	22.5	22.5	10.1	49.2	49.2	10.1	47.5	47.5	10.1	49.5	49.5
Total Split (s)	21.0	44.1	44.1	26.1	49.2	49.2	13.0	71.8	71.8	18.0	76.8	76.8
Total Split (%)	13.1%	27.6%	27.6%	16.3%	30.8%	30.8%	8.1%	44.9%	44.9%	11.3%	48.0%	48.0%
Yellow Time (s)	4.1	5.2	5.2	4.1	5.2	5.2	4.1	5.5	5.5	4.1	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	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	0.0	0.0
Total Lost Time (s)	5.1	6.2	6.2	5.1	6.2	6.2	5.1	6.5	6.5	5.1	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	15.9	40.3	40.3	18.6	43.0	43.0	7.9	66.1	66.1	12.1	70.3	70.3
Actuated g/C Ratio	0.10	0.25	0.25	0.12	0.27	0.27	0.05	0.41	0.41	0.08	0.44	0.44
v/c Ratio	2.45	0.22	0.22	0.75	1.03	0.18	1.85	0.78	0.22	0.68	0.71	1.81
Control Delay	687.2	48.5	9.2	80.8	92.1	8.3	442.4	44.0	4.6	85.4	38.8	394.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	687.2	48.5	9.2	80.8	92.1	8.3	442.4	44.0	4.6	85.4	38.8	394.3
LOS	F	D	A	F	F	A	F	D	A	F	D	F
Approach Delay		480.2			84.1			99.7			207.6	
Approach LOS		F			F			F			F	

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 2.45

Intersection Signal Delay: 199.8

Intersection LOS: F

Intersection Capacity Utilization 136.1%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd

			
Ø1	Ø2	Ø3	Ø4
18 s	71.8 s	26.1 s	44.1 s
			
Ø5	Ø6	Ø7	Ø8
13 s	76.8 s	21 s	49.2 s

Timings

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Synchro 10 Report

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	768	265	95	276	897	83	288	1507	155	161	1461	1426
Future Volume (veh/h)	768	265	95	276	897	83	288	1507	155	161	1461	1426
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	835	288	98	300	975	86	313	1638	157	175	1588	1473
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	343	1364	423	349	955	426	171	2172	674	219	2243	696
Arrive On Green	0.10	0.27	0.27	0.10	0.27	0.27	0.05	0.43	0.43	0.06	0.44	0.44
Sat Flow, veh/h	3456	5106	1585	3456	3554	1585	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	835	288	98	300	975	86	313	1638	157	175	1588	1473
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1777	1585	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	15.9	7.0	7.7	13.7	43.0	6.7	7.9	43.4	10.1	8.0	40.5	70.3
Cycle Q Clear(g_c), s	15.9	7.0	7.7	13.7	43.0	6.7	7.9	43.4	10.1	8.0	40.5	70.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	343	1364	423	349	955	426	171	2172	674	219	2243	696
V/C Ratio(X)	2.43	0.21	0.23	0.86	1.02	0.20	1.83	0.75	0.23	0.80	0.71	2.12
Avail Cap(c_a), veh/h	343	1364	423	454	955	426	171	2172	674	279	2243	696
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	72.1	45.5	45.8	70.8	58.5	45.2	76.0	38.9	29.3	73.9	36.5	44.9
Incr Delay (d2), s/veh	653.0	0.1	0.3	12.3	34.5	0.2	397.4	1.5	0.2	12.1	1.0	506.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	38.2	3.0	3.1	6.7	23.9	2.7	12.9	18.5	4.0	3.9	17.1	125.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	725.0	45.6	46.1	83.1	93.0	45.5	473.5	40.4	29.5	86.0	37.5	551.5
LnGrp LOS	F	D	D	F	F	D	F	D	C	F	D	F
Approach Vol, veh/h		1221			1361			2108			3236	
Approach Delay, s/veh		510.3			87.8			103.9			274.1	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.2	74.6	21.3	48.9	13.0	76.8	21.0	49.2				
Change Period (Y+Rc), s	5.1	6.5	5.1	6.2	5.1	6.5	5.1	6.2				
Max Green Setting (Gmax), s	12.9	65.3	21.0	37.9	7.9	70.3	15.9	43.0				
Max Q Clear Time (g_c+I1), s	10.0	45.4	15.7	9.7	9.9	72.3	17.9	45.0				
Green Ext Time (p_c), s	0.1	12.7	0.5	2.3	0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			233.2									
HCM 6th LOS			F									

Year 2035 w/o Project PM
1: Margarita Rd & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	51	1752	538	273	1609	933	69	383	77	150
Future Volume (vph)	51	1752	538	273	1609	933	69	383	77	150
Turn Type	Prot	NA	Perm	Prot	NA	Split	NA	Perm	NA	Perm
Protected Phases	5	2		1	6	8	8		4	
Permitted Phases			2					8		4
Detector Phase	5	2	2	1	6	8	8	8	4	4
Switch Phase										
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.6	34.8	34.8	10.6	27.8	34.8	34.8	34.8	22.6	22.6
Total Split (s)	12.4	68.0	68.0	22.0	77.6	44.0	44.0	44.0	26.0	26.0
Total Split (%)	7.8%	42.5%	42.5%	13.8%	48.5%	27.5%	27.5%	27.5%	16.3%	16.3%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	4.8	4.8	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	5.8	5.8	4.6	4.6
Lead/Lag	Lead	Lead	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	None	None	None	None	None
Act Effect Green (s)	7.6	62.2	62.2	17.4	74.3	38.2	38.2	38.2	21.4	21.4
Actuated g/C Ratio	0.05	0.39	0.39	0.11	0.46	0.24	0.24	0.24	0.13	0.13
v/c Ratio	0.65	1.38	0.77	1.55	0.76	1.24	0.17	0.76	1.19	0.50
Control Delay	108.4	215.2	32.5	302.0	23.5	166.6	49.6	36.2	174.8	21.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	108.4	215.2	32.5	302.0	23.5	166.6	49.6	36.2	174.8	21.9
LOS	F	F	C	F	C	F	D	D	F	C
Approach Delay		170.9			63.1		124.7		119.2	
Approach LOS		F			E		F		F	

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 10 (6%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.55

Intersection Signal Delay: 122.7

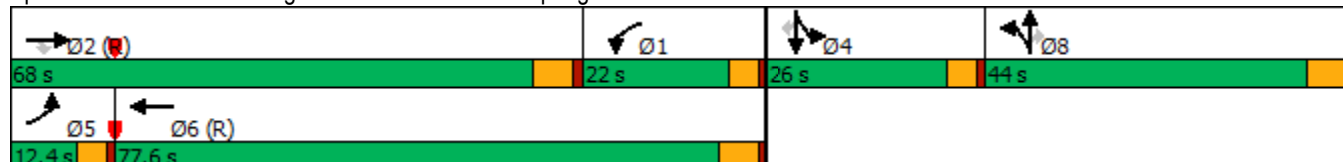
Intersection LOS: F

Intersection Capacity Utilization 110.3%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 1: Margarita Rd & Murrieta Hot Springs Rd



Timings

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Synchro 10 Report

Year 2035 w/o Project PM
1: Margarita Rd & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	1752	538	273	1609	38	933	69	383	185	77	150
Future Volume (veh/h)	51	1752	538	273	1609	38	933	69	383	185	77	150
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	55	1904	556	297	1749	41	1014	75	395	201	84	154
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	70	1381	616	635	3660	86	825	447	378	170	71	212
Arrive On Green	0.04	0.39	0.39	0.47	0.95	0.95	0.24	0.24	0.24	0.13	0.13	0.13
Sat Flow, veh/h	1781	3554	1585	1781	5132	120	3456	1870	1585	1274	532	1585
Grp Volume(v), veh/h	55	1904	556	297	1160	630	1014	75	395	285	0	154
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1702	1849	1728	1870	1585	1807	0	1585
Q Serve(g_s), s	4.9	62.2	52.8	18.0	5.1	5.1	38.2	5.1	38.2	21.4	0.0	14.9
Cycle Q Clear(g_c), s	4.9	62.2	52.8	18.0	5.1	5.1	38.2	5.1	38.2	21.4	0.0	14.9
Prop In Lane	1.00		1.00	1.00		0.07	1.00		1.00	0.71		1.00
Lane Grp Cap(c), veh/h	70	1381	616	635	2427	1318	825	447	378	242	0	212
V/C Ratio(X)	0.78	1.38	0.90	0.47	0.48	0.48	1.23	0.17	1.04	1.18	0.00	0.73
Avail Cap(c_a), veh/h	87	1381	616	635	2427	1318	825	447	378	242	0	212
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.56	0.56	0.56	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	76.2	48.9	46.0	31.8	1.3	1.3	60.9	48.3	60.9	69.3	0.0	66.5
Incr Delay (d2), s/veh	30.2	174.8	18.9	0.3	0.4	0.7	113.7	0.2	58.1	115.1	0.0	11.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	61.0	24.0	7.5	1.2	1.4	29.8	2.4	21.5	17.7	0.0	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	106.3	223.7	64.9	32.1	1.7	2.0	174.6	48.5	119.0	184.4	0.0	78.2
LnGrp LOS	F	F	E	C	A	A	F	D	F	F	A	E
Approach Vol, veh/h		2515			2087			1484			439	
Approach Delay, s/veh		186.0			6.1			153.4			147.2	
Approach LOS		F			A			F			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	64.0	68.0		26.0	10.9	121.1		44.0				
Change Period (Y+Rc), s	5.8	* 5.8		4.6	4.6	5.8		5.8				
Max Green Setting (Gmax), s	17.4	* 62		21.4	7.8	71.8		38.2				
Max Q Clear Time (g_c+I1), s	20.0	64.2		23.4	6.9	7.1		40.2				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	22.9		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			118.5									
HCM 6th LOS			F									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Year 2035 w/o Project PM
2: Via Princesa & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	220	1980	75	70	1530	90	25	40	30	160
Future Volume (vph)	220	1980	75	70	1530	90	25	40	30	160
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6		8		4	
Permitted Phases			2			8		4		4
Detector Phase	5	2	2	1	6	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.6	25.8	25.8	10.6	25.8	27.6	27.6	33.6	33.6	33.6
Total Split (s)	32.0	111.9	111.9	14.5	94.4	33.6	33.6	33.6	33.6	33.6
Total Split (%)	20.0%	69.9%	69.9%	9.1%	59.0%	21.0%	21.0%	21.0%	21.0%	21.0%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lag	Lead	Lead	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	None	None	None	None	None
Act Effect Green (s)	27.4	115.6	115.6	9.7	97.9	19.7	19.7	19.7	19.7	19.7
Actuated g/C Ratio	0.17	0.72	0.72	0.06	0.61	0.12	0.12	0.12	0.12	0.12
v/c Ratio	0.79	0.84	0.07	0.72	0.80	0.58	0.34	0.31	0.14	0.50
Control Delay	46.7	21.1	0.3	106.8	29.3	78.2	25.5	66.4	60.0	12.4
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.7	21.4	0.3	106.8	29.3	78.2	25.5	66.4	60.0	12.4
LOS	D	C	A	F	C	E	C	E	E	B
Approach Delay		23.1			32.6		53.4		28.0	
Approach LOS		C			C		D		C	

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 138 (86%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 28.2

Intersection LOS: C

Intersection Capacity Utilization 83.9%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 2: Via Princesa & Murrieta Hot Springs Rd

											
Ø2 (R)	Ø6 (R)	Ø5	Ø1	Ø4	Ø8						
111.9 s	94.4 s	32 s	14.5 s	33.6 s	33.6 s						

Timings

N:\2934\Analysis\10. LT PM.syn

Synchro 10 Report

Year 2035 w/o Project PM
2: Via Princesa & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	220	1980	75	70	1530	60	90	25	55	40	30	160
Future Volume (veh/h)	220	1980	75	70	1530	60	90	25	55	40	30	160
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	239	2152	82	76	1663	65	98	27	60	43	33	174
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	463	2298	1025	241	1822	71	172	64	143	144	232	197
Arrive On Green	0.26	0.65	0.65	0.14	0.52	0.52	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	1781	3554	1585	1781	3487	136	1175	516	1147	1310	1870	1585
Grp Volume(v), veh/h	239	2152	82	76	844	884	98	0	87	43	33	174
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1846	1175	0	1664	1310	1870	1585
Q Serve(g_s), s	18.4	86.8	3.1	6.2	69.2	70.2	13.0	0.0	7.7	5.0	2.5	17.3
Cycle Q Clear(g_c), s	18.4	86.8	3.1	6.2	69.2	70.2	15.5	0.0	7.7	12.7	2.5	17.3
Prop In Lane	1.00		1.00	1.00		0.07	1.00		0.69	1.00		1.00
Lane Grp Cap(c), veh/h	463	2298	1025	241	928	964	172	0	207	144	232	197
V/C Ratio(X)	0.52	0.94	0.08	0.31	0.91	0.92	0.57	0.00	0.42	0.30	0.14	0.88
Avail Cap(c_a), veh/h	463	2357	1051	241	984	1022	239	0	302	219	339	287
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)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.6	25.3	10.5	62.4	34.8	35.0	69.4	0.0	64.7	70.6	62.5	68.9
Incr Delay (d2), s/veh	0.1	1.0	0.0	0.7	14.4	14.7	2.9	0.0	1.4	1.1	0.3	19.4
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	8.3	35.3	1.1	2.9	33.2	35.1	4.1	0.0	3.4	1.7	1.2	8.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.7	26.4	10.6	63.2	49.2	49.7	72.3	0.0	66.1	71.8	62.7	88.3
LnGrp LOS	D	C	B	E	D	D	E	A	E	E	E	F
Approach Vol, veh/h		2473			1804			185			250	
Approach Delay, s/veh		28.2			50.0			69.4			82.1	
Approach LOS		C			D			E			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	26.3	109.2		24.5	46.1	89.4		24.5				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		4.6				
Max Green Setting (Gmax), s	9.9	106.1		29.0	27.4	88.6		29.0				
Max Q Clear Time (g_c+I1), s	8.2	88.8		19.3	20.4	72.2		17.5				
Green Ext Time (p_c), s	0.0	14.6		0.6	0.4	11.4		0.6				
Intersection Summary												
HCM 6th Ctrl Delay			41.0									
HCM 6th LOS			D									

Year 2035 w/o Project PM
3: Calle Del Lago & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening
03/04/2020

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	2071	50	50	1659	20	10	10	60	20	10	20
Future Vol, veh/h	20	2071	50	50	1659	20	10	10	60	20	10	20
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	180	-	-	160	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	2251	54	54	1803	22	11	11	65	22	11	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1825	0	0	2305	0	0	3337	4255	1153	3097	4271	913
Stage 1	-	-	-	-	-	-	2322	2322	-	1922	1922	-
Stage 2	-	-	-	-	-	-	1015	1933	-	1175	2349	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	331	-	-	*326	-	-	*0	*0	*218	*~0	*0	276
Stage 1	-	-	-	-	-	-	*205	*180	-	*69	*113	-
Stage 2	-	-	-	-	-	-	*255	*112	-	*205	*180	-
Platoon blocked, %		-	-	1	-	-	1	1	1	1	1	
Mov Cap-1 Maneuver	331	-	-	*326	-	-	*0	*0	*218	*0	*0	276
Mov Cap-2 Maneuver	-	-	-	-	-	-	*0	*0	-	*0	*0	-
Stage 1	-	-	-	-	-	-	*192	*168	-	*64	*94	-
Stage 2	-	-	-	-	-	-	*173	*93	-	*126	*168	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.5	32.1	21.2
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	218	331	-	-	*326	-	-	276
HCM Lane V/C Ratio	0.399	0.066	-	-	0.167	-	-	0.197
HCM Control Delay (s)	32.1	16.6	-	-	18.2	-	-	21.2
HCM Lane LOS	D	C	-	-	C	-	-	C
HCM 95th %tile Q(veh)	1.8	0.2	-	-	0.6	-	-	0.7

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Year 2035 w/o Project PM
4: Date St & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

	→	↖	←	↗	↘
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑↑	↑	↑↑
Traffic Volume (vph)	1808	453	1697	32	1110
Future Volume (vph)	1808	453	1697	32	1110
Turn Type	NA	Prot	NA	Prot	Perm
Protected Phases	2	1	6	8	
Permitted Phases					8
Detector Phase	2	1	6	8	8
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	9.5	22.5	22.5	22.5
Total Split (s)	82.0	35.0	117.0	33.0	33.0
Total Split (%)	54.7%	23.3%	78.0%	22.0%	22.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	Min	None	Min	None	None
Act Effect Green (s)	77.5	30.5	112.5	28.5	28.5
Actuated g/C Ratio	0.52	0.20	0.75	0.19	0.19
v/c Ratio	1.30	1.37	0.70	0.10	1.24
Control Delay	172.1	227.2	11.5	51.3	143.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	172.1	227.2	11.5	51.3	143.1
LOS	F	F	B	D	F
Approach Delay	172.1		56.9	140.5	
Approach LOS	F		E	F	

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.37
 Intersection Signal Delay: 120.0
 Intersection LOS: F
 Intersection Capacity Utilization 107.2%
 ICU Level of Service G
 Analysis Period (min) 15

Splits and Phases: 4: Date St & Murrieta Hot Springs Rd



Year 2035 w/o Project PM
4: Date St & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1808	343	453	1697	32	1110
Future Volume (veh/h)	1808	343	453	1697	32	1110
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1965	373	492	1845	35	1086
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1548	285	362	2665	338	530
Arrive On Green	0.52	0.52	0.20	0.75	0.19	0.19
Sat Flow, veh/h	3091	551	1781	3647	1781	2790
Grp Volume(v), veh/h	1139	1199	492	1845	35	1086
Grp Sat Flow(s),veh/h/ln	1777	1771	1781	1777	1781	1395
Q Serve(g_s), s	77.5	77.5	30.5	40.5	2.4	28.5
Cycle Q Clear(g_c), s	77.5	77.5	30.5	40.5	2.4	28.5
Prop In Lane		0.31	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	918	915	362	2665	338	530
V/C Ratio(X)	1.24	1.31	1.36	0.69	0.10	2.05
Avail Cap(c_a), veh/h	918	915	362	2665	338	530
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	36.3	36.3	59.7	9.7	50.2	60.8
Incr Delay (d2), s/veh	117.6	147.5	178.3	0.8	0.1	478.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	62.7	70.1	31.7	14.7	1.1	45.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	153.9	183.7	238.1	10.5	50.3	539.3
LnGrp LOS	F	F	F	B	D	F
Approach Vol, veh/h	2338			2337	1121	
Approach Delay, s/veh	169.2			58.4	524.0	
Approach LOS	F			E	F	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	35.0	82.0			117.0	33.0
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	30.5	77.5			112.5	28.5
Max Q Clear Time (g_c+I1), s	32.5	79.5			42.5	30.5
Green Ext Time (p_c), s	0.0	0.0			29.8	0.0
Intersection Summary						
HCM 6th Ctrl Delay			193.2			
HCM 6th LOS			F			

Year 2035 w/o Project PM
5: Delhaven St & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

Intersection												
Int Delay, s/veh	12.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	2818	50	80	2105	50	0	0	150	0	0	40
Future Vol, veh/h	50	2818	50	80	2105	50	0	0	150	0	0	40
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	190	-	150	120	-	150	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	54	3063	54	87	2288	54	0	0	163	0	0	43

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	2342	0	0	3117	0	0	-	-	1532	-	-	1144
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	207	-	-	101	-	-	0	0	~ 106	0	0	193
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	207	-	-	101	-	-	-	-	~ 106	-	-	193
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	4.7	\$ 355.4	29
HCM LOS			F	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	106	207	-	-	101	-	-	193
HCM Lane V/C Ratio	1.538	0.263	-	-	0.861	-	-	0.225
HCM Control Delay (s)	\$ 355.4	28.5	-	-	131	-	-	29
HCM Lane LOS	F	D	-	-	F	-	-	D
HCM 95th %tile Q(veh)	12.2	1	-	-	4.9	-	-	0.8

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Year 2035 w/o Project PM
6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1478	1036	280	244	754	99	334	1970	195	195	1162	1115
Future Volume (vph)	1478	1036	280	244	754	99	334	1970	195	195	1162	1115
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.1	22.5	22.5	10.1	49.2	49.2	10.1	47.5	47.5	10.1	49.5	49.5
Total Split (s)	34.0	58.9	58.9	24.3	49.2	49.2	14.0	65.8	65.8	11.0	62.8	62.8
Total Split (%)	21.3%	36.8%	36.8%	15.2%	30.8%	30.8%	8.8%	41.1%	41.1%	6.9%	39.3%	39.3%
Yellow Time (s)	4.1	5.2	5.2	4.1	5.2	5.2	4.1	5.5	5.5	4.1	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	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	0.0	0.0
Total Lost Time (s)	5.1	6.2	6.2	5.1	6.2	6.2	5.1	6.5	6.5	5.1	6.5	6.5
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	28.9	53.0	53.0	16.8	40.9	40.9	8.9	59.3	59.3	5.9	56.3	56.3
Actuated g/C Ratio	0.18	0.34	0.34	0.11	0.26	0.26	0.06	0.38	0.38	0.04	0.36	0.36
v/c Ratio	2.56	0.66	0.49	0.73	0.90	0.21	1.88	1.12	0.31	1.66	0.70	1.45
Control Delay	730.0	47.2	25.1	80.5	69.5	3.0	452.2	107.1	11.1	370.4	46.2	233.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	730.0	47.2	25.1	80.5	69.5	3.0	452.2	107.1	11.1	370.4	46.2	233.6
LOS	F	D	C	F	E	A	F	F	B	F	D	F
Approach Delay		406.3			65.9			145.7			156.3	
Approach LOS		F			E			F			F	

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 158

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 2.56

Intersection Signal Delay: 220.9

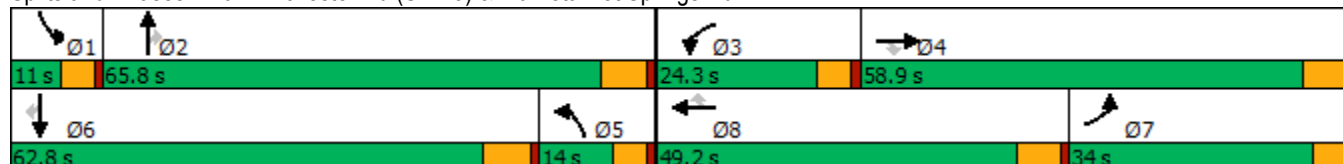
Intersection LOS: F

Intersection Capacity Utilization 125.7%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd



Timings

N:\2934\Analysis\10. LT PM.syn

Synchro 10 Report

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1478	1036	280	244	754	99	334	1970	195	195	1162	1115
Future Volume (veh/h)	1478	1036	280	244	754	99	334	1970	195	195	1162	1115
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	1607	1126	289	265	820	103	363	2141	201	212	1263	1152
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	624	1787	555	313	899	401	192	1938	601	127	1797	558
Arrive On Green	0.18	0.35	0.35	0.09	0.25	0.25	0.06	0.38	0.38	0.04	0.35	0.35
Sat Flow, veh/h	3456	5106	1585	3456	3554	1585	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	1607	1126	289	265	820	103	363	2141	201	212	1263	1152
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1777	1585	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	28.9	29.4	18.4	12.1	35.8	7.1	8.9	60.7	14.4	5.9	34.1	56.3
Cycle Q Clear(g_c), s	28.9	29.4	18.4	12.1	35.8	7.1	8.9	60.7	14.4	5.9	34.1	56.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	624	1787	555	313	899	401	192	1938	601	127	1797	558
V/C Ratio(X)	2.57	0.63	0.52	0.85	0.91	0.26	1.89	1.10	0.33	1.66	0.70	2.06
Avail Cap(c_a), veh/h	624	1787	555	415	955	426	192	1938	601	127	1797	558
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	65.5	43.4	25.9	71.6	58.0	35.0	75.5	49.6	35.3	77.0	44.6	51.8
Incr Delay (d2), s/veh	713.0	0.7	0.9	11.8	12.3	0.3	418.6	55.6	0.3	330.5	1.3	485.4
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	74.6	12.6	7.2	5.9	17.7	2.8	15.2	35.7	5.7	8.5	14.7	97.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	778.5	44.1	26.8	83.4	70.4	35.3	494.1	105.2	35.6	407.5	45.9	537.3
LnGrp LOS	F	D	C	F	E	D	F	F	D	F	D	F
Approach Vol, veh/h		3022			1188			2705			2627	
Approach Delay, s/veh		433.0			70.2			152.2			290.5	
Approach LOS		F			E			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	67.2	19.6	62.2	15.4	62.8	35.1	46.7				
Change Period (Y+Rc), s	5.1	6.5	5.1	6.2	6.5	* 6.5	6.2	* 6.2				
Max Green Setting (Gmax), s	5.9	59.3	19.2	52.7	8.9	* 56	28.9	* 43				
Max Q Clear Time (g_c+I1), s	7.9	62.7	14.1	31.4	10.9	58.3	30.9	37.8				
Green Ext Time (p_c), s	0.0	0.0	0.4	9.6	0.0	0.0	0.0	2.6				

Intersection Summary

HCM 6th Ctrl Delay 269.0

HCM 6th LOS F

Notes

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

APPENDIX G
PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS
– YEAR 2035 WITH PROJECT

Year 2035 w/ Project AM
1: Margarita Rd & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	161	750	302	1793	649	60	128	17	7
Future Volume (vph)	161	750	302	1793	649	60	128	17	7
Turn Type	Prot	NA	Prot	NA	Split	NA	pm+ov	NA	Perm
Protected Phases	5	2	1	6	8	8	1	4	
Permitted Phases							8		4
Detector Phase	5	2	1	6	8	8	1	4	4
Switch Phase									
Minimum Initial (s)	6.0	10.0	6.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.6	34.8	10.6	27.8	34.8	34.8	10.6	22.6	22.6
Total Split (s)	15.0	40.6	22.0	47.6	34.8	34.8	22.0	22.6	22.6
Total Split (%)	12.5%	33.8%	18.3%	39.7%	29.0%	29.0%	18.3%	18.8%	18.8%
Yellow Time (s)	3.6	4.8	3.6	4.8	4.8	4.8	3.6	3.6	3.6
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	5.8	4.6	5.8	5.8	5.8	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	C-Min	None	C-Min	None	None	None	None	None
Act Effect Green (s)	16.4	34.8	26.2	44.6	30.7	30.7	62.7	9.6	9.6
Actuated g/C Ratio	0.14	0.29	0.22	0.37	0.26	0.26	0.52	0.08	0.08
v/c Ratio	0.73	0.91dr	0.85	1.08	0.80	0.14	0.16	0.44	0.03
Control Delay	69.0	45.2	73.2	74.1	49.3	34.0	3.2	61.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.0	45.2	73.2	74.1	49.3	34.0	3.2	61.4	0.1
LOS	E	D	E	E	D	C	A	E	A
Approach Delay		48.0		73.9		41.2		54.5	
Approach LOS		D		E		D		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 85 (71%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 135

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 59.5

Intersection LOS: E

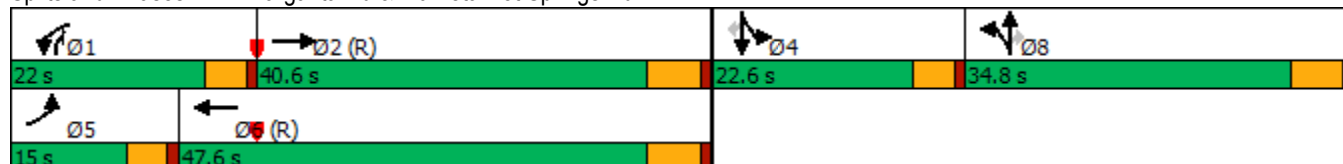
Intersection Capacity Utilization 83.8%

ICU Level of Service E

Analysis Period (min) 15

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 1: Margarita Rd & Murrieta Hot Springs Rd



Timings

N:\2934\Analysis\11. LT+P AM.syn

Synchro 10 Report

Year 2035 w/ Project AM
1: Margarita Rd & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	161	750	462	302	1793	71	649	60	128	41	17	7
Future Volume (veh/h)	161	750	462	302	1793	71	649	60	128	41	17	7
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	175	815	502	328	1949	77	705	65	139	45	18	8
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	154	1390	647	258	2352	93	780	422	587	61	25	76
Arrive On Green	0.09	0.41	0.41	0.29	0.93	0.93	0.23	0.23	0.23	0.05	0.05	0.05
Sat Flow, veh/h	1781	3404	1585	1781	5040	199	3456	1870	1585	1290	516	1585
Grp Volume(v), veh/h	175	815	502	328	1315	711	705	65	139	63	0	8
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1702	1835	1728	1870	1585	1806	0	1585
Q Serve(g_s), s	10.4	22.3	32.9	17.4	13.6	13.8	23.8	3.3	7.3	4.1	0.0	0.6
Cycle Q Clear(g_c), s	10.4	22.3	32.9	17.4	13.6	13.8	23.8	3.3	7.3	4.1	0.0	0.6
Prop In Lane	1.00		1.00	1.00		0.11	1.00		1.00	0.71		1.00
Lane Grp Cap(c), veh/h	154	1390	647	258	1589	856	780	422	587	86	0	76
V/C Ratio(X)	1.13	0.59	0.78	1.27	0.83	0.83	0.90	0.15	0.24	0.73	0.00	0.11
Avail Cap(c_a), veh/h	154	1390	647	258	1589	856	835	452	613	271	0	238
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.72	0.72	0.72	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.8	27.6	30.7	42.6	2.6	2.6	45.2	37.3	26.1	56.4	0.0	54.7
Incr Delay (d2), s/veh	112.8	1.8	8.8	141.7	3.7	6.8	12.7	0.2	0.2	11.3	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.5	9.4	13.9	16.7	2.1	3.0	11.5	1.6	2.8	2.2	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	167.6	29.4	39.6	184.3	6.3	9.4	57.9	37.4	26.3	67.7	0.0	55.3
LnGrp LOS	F	C	D	F	A	A	E	D	C	E	A	E
Approach Vol, veh/h		1492			2354			909			71	
Approach Delay, s/veh		49.0			32.0			51.6			66.3	
Approach LOS		D			C			D			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	22.0	54.8		10.3	15.0	61.8		32.9				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		5.8				
Max Green Setting (Gmax), s	17.4	34.8		18.0	10.4	41.8		29.0				
Max Q Clear Time (g_c+I1), s	19.4	34.9		6.1	12.4	15.8		25.8				
Green Ext Time (p_c), s	0.0	0.0		0.2	0.0	17.6		1.3				
Intersection Summary												
HCM 6th Ctrl Delay			41.5									
HCM 6th LOS			D									

Year 2035 w/ Project AM
2: Via Princesa & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	100	1300	50	60	1900	100	10	35	20	200
Future Volume (vph)	100	1300	50	60	1900	100	10	35	20	200
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6		8		4	
Permitted Phases			2			8		4		4
Detector Phase	5	2	2	1	6	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.6	25.8	25.8	10.6	25.8	27.6	27.6	33.6	33.6	33.6
Total Split (s)	19.8	71.2	71.2	14.8	66.2	34.0	34.0	34.0	34.0	34.0
Total Split (%)	16.5%	59.3%	59.3%	12.3%	55.2%	28.3%	28.3%	28.3%	28.3%	28.3%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	None	None	None	None	None
Act Effect Green (s)	12.3	81.6	81.6	9.2	76.3	16.4	16.4	16.4	16.4	16.4
Actuated g/C Ratio	0.10	0.68	0.68	0.08	0.64	0.14	0.14	0.14	0.14	0.14
v/c Ratio	0.60	0.41	0.05	0.48	0.65	0.58	0.21	0.21	0.09	0.60
Control Delay	54.1	16.5	7.8	64.7	16.4	59.0	17.4	45.2	41.9	19.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.1	16.5	7.8	64.7	16.4	59.0	17.4	45.2	41.9	19.5
LOS	D	B	A	E	B	E	B	D	D	B
Approach Delay		18.8			17.9		45.2		24.8	
Approach LOS		B			B		D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 65 (54%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 19.7

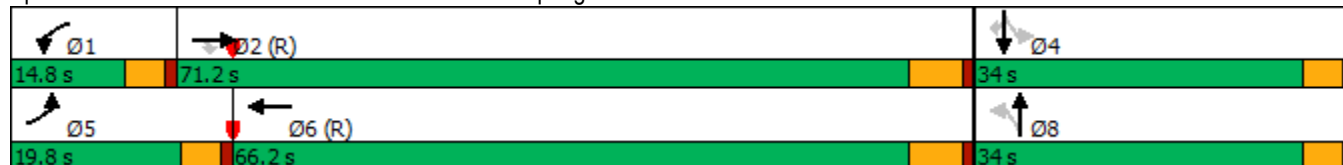
Intersection LOS: B

Intersection Capacity Utilization 67.7%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: Via Princesa & Murrieta Hot Springs Rd



Timings

N:\2934\Analysis\11. LT+P AM.syn

Synchro 10 Report

Year 2035 w/ Project AM
2: Via Princesa & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

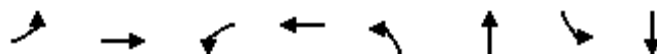
03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Traffic Volume (veh/h)	100	1300	50	60	1900	25	100	10	40	35	20	200
Future Volume (veh/h)	100	1300	50	60	1900	25	100	10	40	35	20	200
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	109	1413	54	65	2065	27	109	11	43	38	22	217
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	133	3429	1065	84	3344	44	227	52	204	232	293	248
Arrive On Green	0.15	1.00	1.00	0.05	0.64	0.64	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1781	5106	1585	1781	5194	68	1141	333	1303	1350	1870	1585
Grp Volume(v), veh/h	109	1413	54	65	1353	739	109	0	54	38	22	217
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1702	1858	1141	0	1636	1350	1870	1585
Q Serve(g_s), s	7.1	0.0	0.0	4.3	28.2	28.3	10.8	0.0	3.5	3.0	1.2	16.1
Cycle Q Clear(g_c), s	7.1	0.0	0.0	4.3	28.2	28.3	12.0	0.0	3.5	6.5	1.2	16.1
Prop In Lane	1.00		1.00	1.00		0.04	1.00		0.80	1.00		1.00
Lane Grp Cap(c), veh/h	133	3429	1065	84	2191	1196	227	0	256	232	293	248
V/C Ratio(X)	0.82	0.41	0.05	0.78	0.62	0.62	0.48	0.00	0.21	0.16	0.08	0.88
Avail Cap(c_a), veh/h	226	3429	1065	151	2191	1196	328	0	401	352	458	388
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.47	0.47	0.47	0.81	0.81	0.81	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.2	0.0	0.0	56.6	12.6	12.7	48.3	0.0	44.2	47.0	43.2	49.5
Incr Delay (d2), s/veh	5.7	0.2	0.0	11.7	1.1	2.0	1.6	0.0	0.4	0.3	0.1	12.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	0.1	0.0	2.2	10.4	11.7	3.2	0.0	1.4	1.0	0.6	7.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.0	0.2	0.0	68.3	13.7	14.6	49.9	0.0	44.6	47.3	43.3	62.2
LnGrp LOS	E	A	A	E	B	B	D	A	D	D	D	E
Approach Vol, veh/h		1576			2157			163			277	
Approach Delay, s/veh		4.0			15.7			48.1			58.7	
Approach LOS		A			B			D			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.2	86.4		23.4	13.6	83.0		23.4				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		4.6				
Max Green Setting (Gmax), s	10.2	65.4		29.4	15.2	60.4		29.4				
Max Q Clear Time (g_c+I1), s	6.3	2.0		18.1	9.1	30.3		14.0				
Green Ext Time (p_c), s	0.0	16.4		0.7	0.1	20.1		0.6				
Intersection Summary												
HCM 6th Ctrl Delay			15.4									
HCM 6th LOS			B									

Year 2035 w/ Project AM
3: Calle Del Lago & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	20	1361	20	1983	20	10	20	10
Future Volume (vph)	20	1361	20	1983	20	10	20	10
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases					8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	10.2	56.8	10.2	56.8	23.0	23.0	23.0	23.0
Total Split (%)	11.3%	63.1%	11.3%	63.1%	25.6%	25.6%	25.6%	25.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5		4.5
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	None	Max	None	None	None	None
Act Effect Green (s)	5.7	58.4	5.7	58.4		7.7		7.7
Actuated g/C Ratio	0.08	0.77	0.08	0.77		0.10		0.10
v/c Ratio	0.17	0.39	0.17	0.56		0.48		0.35
Control Delay	37.9	4.9	37.9	6.4		20.6		28.4
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	37.9	4.9	37.9	6.4		20.6		28.4
LOS	D	A	D	A		C		C
Approach Delay		5.4		6.7		20.6		28.4
Approach LOS		A		A		C		C

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 75.8

Natural Cycle: 70

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 6.9

Intersection LOS: A

Intersection Capacity Utilization 52.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: Calle Del Lago & Murrieta Hot Springs Rd

Ø1	Ø2	Ø4
10.2 s	56.8 s	23 s
Ø5	Ø6	Ø8
10.2 s	56.8 s	23 s

Timings

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Synchro 10 Report

Year 2035 w/ Project AM
3: Calle Del Lago & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (veh/h)	20	1361	30	20	1983	20	20	10	70	20	10	20
Future Volume (veh/h)	20	1361	30	20	1983	20	20	10	70	20	10	20
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	22	1479	33	22	2155	22	22	11	76	22	11	22
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	44	3599	80	44	3650	37	79	25	105	112	53	64
Arrive On Green	0.02	0.70	0.70	0.02	0.70	0.70	0.09	0.09	0.09	0.09	0.09	0.09
Sat Flow, veh/h	1781	5139	115	1781	5212	53	218	264	1111	468	556	683
Grp Volume(v), veh/h	22	980	532	22	1407	770	109	0	0	55	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1850	1781	1702	1861	1593	0	0	1707	0	0
Q Serve(g_s), s	0.9	9.0	9.0	0.9	15.8	15.8	2.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.9	9.0	9.0	0.9	15.8	15.8	4.9	0.0	0.0	2.2	0.0	0.0
Prop In Lane	1.00		0.06	1.00		0.03	0.20		0.70	0.40		0.40
Lane Grp Cap(c), veh/h	44	2384	1295	44	2384	1303	208	0	0	229	0	0
V/C Ratio(X)	0.50	0.41	0.41	0.50	0.59	0.59	0.52	0.00	0.00	0.24	0.00	0.00
Avail Cap(c_a), veh/h	136	2384	1295	136	2384	1303	448	0	0	459	0	0
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(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	36.0	4.7	4.7	36.0	5.7	5.7	32.8	0.0	0.0	31.6	0.0	0.0
Incr Delay (d2), s/veh	8.7	0.5	1.0	8.7	1.1	2.0	2.0	0.0	0.0	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.5	2.8	0.5	4.3	5.1	2.0	0.0	0.0	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.7	5.2	5.7	44.7	6.8	7.7	34.8	0.0	0.0	32.2	0.0	0.0
LnGrp LOS	D	A	A	D	A	A	C	A	A	C	A	A
Approach Vol, veh/h		1534			2199			109			55	
Approach Delay, s/veh		6.0			7.5			34.8			32.2	
Approach LOS		A			A			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.3	56.8		11.6	6.3	56.8		11.6				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.7	52.3		18.5	5.7	52.3		18.5				
Max Q Clear Time (g_c+I1), s	2.9	11.0		4.2	2.9	17.8		6.9				
Green Ext Time (p_c), s	0.0	15.1		0.2	0.0	23.1		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			8.0									
HCM 6th LOS			A									

Year 2035 w/ Project AM
4: Date St & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↘	↑↑↑	↘	↗
Traffic Volume (vph)	1182	269	805	2004	19	829
Future Volume (vph)	1182	269	805	2004	19	829
Turn Type	NA	Perm	Prot	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases		2				8
Detector Phase	2	2	1	6	8	1
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	9.5
Total Split (s)	50.4	50.4	76.4	126.8	23.2	76.4
Total Split (%)	33.6%	33.6%	50.9%	84.5%	15.5%	50.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes			Yes
Recall Mode	Min	Min	None	Min	None	None
Act Effect Green (s)	43.0	43.0	72.3	121.8	7.1	79.5
Actuated g/C Ratio	0.33	0.33	0.55	0.93	0.05	0.60
v/c Ratio	0.77	0.47	0.90	0.46	0.22	0.53
Control Delay	44.0	19.6	41.8	1.6	67.7	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.0	19.6	41.8	1.6	67.7	16.8
LOS	D	B	D	A	E	B
Approach Delay	39.5			13.1	17.9	
Approach LOS	D			B	B	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 131.5

Natural Cycle: 130

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 21.4

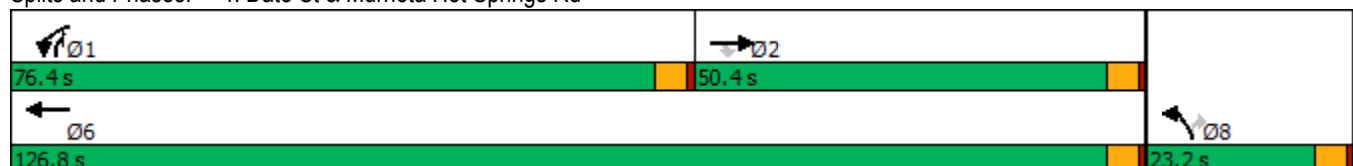
Intersection LOS: C

Intersection Capacity Utilization 82.9%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 4: Date St & Murrieta Hot Springs Rd



Timings

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Synchro 10 Report

Year 2035 w/ Project AM
4: Date St & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↓	↑↑↑	↓	↗↗
Traffic Volume (veh/h)	1182	269	805	2004	19	829
Future Volume (veh/h)	1182	269	805	2004	19	829
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1285	292	875	2178	21	856
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1494	464	870	4145	226	1718
Arrive On Green	0.29	0.29	0.49	0.81	0.13	0.13
Sat Flow, veh/h	5274	1585	1781	5274	1781	2790
Grp Volume(v), veh/h	1285	292	875	2178	21	856
Grp Sat Flow(s),veh/h/ln	1702	1585	1781	1702	1781	1395
Q Serve(g_s), s	35.0	23.5	71.9	20.6	1.5	18.7
Cycle Q Clear(g_c), s	35.0	23.5	71.9	20.6	1.5	18.7
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1494	464	870	4145	226	1718
V/C Ratio(X)	0.86	0.63	1.01	0.53	0.09	0.50
Avail Cap(c_a), veh/h	1593	494	870	4244	226	1718
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	49.2	45.1	37.6	4.5	56.7	15.7
Incr Delay (d2), s/veh	4.8	2.3	31.8	0.1	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.6	9.6	38.4	6.1	0.7	8.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	54.0	47.5	69.4	4.7	56.9	15.9
LnGrp LOS	D	D	F	A	E	B
Approach Vol, veh/h	1577			3053	877	
Approach Delay, s/veh	52.8			23.2	16.9	
Approach LOS	D			C	B	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	76.4	47.5			123.9	23.2
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	71.9	45.9			122.3	18.7
Max Q Clear Time (g_c+I1), s	73.9	37.0			22.6	20.7
Green Ext Time (p_c), s	0.0	6.0			42.5	0.0
Intersection Summary						
HCM 6th Ctrl Delay			30.7			
HCM 6th LOS			C			

Year 2035 w/ Project AM
5: Delhaven St & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

Intersection												
Int Delay, s/veh	3.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	1951	40	60	2769	20	0	0	80	0	0	40
Future Vol, veh/h	20	1951	40	60	2769	20	0	0	80	0	0	40
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	190	-	150	120	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	2121	43	65	3010	22	0	0	87	0	0	43
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	3032	0	0	2164	0	0	-	-	1061	-	-	1516
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	5.34	-	-	5.34	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.12	-	-	3.12	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	36	-	-	103	-	-	0	0	189	0	0	93
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	36	-	-	103	-	-	-	-	189	-	-	93
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	2			1.8			39.3			73.9		
HCM LOS							E			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	189	36	-	-	103	-	-	93				
HCM Lane V/C Ratio	0.46	0.604	-	-	0.633	-	-	0.468				
HCM Control Delay (s)	39.3	203.3	-	-	86.9	-	-	73.9				
HCM Lane LOS	E	F	-	-	F	-	-	F				
HCM 95th %tile Q(veh)	2.2	2.1	-	-	3.1	-	-	2				

Year 2035 w/ Project AM
6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	768	265	95	276	897	288	1507	155	161	1461	1426
Future Volume (vph)	768	265	95	276	897	288	1507	155	161	1461	1426
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4		3	8	5	2		1	6	7
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.1	22.5	22.5	10.1	49.2	10.1	47.5	47.5	10.1	49.5	10.1
Total Split (s)	36.0	60.0	60.0	25.2	49.2	14.0	53.8	53.8	11.0	50.8	36.0
Total Split (%)	24.0%	40.0%	40.0%	16.8%	32.8%	9.3%	35.9%	35.9%	7.3%	33.9%	24.0%
Yellow Time (s)	4.1	5.2	5.2	4.1	5.2	4.1	5.5	5.5	4.1	5.5	4.1
All-Red Time (s)	1.0	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	0.0
Total Lost Time (s)	5.1	6.2	6.2	5.1	6.2	5.1	6.5	6.5	5.1	6.5	5.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	Min	None	Min	None
Act Effect Green (s)	30.9	52.0	52.0	17.3	38.4	8.9	47.4	47.4	5.9	44.4	81.8
Actuated g/C Ratio	0.21	0.36	0.36	0.12	0.26	0.06	0.33	0.33	0.04	0.31	0.56
v/c Ratio	1.14	0.16	0.16	0.74	0.80	1.49	0.99	0.27	1.26	1.02	1.69
Control Delay	130.9	32.4	6.2	73.3	54.6	289.3	68.4	7.3	215.2	78.6	341.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	130.9	32.4	6.2	73.3	54.6	289.3	68.4	7.3	215.2	78.6	341.2
LOS	F	C	A	E	D	F	E	A	F	E	F
Approach Delay		97.2			58.7		96.2			208.7	
Approach LOS		F			E		F			F	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 145.5

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.69

Intersection Signal Delay: 136.4

Intersection LOS: F

Intersection Capacity Utilization 129.4%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd

			
11 s	53.8 s	25.2 s	60 s
			
14 s	50.8 s	36 s	49.2 s

Timings

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Synchro 10 Report

Year 2035 w/ Project AM
6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd

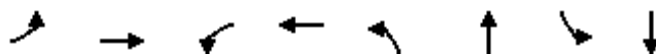
Murrieta Hot Springs Road Widening

03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	768	265	95	276	897	83	288	1507	155	161	1461	1426
Future Volume (veh/h)	768	265	95	276	897	83	288	1507	155	161	1461	1426
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	835	288	98	300	975	86	313	1638	159	175	1588	1473
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	750	1852	575	356	1189	105	216	1696	526	143	1588	837
Arrive On Green	0.22	0.36	0.36	0.10	0.25	0.25	0.06	0.33	0.33	0.04	0.31	0.31
Sat Flow, veh/h	3456	5106	1585	3456	4778	421	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	835	288	98	300	694	367	313	1638	159	175	1588	1473
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1795	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	30.9	5.4	6.0	12.1	27.4	27.5	8.9	44.9	10.6	5.9	44.3	44.3
Cycle Q Clear(g_c), s	30.9	5.4	6.0	12.1	27.4	27.5	8.9	44.9	10.6	5.9	44.3	44.3
Prop In Lane	1.00		1.00	1.00		0.23	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	750	1852	575	356	847	447	216	1696	526	143	1588	837
V/C Ratio(X)	1.11	0.16	0.17	0.84	0.82	0.82	1.45	0.97	0.30	1.22	1.00	1.76
Avail Cap(c_a), veh/h	750	1929	599	488	1028	542	216	1696	526	143	1588	837
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	55.8	30.7	30.8	62.7	50.5	50.5	66.8	46.8	35.3	68.3	49.1	33.6
Incr Delay (d2), s/veh	68.7	0.0	0.1	9.4	4.5	8.3	226.4	14.6	0.3	147.2	22.6	347.0
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	20.6	2.3	2.4	5.8	12.2	13.4	10.7	21.2	4.2	5.5	22.1	108.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	124.5	30.7	31.0	72.2	55.0	58.8	293.1	61.4	35.6	215.5	71.7	380.7
LnGrp LOS	F	C	C	E	D	E	F	E	D	F	F	F
Approach Vol, veh/h		1221			1361			2110			3236	
Approach Delay, s/veh		94.9			59.8			93.8			220.1	
Approach LOS		F			E			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	53.8	19.8	57.9	14.0	50.8	36.0	41.6				
Change Period (Y+Rc), s	5.1	6.5	5.1	6.2	5.1	6.5	5.1	6.2				
Max Green Setting (Gmax), s	5.9	47.3	20.1	53.8	8.9	44.3	30.9	43.0				
Max Q Clear Time (g_c+I1), s	7.9	46.9	14.1	8.0	10.9	46.3	32.9	29.5				
Green Ext Time (p_c), s	0.0	0.3	0.5	2.4	0.0	0.0	0.0	5.9				
Intersection Summary												
HCM 6th Ctrl Delay			139.7									
HCM 6th LOS			F									

Year 2035 w/ Project AM
3: Calle Del Lago & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening
12/10/2018



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	20	1361	20	1983	20	10	20	10
Future Volume (vph)	20	1361	20	1983	20	10	20	10
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases					8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	39.5	39.5	39.5	39.5
Total Split (s)	9.6	40.4	10.0	40.8	39.6	39.6	39.6	39.6
Total Split (%)	10.7%	44.9%	11.1%	45.3%	44.0%	44.0%	44.0%	44.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5		4.5
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	None	Min	None	None	None	None
Act Effect Green (s)	5.3	44.5	5.7	44.5		10.7		10.7
Actuated g/C Ratio	0.08	0.71	0.09	0.71		0.17		0.17
v/c Ratio	0.15	0.42	0.14	0.60		0.33		0.19
Control Delay	33.4	8.5	32.8	11.1		11.1		14.7
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	33.4	8.5	32.8	11.1		11.1		14.7
LOS	C	A	C	B		B		B
Approach Delay		8.9		11.3		11.1		14.7
Approach LOS		A		B		B		B

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 62.7

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 10.4

Intersection LOS: B

Intersection Capacity Utilization 52.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: Calle Del Lago & Murrieta Hot Springs Rd

Ø1	Ø2	Ø4
10 s	40.4 s	39.6 s
Ø5	Ø6	Ø8
9.6 s	40.8 s	39.6 s

Timings

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Synchro 10 Report

Year 2035 w/ Project AM
3: Calle Del Lago & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

12/10/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	1361	30	20	1983	20	20	10	70	20	10	20
Future Volume (veh/h)	20	1361	30	20	1983	20	20	10	70	20	10	20
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	22	1479	33	22	2155	22	22	11	76	22	11	22
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	47	3133	70	47	3177	32	107	27	116	146	57	70
Arrive On Green	0.03	0.61	0.61	0.03	0.61	0.61	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	1781	5139	115	1781	5212	53	223	258	1109	470	540	673
Grp Volume(v), veh/h	22	980	532	22	1407	770	109	0	0	55	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1850	1781	1702	1861	1590	0	0	1683	0	0
Q Serve(g_s), s	0.6	8.2	8.2	0.6	14.3	14.3	1.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.6	8.2	8.2	0.6	14.3	14.3	3.4	0.0	0.0	1.5	0.0	0.0
Prop In Lane	1.00		0.06	1.00		0.03	0.20		0.70	0.40		0.40
Lane Grp Cap(c), veh/h	47	2075	1128	47	2075	1134	250	0	0	273	0	0
V/C Ratio(X)	0.47	0.47	0.47	0.47	0.68	0.68	0.44	0.00	0.00	0.20	0.00	0.00
Avail Cap(c_a), veh/h	175	2349	1276	188	2375	1298	1139	0	0	1131	0	0
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	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	25.0	5.6	5.6	25.0	6.8	6.8	22.3	0.0	0.0	21.5	0.0	0.0
Incr Delay (d2), s/veh	7.2	0.2	0.3	7.2	0.7	1.2	1.2	0.0	0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.0	2.2	0.3	3.5	4.0	1.3	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.2	5.7	5.9	32.2	7.4	8.0	23.5	0.0	0.0	21.9	0.0	0.0
LnGrp LOS	C	A	A	C	A	A	C	A	A	C	A	A
Approach Vol, veh/h	1534				2199				109			
Approach Delay, s/veh	6.2				7.9				23.5			
Approach LOS	A				A				C			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.9	36.2		9.9	5.9	36.2		9.9				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.5	35.9		35.1	5.1	36.3		35.1				
Max Q Clear Time (g_c+I1), s	2.6	10.2		3.5	2.6	16.3		5.4				
Green Ext Time (p_c), s	0.0	12.4		0.3	0.0	15.4		0.6				
Intersection Summary												
HCM 6th Ctrl Delay	7.8											
HCM 6th LOS	A											

Year 2035 w/ Project AM
5: Delhaven St & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening
12/10/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBT
Lane Configurations							
Traffic Volume (vph)	20	1951	40	60	2769	0	0
Future Volume (vph)	20	1951	40	60	2769	0	0
Turn Type	Prot	NA	Perm	Prot	NA	NA	NA
Protected Phases	5	2		1	6	8	4
Permitted Phases			2				
Detector Phase	5	2	2	1	6	8	4
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	43.5	43.5
Total Split (s)	9.6	80.3	80.3	16.2	86.9	43.5	43.5
Total Split (%)	6.9%	57.4%	57.4%	11.6%	62.1%	31.1%	31.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		
Recall Mode	None	Min	Min	None	Min	None	None
Act Effect Green (s)	5.2	79.5	79.5	9.1	87.8	16.9	16.9
Actuated g/C Ratio	0.04	0.68	0.68	0.08	0.75	0.14	0.14
v/c Ratio	0.28	0.61	0.04	0.47	0.80	0.28	0.14
Control Delay	69.5	15.5	0.3	66.7	16.9	7.6	1.7
Queue Delay	0.0	0.8	0.0	0.0	0.4	0.0	0.0
Total Delay	69.5	16.3	0.3	66.7	17.3	7.6	1.7
LOS	E	B	A	E	B	A	A
Approach Delay		16.5			18.4	7.6	1.7
Approach LOS		B			B	A	A

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 117.1

Natural Cycle: 140

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 17.3

Intersection LOS: B

Intersection Capacity Utilization 66.4%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 5: Delhaven St & Murrieta Hot Springs Rd

Ø1	Ø2	Ø4
16.2 s	80.3 s	43.5 s
Ø5	Ø6	Ø8
9.6 s	86.9 s	43.5 s

Timings

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Synchro 10 Report

Year 2035 w/ Project AM
5: Delhaven St & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

12/10/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	20	1951	40	60	2769	20	0	0	80	0	0	40
Future Volume (veh/h)	20	1951	40	60	2769	20	0	0	80	0	0	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			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	22	2121	43	65	3010	22	0	0	87	0	0	43
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	0	2	2	0	2	2
Cap, veh/h	41	3781	1174	84	4000	29	0	0	121	0	0	121
Arrive On Green	0.02	0.74	0.74	0.05	0.76	0.76	0.00	0.00	0.08	0.00	0.00	0.08
Sat Flow, veh/h	1781	5106	1585	1781	5229	38	0	0	1585	0	0	1585
Grp Volume(v), veh/h	22	2121	43	65	1957	1075	0	0	87	0	0	43
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1702	1863	0	0	1585	0	0	1585
Q Serve(g_s), s	1.2	18.3	0.7	3.6	31.6	31.9	0.0	0.0	5.3	0.0	0.0	2.6
Cycle Q Clear(g_c), s	1.2	18.3	0.7	3.6	31.6	31.9	0.0	0.0	5.3	0.0	0.0	2.6
Prop In Lane	1.00		1.00	1.00		0.02	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	41	3781	1174	84	2604	1425	0	0	121	0	0	121
V/C Ratio(X)	0.54	0.56	0.04	0.77	0.75	0.75	0.00	0.00	0.72	0.00	0.00	0.35
Avail Cap(c_a), veh/h	91	3890	1207	209	2819	1543	0	0	621	0	0	621
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	0.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	48.1	5.7	3.4	46.9	6.5	6.5	0.0	0.0	44.9	0.0	0.0	43.6
Incr Delay (d2), s/veh	10.6	0.2	0.0	13.8	1.1	2.0	0.0	0.0	7.7	0.0	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	5.3	0.2	1.9	8.7	10.0	0.0	0.0	2.3	0.0	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.7	5.9	3.5	60.6	7.5	8.5	0.0	0.0	52.5	0.0	0.0	45.4
LnGrp LOS	E	A	A	E	A	A	A	A	D	A	A	D
Approach Vol, veh/h	2186				3097				87			
Approach Delay, s/veh	6.4				9.0				52.5			
Approach LOS	A				A				D			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.2	78.2		12.1	6.8	80.6		12.1				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	11.7	75.8		39.0	5.1	82.4		39.0				
Max Q Clear Time (g_c+I1), s	5.6	20.3		4.6	3.2	33.9		7.3				
Green Ext Time (p_c), s	0.1	31.6		0.2	0.0	42.2		0.5				
Intersection Summary												
HCM 6th Ctrl Delay	8.9											
HCM 6th LOS	A											

Year 2035 w/ Project PM
1: Margarita Rd & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	51	1752	273	1609	933	69	383	77	150
Future Volume (vph)	51	1752	273	1609	933	69	383	77	150
Turn Type	Prot	NA	Prot	NA	Split	NA	pm+ov	NA	Perm
Protected Phases	5	2	1	6	8	8	1	4	
Permitted Phases							8		4
Detector Phase	5	2	1	6	8	8	1	4	4
Switch Phase									
Minimum Initial (s)	6.0	10.0	6.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.6	34.8	10.6	27.8	34.8	34.8	10.6	22.6	22.6
Total Split (s)	12.4	67.0	23.0	77.6	44.0	44.0	23.0	26.0	26.0
Total Split (%)	7.8%	41.9%	14.4%	48.5%	27.5%	27.5%	14.4%	16.3%	16.3%
Yellow Time (s)	3.6	4.8	3.6	4.8	4.8	4.8	3.6	3.6	3.6
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	5.8	4.6	5.8	5.8	5.8	4.6	4.6	4.6
Lead/Lag	Lead	Lead	Lag	Lag			Lag		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	C-Min	None	C-Min	None	None	None	None	None
Act Effect Green (s)	7.6	61.2	18.4	74.3	38.2	38.2	57.8	21.4	21.4
Actuated g/C Ratio	0.05	0.38	0.12	0.46	0.24	0.24	0.36	0.13	0.13
v/c Ratio	0.65	1.30	1.46	0.76	1.24	0.17	0.67	1.19	0.50
Control Delay	108.4	179.0	270.8	24.3	166.6	49.6	28.5	174.8	21.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	108.4	179.0	270.8	24.3	166.6	49.6	28.5	174.8	21.9
LOS	F	F	F	C	F	D	C	F	C
Approach Delay		177.5		59.4		122.6		119.2	
Approach LOS		F		E		F		F	

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 158 (99%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.46

Intersection Signal Delay: 123.5

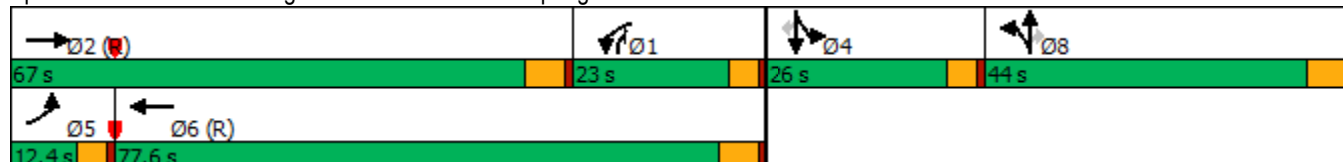
Intersection LOS: F

Intersection Capacity Utilization 107.8%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 1: Margarita Rd & Murrieta Hot Springs Rd



Timings

N:\2934\Analysis\12. LT+P PM.syn

Synchro 10 Report

Year 2035 w/ Project PM
1: Margarita Rd & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	51	1752	538	273	1609	38	933	69	383	185	77	150
Future Volume (veh/h)	51	1752	538	273	1609	38	933	69	383	185	77	150
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	55	1904	585	297	1749	41	1014	75	396	201	84	154
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	70	1500	439	555	3399	80	825	447	873	170	71	212
Arrive On Green	0.04	0.38	0.38	0.62	1.00	1.00	0.24	0.24	0.24	0.13	0.13	0.13
Sat Flow, veh/h	1781	3921	1147	1781	5132	120	3456	1870	1585	1274	532	1585
Grp Volume(v), veh/h	55	1641	848	297	1160	630	1014	75	396	285	0	154
Grp Sat Flow(s),veh/h/ln	1781	1702	1664	1781	1702	1849	1728	1870	1585	1807	0	1585
Q Serve(g_s), s	4.9	61.2	61.2	15.1	0.0	0.0	38.2	5.1	0.0	21.4	0.0	14.9
Cycle Q Clear(g_c), s	4.9	61.2	61.2	15.1	0.0	0.0	38.2	5.1	0.0	21.4	0.0	14.9
Prop In Lane	1.00		0.69	1.00		0.07	1.00		1.00	0.71		1.00
Lane Grp Cap(c), veh/h	70	1302	636	555	2255	1224	825	447	873	242	0	212
V/C Ratio(X)	0.78	1.26	1.33	0.53	0.51	0.51	1.23	0.17	0.45	1.18	0.00	0.73
Avail Cap(c_a), veh/h	87	1302	636	555	2255	1224	825	447	873	242	0	212
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.80	0.80	0.80	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	76.2	49.4	49.4	23.6	0.0	0.0	60.9	48.3	21.6	69.3	0.0	66.5
Incr Delay (d2), s/veh	30.2	123.3	160.5	0.8	0.7	1.2	113.7	0.2	0.4	115.1	0.0	11.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	48.2	53.7	5.1	0.2	0.4	29.8	2.4	9.1	17.7	0.0	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	106.3	172.7	209.9	24.4	0.7	1.2	174.6	48.5	21.9	184.4	0.0	78.2
LnGrp LOS	F	F	F	C	A	A	F	D	C	F	A	E
Approach Vol, veh/h	2544				2087				1485			
Approach Delay, s/veh	183.7				4.2				127.5			
Approach LOS	F				A				F			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	55.7	67.0		26.0	10.9	111.8		44.0				
Change Period (Y+Rc), s	5.8	* 5.8		4.6	4.6	5.8		5.8				
Max Green Setting (Gmax), s	18.4	* 61		21.4	7.8	71.8		38.2				
Max Q Clear Time (g_c+I1), s	17.1	63.2		23.4	6.9	2.0		40.2				
Green Ext Time (p_c), s	0.1	0.0		0.0	0.0	23.3		0.0				

Intersection Summary

HCM 6th Ctrl Delay 111.4

HCM 6th LOS F

Notes

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

Year 2035 w/ Project PM
2: Via Princesa & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	220	1980	75	70	1530	90	25	40	30	160
Future Volume (vph)	220	1980	75	70	1530	90	25	40	30	160
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6		8		4	
Permitted Phases			2			8		4		4
Detector Phase	5	2	2	1	6	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	10.0	10.0	6.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.6	25.8	25.8	10.6	25.8	27.6	27.6	33.6	33.6	33.6
Total Split (s)	42.0	104.0	104.0	20.0	82.0	36.0	36.0	36.0	36.0	36.0
Total Split (%)	26.3%	65.0%	65.0%	12.5%	51.3%	22.5%	22.5%	22.5%	22.5%	22.5%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lag	Lead	Lead	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Min	C-Min	None	C-Min	None	None	None	None	None
Act Effect Green (s)	30.5	113.4	113.4	11.9	94.8	19.7	19.7	19.7	19.7	19.7
Actuated g/C Ratio	0.19	0.71	0.71	0.07	0.59	0.12	0.12	0.12	0.12	0.12
v/c Ratio	0.71	0.60	0.07	0.58	0.58	0.58	0.34	0.31	0.14	0.50
Control Delay	48.2	7.6	0.1	88.6	23.5	78.2	25.5	66.4	60.0	12.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	7.6	0.1	88.6	23.5	78.2	25.5	66.4	60.0	12.4
LOS	D	A	A	F	C	E	C	E	E	B
Approach Delay		11.3			26.2		53.4		28.0	
Approach LOS		B			C		D		C	

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 152 (95%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 19.5

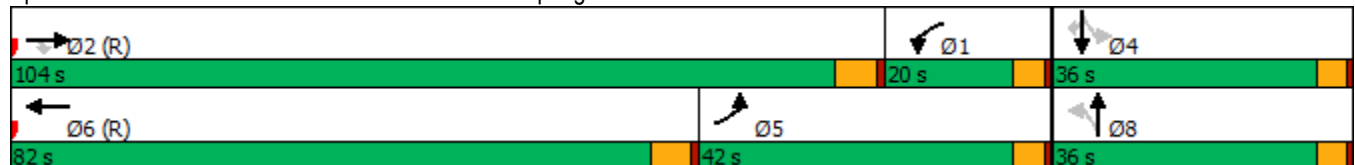
Intersection LOS: B

Intersection Capacity Utilization 67.4%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: Via Princesa & Murrieta Hot Springs Rd



Timings

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Synchro 10 Report

Year 2035 w/ Project PM
2: Via Princesa & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

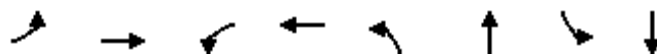
03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	220	1980	75	70	1530	60	90	25	55	40	30	160
Future Volume (veh/h)	220	1980	75	70	1530	60	90	25	55	40	30	160
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	239	2152	82	76	1663	65	98	27	60	43	33	174
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	677	2512	780	516	2023	79	173	64	143	145	233	198
Arrive On Green	0.76	0.98	0.98	0.29	0.40	0.40	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	1781	5106	1585	1781	5042	197	1175	516	1147	1310	1870	1585
Grp Volume(v), veh/h	239	2152	82	76	1123	605	98	0	87	43	33	174
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1702	1835	1175	0	1664	1310	1870	1585
Q Serve(g_s), s	7.0	6.8	0.1	5.1	47.1	47.2	13.0	0.0	7.7	5.0	2.5	17.3
Cycle Q Clear(g_c), s	7.0	6.8	0.1	5.1	47.1	47.2	15.5	0.0	7.7	12.7	2.5	17.3
Prop In Lane	1.00		1.00	1.00		0.11	1.00		0.69	1.00		1.00
Lane Grp Cap(c), veh/h	677	2512	780	516	1366	736	173	0	207	145	233	198
V/C Ratio(X)	0.35	0.86	0.11	0.15	0.82	0.82	0.57	0.00	0.42	0.30	0.14	0.88
Avail Cap(c_a), veh/h	677	3134	973	516	1621	874	257	0	327	239	367	311
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	0.89	0.89	0.89	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.7	0.7	0.6	42.2	42.8	42.8	69.3	0.0	64.7	70.6	62.4	68.9
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.1	5.1	9.0	2.9	0.0	1.3	1.1	0.3	16.0
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	2.4	0.5	0.1	2.3	20.8	23.3	4.1	0.0	3.4	1.7	1.2	7.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.7	1.1	0.7	42.3	47.9	51.8	72.2	0.0	66.0	71.7	62.7	84.9
LnGrp LOS	B	A	A	D	D	D	E	A	E	E	E	F
Approach Vol, veh/h		2473			1804			185			250	
Approach Delay, s/veh		2.2			49.0			69.3			79.7	
Approach LOS		A			D			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	65.4	70.1		24.5	65.5	70.0		24.5				
Change Period (Y+Rc), s	4.6	5.8		4.6	4.6	5.8		4.6				
Max Green Setting (Gmax), s	15.4	98.2		31.4	37.4	76.2		31.4				
Max Q Clear Time (g_c+I1), s	7.1	8.8		19.3	9.0	49.2		17.5				
Green Ext Time (p_c), s	0.1	41.0		0.7	0.7	15.0		0.7				
Intersection Summary												
HCM 6th Ctrl Delay			26.9									
HCM 6th LOS			C									

Year 2035 w/ Project PM
3: Calle Del Lago & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	20	2071	50	1659	10	10	20	10
Future Volume (vph)	20	2071	50	1659	10	10	20	10
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases					8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	10.2	55.4	11.8	57.0	22.8	22.8	22.8	22.8
Total Split (%)	11.3%	61.6%	13.1%	63.3%	25.3%	25.3%	25.3%	25.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5		4.5
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	None	Max	None	None	None	None
Act Effect Green (s)	5.7	57.6	6.8	60.5		7.4		7.4
Actuated g/C Ratio	0.07	0.74	0.09	0.78		0.10		0.10
v/c Ratio	0.17	0.61	0.35	0.46		0.41		0.35
Control Delay	38.6	8.3	41.0	5.2		19.7		28.9
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	38.6	8.3	41.0	5.2		19.7		28.9
LOS	D	A	D	A		B		C
Approach Delay		8.5		6.3		19.7		28.9
Approach LOS		A		A		B		C

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 77.7

Natural Cycle: 70

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 8.0

Intersection LOS: A

Intersection Capacity Utilization 55.9%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: Calle Del Lago & Murrieta Hot Springs Rd

Ø1	Ø2	Ø4
11.8 s	55.4 s	22.8 s
Ø5	Ø6	Ø8
10.2 s	57 s	22.8 s

Timings

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Synchro 10 Report

Year 2035 w/ Project PM
3: Calle Del Lago & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (veh/h)	20	2071	50	50	1659	20	10	10	60	20	10	20
Future Volume (veh/h)	20	2071	50	50	1659	20	10	10	60	20	10	20
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	22	2251	54	54	1803	22	11	11	65	22	11	22
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	44	3552	85	81	3709	45	65	22	95	108	40	54
Arrive On Green	0.02	0.69	0.69	0.05	0.71	0.71	0.08	0.08	0.08	0.08	0.08	0.08
Sat Flow, veh/h	1781	5130	123	1781	5200	63	127	280	1203	507	514	681
Grp Volume(v), veh/h	22	1492	813	54	1180	645	87	0	0	55	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1848	1781	1702	1859	1610	0	0	1703	0	0
Q Serve(g_s), s	0.9	17.7	17.8	2.2	11.2	11.2	1.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.9	17.7	17.8	2.2	11.2	11.2	3.8	0.0	0.0	2.2	0.0	0.0
Prop In Lane	1.00		0.07	1.00		0.03	0.13		0.75	0.40		0.40
Lane Grp Cap(c), veh/h	44	2357	1280	81	2428	1326	182	0	0	203	0	0
V/C Ratio(X)	0.50	0.63	0.64	0.67	0.49	0.49	0.48	0.00	0.00	0.27	0.00	0.00
Avail Cap(c_a), veh/h	138	2357	1280	177	2428	1326	451	0	0	459	0	0
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	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	35.5	6.2	6.2	34.6	4.6	4.6	33.0	0.0	0.0	32.2	0.0	0.0
Incr Delay (d2), s/veh	8.6	1.3	2.4	9.1	0.7	1.3	1.9	0.0	0.0	0.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	4.9	5.8	1.1	2.9	3.4	1.6	0.0	0.0	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.1	7.5	8.6	43.7	5.3	5.9	34.9	0.0	0.0	33.0	0.0	0.0
LnGrp LOS	D	A	A	D	A	A	C	A	A	C	A	A
Approach Vol, veh/h		2327			1879			87			55	
Approach Delay, s/veh		8.2			6.6			34.9			33.0	
Approach LOS		A			A			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	55.5		10.3	6.3	57.0		10.3				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	7.3	50.9		18.3	5.7	52.5		18.3				
Max Q Clear Time (g_c+I1), s	4.2	19.8		4.2	2.9	13.2		5.8				
Green Ext Time (p_c), s	0.0	22.9		0.2	0.0	19.6		0.3				
Intersection Summary												
HCM 6th Ctrl Delay			8.4									
HCM 6th LOS			A									

Year 2035 w/ Project PM
4: Date St & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↘	↑↑↑	↘	↗
Traffic Volume (vph)	1808	343	453	1697	32	1110
Future Volume (vph)	1808	343	453	1697	32	1110
Turn Type	NA	Perm	Prot	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases		2				8
Detector Phase	2	2	1	6	8	1
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	9.5
Total Split (s)	53.0	53.0	32.0	85.0	25.0	32.0
Total Split (%)	48.2%	48.2%	29.1%	77.3%	22.7%	29.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes			Yes
Recall Mode	Min	Min	None	Min	None	None
Act Effect Green (s)	48.3	48.3	27.6	82.4	7.3	35.0
Actuated g/C Ratio	0.52	0.52	0.30	0.89	0.08	0.38
v/c Ratio	0.74	0.40	0.93	0.41	0.25	1.14
Control Delay	20.1	7.5	59.2	2.0	46.0	103.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.1	7.5	59.2	2.0	46.0	103.5
LOS	C	A	E	A	D	F
Approach Delay	18.1			14.0	101.9	
Approach LOS	B			B	F	

Intersection Summary

Cycle Length: 110

Actuated Cycle Length: 92.3

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.14

Intersection Signal Delay: 34.1

Intersection LOS: C

Intersection Capacity Utilization 81.3%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 4: Date St & Murrieta Hot Springs Rd



Timings

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Synchro 10 Report

Year 2035 w/ Project PM
4: Date St & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↓	↑↑↑	↓	↑↑
Traffic Volume (veh/h)	1808	343	453	1697	32	1110
Future Volume (veh/h)	1808	343	453	1697	32	1110
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1965	373	492	1845	35	1146
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2226	691	449	3724	335	1228
Arrive On Green	0.44	0.44	0.25	0.73	0.19	0.19
Sat Flow, veh/h	5274	1585	1781	5274	1781	2790
Grp Volume(v), veh/h	1965	373	492	1845	35	1146
Grp Sat Flow(s),veh/h/ln	1702	1585	1781	1702	1781	1395
Q Serve(g_s), s	38.5	18.9	27.5	16.7	1.8	20.5
Cycle Q Clear(g_c), s	38.5	18.9	27.5	16.7	1.8	20.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2226	691	449	3724	335	1228
V/C Ratio(X)	0.88	0.54	1.09	0.50	0.10	0.93
Avail Cap(c_a), veh/h	2272	705	449	3770	335	1228
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	28.2	22.7	40.8	6.2	36.7	29.0
Incr Delay (d2), s/veh	4.4	0.8	70.7	0.1	0.1	12.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.0	7.1	20.7	5.1	0.8	15.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	32.6	23.5	111.4	6.4	36.8	41.8
LnGrp LOS	C	C	F	A	D	D
Approach Vol, veh/h	2338			2337	1181	
Approach Delay, s/veh	31.2			28.5	41.7	
Approach LOS	C			C	D	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	32.0	52.0			84.0	25.0
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	27.5	48.5			80.5	20.5
Max Q Clear Time (g_c+I1), s	29.5	40.5			18.7	22.5
Green Ext Time (p_c), s	0.0	7.0			25.7	0.0
Intersection Summary						
HCM 6th Ctrl Delay			32.2			
HCM 6th LOS			C			

Year 2035 w/ Project PM
5: Delhaven St & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

Intersection												
Int Delay, s/veh	29.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑↑	↱	↰	↑↑↑				↱			↰
Traffic Vol, veh/h	50	2818	50	80	2105	50	0	0	150	0	0	40
Future Vol, veh/h	50	2818	50	80	2105	50	0	0	150	0	0	40
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	190	-	150	120	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	54	3063	54	87	2288	54	0	0	163	0	0	43

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	2342	0	0	3117	0	0	-	-	1532	-	-	1171
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	5.34	-	-	5.34	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.12	-	-	3.12	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	84	-	-	~ 33	-	-	0	0	~ 90	0	0	159
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	84	-	-	~ 33	-	-	-	-	~ 90	-	-	159
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.8	35.7	\$ 484.4	36
HCM LOS			F	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	90	84	-	-	~ 33	-	-	159
HCM Lane V/C Ratio	1.812	0.647	-	-	2.635	-	-	0.273
HCM Control Delay (s)	\$ 484.4	105.5	-	-	\$ 996.5	-	-	36
HCM Lane LOS	F	F	-	-	F	-	-	E
HCM 95th %tile Q(veh)	13.6	3	-	-	10	-	-	1.1

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Year 2035 w/ Project PM
6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

03/04/2020

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	1478	1036	280	244	754	334	1970	195	195	1162	1115
Future Volume (vph)	1478	1036	280	244	754	334	1970	195	195	1162	1115
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4		3	8	5	2		1	6	7
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.1	22.5	22.5	10.1	49.2	10.1	47.5	47.5	10.1	49.5	10.1
Total Split (s)	40.0	64.9	64.9	24.3	49.2	15.0	58.8	58.8	12.0	55.8	40.0
Total Split (%)	25.0%	40.6%	40.6%	15.2%	30.8%	9.4%	36.8%	36.8%	7.5%	34.9%	25.0%
Yellow Time (s)	4.1	5.2	5.2	4.1	5.2	4.1	5.5	5.5	4.1	5.5	4.1
All-Red Time (s)	1.0	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	0.0
Total Lost Time (s)	5.1	6.2	6.2	5.1	6.2	5.1	6.5	6.5	5.1	6.5	5.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	Min	None	Min	None
Act Effect Green (s)	35.0	54.9	54.9	16.5	36.4	9.9	52.4	52.4	6.9	49.4	90.9
Actuated g/C Ratio	0.23	0.36	0.36	0.11	0.24	0.06	0.34	0.34	0.04	0.32	0.59
v/c Ratio	2.06	0.62	0.47	0.72	0.78	1.64	1.23	0.33	1.38	0.77	1.26
Control Delay	509.8	42.6	25.5	78.4	58.7	348.9	153.2	14.2	254.4	51.5	155.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	509.8	42.6	25.5	78.4	58.7	348.9	153.2	14.2	254.4	51.5	155.2
LOS	F	D	C	E	E	F	F	B	F	D	F
Approach Delay		288.1			63.1		168.5			114.3	
Approach LOS		F			E		F			F	

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 153.6

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 2.06

Intersection Signal Delay: 178.0

Intersection LOS: F

Intersection Capacity Utilization 121.6%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd

Ø1	Ø2	Ø3	Ø4
12 s	58.8 s	24.3 s	64.9 s
Ø5	Ø6	Ø7	Ø8
15 s	55.8 s	40 s	49.2 s

Timings

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Synchro 10 Report

Year 2035 w/ Project PM
6: Winchester Rd (SR-79) & Murrieta Hot Springs Rd

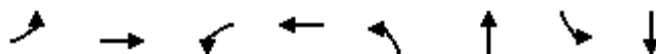
Murrieta Hot Springs Road Widening

03/04/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1478	1036	280	244	754	99	334	1970	195	195	1162	1115
Future Volume (veh/h)	1478	1036	280	244	754	99	334	1970	195	195	1162	1115
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	1607	1126	289	265	820	103	363	2141	201	212	1263	1151
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	803	1845	573	317	1014	127	228	1779	552	159	1677	889
Arrive On Green	0.23	0.36	0.36	0.09	0.22	0.22	0.07	0.35	0.35	0.05	0.33	0.33
Sat Flow, veh/h	3456	5106	1585	3456	4597	574	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	1607	1126	289	265	606	317	363	2141	201	212	1263	1151
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1767	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	34.9	27.1	21.4	11.3	25.3	25.6	9.9	52.3	14.2	6.9	33.1	49.3
Cycle Q Clear(g_c), s	34.9	27.1	21.4	11.3	25.3	25.6	9.9	52.3	14.2	6.9	33.1	49.3
Prop In Lane	1.00		1.00	1.00		0.32	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	803	1845	573	317	751	390	228	1779	552	159	1677	889
V/C Ratio(X)	2.00	0.61	0.50	0.84	0.81	0.81	1.59	1.20	0.36	1.33	0.75	1.29
Avail Cap(c_a), veh/h	803	1997	620	442	975	506	228	1779	552	159	1677	889
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	57.6	39.3	37.4	67.1	55.5	55.6	70.1	48.9	36.5	71.6	45.0	33.0
Incr Delay (d2), s/veh	454.5	0.5	0.7	9.5	3.9	7.6	286.5	97.2	0.4	187.0	2.0	140.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	66.0	11.5	8.5	5.4	11.3	12.3	13.5	38.1	5.6	7.2	14.4	66.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	512.1	39.8	38.1	76.6	59.4	63.2	356.6	146.1	36.9	258.6	46.9	173.9
LnGrp LOS	F	D	D	E	E	E	F	F	D	F	D	F
Approach Vol, veh/h		3022			1188			2705			2626	
Approach Delay, s/veh		290.8			64.2			166.2			119.7	
Approach LOS		F			E			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	58.8	18.9	60.4	15.0	55.8	40.0	39.3				
Change Period (Y+Rc), s	5.1	6.5	5.1	6.2	5.1	6.5	5.1	6.2				
Max Green Setting (Gmax), s	6.9	52.3	19.2	58.7	9.9	49.3	34.9	43.0				
Max Q Clear Time (g_c+I1), s	8.9	54.3	13.3	29.1	11.9	51.3	36.9	27.6				
Green Ext Time (p_c), s	0.0	0.0	0.5	11.1	0.0	0.0	0.0	5.5				
Intersection Summary												
HCM 6th Ctrl Delay			180.2									
HCM 6th LOS			F									

Year 2035 w/ Project PM
3: Calle Del Lago & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening
12/10/2018



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	20	2071	50	1659	10	10	20	10
Future Volume (vph)	20	2071	50	1659	10	10	20	10
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases					8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	39.5	39.5	39.5	39.5
Total Split (s)	9.6	41.0	9.5	40.9	39.5	39.5	39.5	39.5
Total Split (%)	10.7%	45.6%	10.6%	45.4%	43.9%	43.9%	43.9%	43.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5		4.5
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	None	Min	None	None	None	None
Act Effect Green (s)	5.2	44.3	5.1	48.4		10.8		10.8
Actuated g/C Ratio	0.08	0.67	0.08	0.73		0.16		0.16
v/c Ratio	0.16	0.68	0.39	0.49		0.28		0.20
Control Delay	36.1	14.1	42.9	9.3		11.1		16.5
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	36.1	14.1	42.9	9.3		11.1		16.5
LOS	D	B	D	A		B		B
Approach Delay		14.3		10.2		11.1		16.5
Approach LOS		B		B		B		B

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 66.4

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 12.5

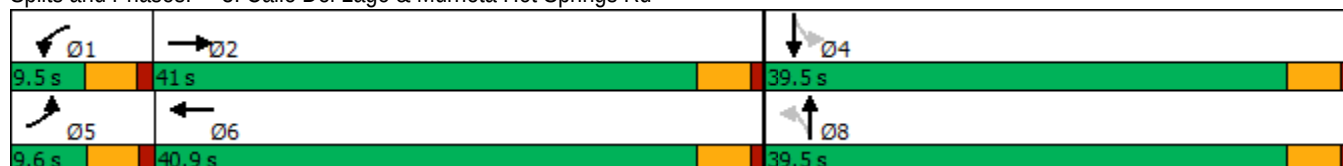
Intersection LOS: B

Intersection Capacity Utilization 55.9%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: Calle Del Lago & Murrieta Hot Springs Rd



Timings

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Synchro 10 Report

Year 2035 w/ Project PM
3: Calle Del Lago & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening

12/10/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (veh/h)	20	2071	50	50	1659	20	10	10	60	20	10	20
Future Volume (veh/h)	20	2071	50	50	1659	20	10	10	60	20	10	20
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	22	2251	54	54	1803	22	11	11	65	22	11	22
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	46	3147	75	91	3322	41	86	23	103	138	42	58
Arrive On Green	0.03	0.61	0.61	0.05	0.64	0.64	0.09	0.09	0.09	0.09	0.09	0.09
Sat Flow, veh/h	1781	5130	123	1781	5200	63	135	272	1202	520	492	674
Grp Volume(v), veh/h	22	1492	813	54	1180	645	87	0	0	55	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1848	1781	1702	1859	1609	0	0	1686	0	0
Q Serve(g_s), s	0.7	16.3	16.4	1.6	10.4	10.4	1.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.7	16.3	16.4	1.6	10.4	10.4	2.8	0.0	0.0	1.6	0.0	0.0
Prop In Lane	1.00		0.07	1.00		0.03	0.13		0.75	0.40		0.40
Lane Grp Cap(c), veh/h	46	2089	1134	91	2175	1188	213	0	0	238	0	0
V/C Ratio(X)	0.47	0.71	0.72	0.59	0.54	0.54	0.41	0.00	0.00	0.23	0.00	0.00
Avail Cap(c_a), veh/h	168	2294	1245	164	2287	1249	1101	0	0	1085	0	0
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	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	26.0	7.2	7.2	25.1	5.4	5.4	23.9	0.0	0.0	23.4	0.0	0.0
Incr Delay (d2), s/veh	7.4	1.0	1.8	5.9	0.2	0.4	1.3	0.0	0.0	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	4.2	4.8	0.8	2.4	2.7	1.1	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.4	8.2	9.0	31.1	5.6	5.8	25.2	0.0	0.0	23.9	0.0	0.0
LnGrp LOS	C	A	A	C	A	A	C	A	A	C	A	A
Approach Vol, veh/h		2327			1879			87			55	
Approach Delay, s/veh		8.7			6.4			25.2			23.9	
Approach LOS		A			A			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.3	37.7		9.2	5.9	39.1		9.2				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	36.5		35.0	5.1	36.4		35.0				
Max Q Clear Time (g_c+I1), s	3.6	18.4		3.6	2.7	12.4		4.8				
Green Ext Time (p_c), s	0.0	14.8		0.3	0.0	14.9		0.5				
Intersection Summary												
HCM 6th Ctrl Delay			8.2									
HCM 6th LOS			A									

Year 2035 w/ Project PM
5: Delhaven St & Murrieta Hot Springs Rd

Murrieta Hot Springs Road Widening
12/10/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBT
Lane Configurations							
Traffic Volume (vph)	50	2818	50	80	2105	0	0
Future Volume (vph)	50	2818	50	80	2105	0	0
Turn Type	Prot	NA	Perm	Prot	NA	NA	NA
Protected Phases	5	2		1	6	8	4
Permitted Phases			2				
Detector Phase	5	2	2	1	6	8	4
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	43.5	43.5
Total Split (s)	14.7	94.0	94.0	12.5	91.8	43.5	43.5
Total Split (%)	9.8%	62.7%	62.7%	8.3%	61.2%	29.0%	29.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		
Recall Mode	None	Min	Min	None	Min	None	None
Act Effect Green (s)	8.6	90.7	90.7	8.1	92.5	19.2	19.2
Actuated g/C Ratio	0.07	0.69	0.69	0.06	0.70	0.15	0.15
v/c Ratio	0.47	0.87	0.05	0.80	0.66	0.52	0.14
Control Delay	76.5	22.6	4.3	107.3	15.7	27.4	0.9
Queue Delay	0.0	46.1	0.0	0.0	0.2	0.0	0.0
Total Delay	76.5	68.6	4.3	107.3	16.0	27.4	0.9
LOS	E	E	A	F	B	C	A
Approach Delay		67.7			19.2	27.4	0.9
Approach LOS		E			B	C	A

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 131.6
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 45.8
 Intersection LOS: D
 Intersection Capacity Utilization 79.4%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 5: Delhaven St & Murrieta Hot Springs Rd

Ø1	Ø2	Ø4
12.5 s	94 s	43.5 s
Ø5	Ø6	Ø8
14.7 s	91.8 s	43.5 s

Year 2035 w/ Project PM
5: Delhaven St & Murrieta Hot Springs Rd

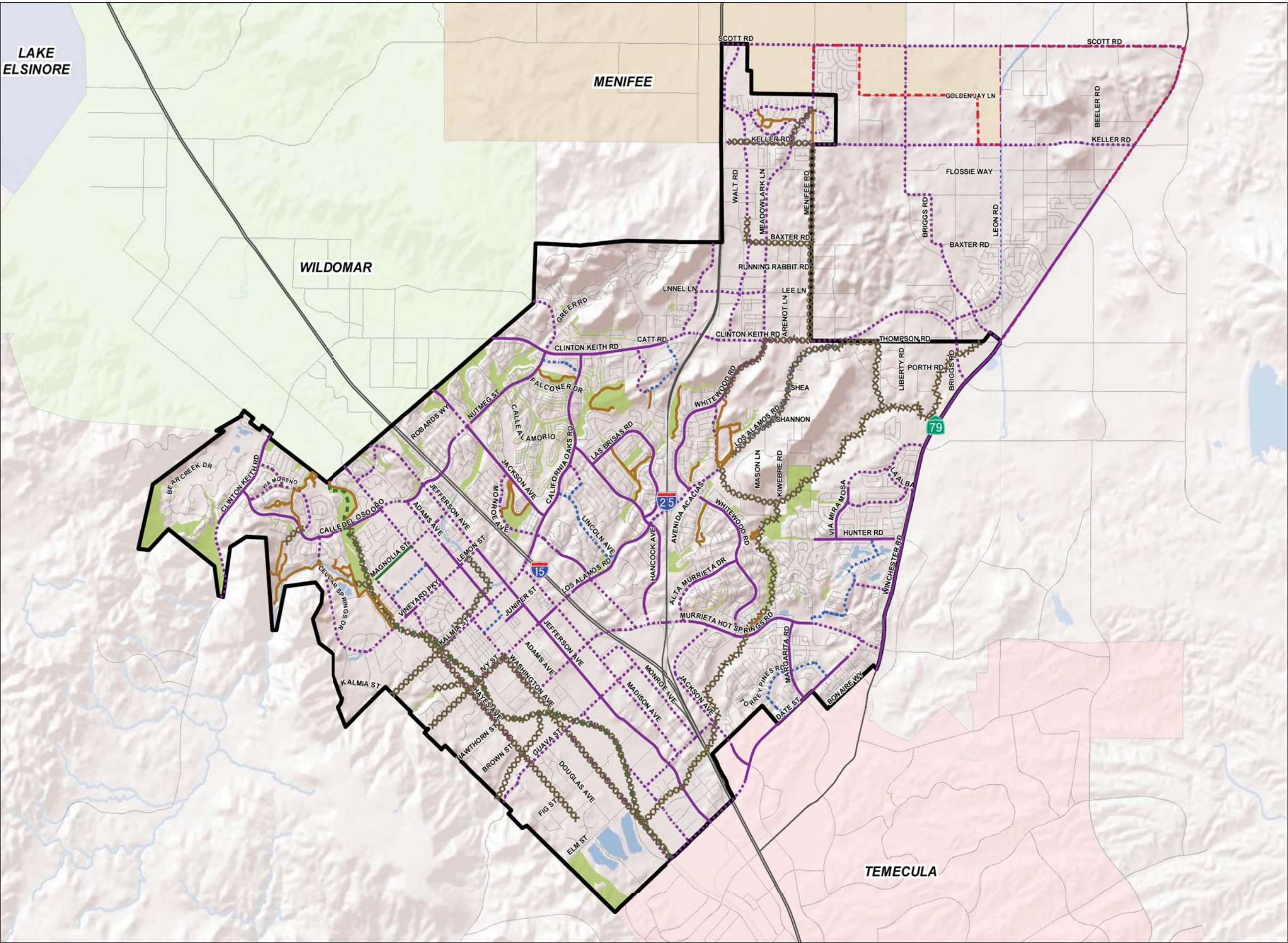
Murrieta Hot Springs Road Widening

12/10/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	50	2818	50	80	2105	50	0	0	150	0	0	40
Future Volume (veh/h)	50	2818	50	80	2105	50	0	0	150	0	0	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	0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	54	3063	54	87	2288	54	0	0	163	0	0	43
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	0	2	2	0	2	2
Cap, veh/h	70	3602	1118	109	3732	88	0	0	197	0	0	197
Arrive On Green	0.04	0.71	0.71	0.06	0.73	0.73	0.00	0.00	0.12	0.00	0.00	0.12
Sat Flow, veh/h	1781	5106	1585	1781	5132	121	0	0	1585	0	0	1585
Grp Volume(v), veh/h	54	3063	54	87	1515	827	0	0	163	0	0	43
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1702	1849	0	0	1585	0	0	1585
Q Serve(g_s), s	3.7	54.6	1.3	6.0	27.1	27.3	0.0	0.0	12.4	0.0	0.0	3.0
Cycle Q Clear(g_c), s	3.7	54.6	1.3	6.0	27.1	27.3	0.0	0.0	12.4	0.0	0.0	3.0
Prop In Lane	1.00		1.00	1.00		0.07	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	70	3602	1118	109	2476	1345	0	0	197	0	0	197
V/C Ratio(X)	0.77	0.85	0.05	0.80	0.61	0.61	0.00	0.00	0.83	0.00	0.00	0.22
Avail Cap(c_a), veh/h	147	3695	1147	115	2476	1345	0	0	500	0	0	500
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	0.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	58.9	13.4	5.6	57.3	8.3	8.3	0.0	0.0	52.8	0.0	0.0	48.7
Incr Delay (d2), s/veh	16.4	2.0	0.0	30.3	0.4	0.8	0.0	0.0	8.5	0.0	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	19.2	0.4	3.6	9.0	10.0	0.0	0.0	5.4	0.0	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.3	15.4	5.6	87.6	8.7	9.2	0.0	0.0	61.3	0.0	0.0	49.3
LnGrp LOS	E	B	A	F	A	A	A	A	E	A	A	D
Approach Vol, veh/h		3171			2429			163			43	
Approach Delay, s/veh		16.3			11.7			61.3			49.3	
Approach LOS		B			B			E			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.1	91.7		19.9	9.3	94.5		19.9				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	8.0	89.5		39.0	10.2	87.3		39.0				
Max Q Clear Time (g_c+I1), s	8.0	56.6		5.0	5.7	29.3		14.4				
Green Ext Time (p_c), s	0.0	30.6		0.2	0.0	35.5		1.0				
Intersection Summary												
HCM 6th Ctrl Delay			15.9									
HCM 6th LOS			B									

APPENDIX H

EXHIBIT 5-1 TRAILS AND BIKEWAYS FROM THE MURRIETA GENERAL PLAN CIRCULATION ELEMENT



LEGEND

Bikeways

Class I: Off-Road
Paved Bike Path

- Class I - Existing
- Class I - Proposed

Class II: On-Road
Striped Bike Lane

- Class II - Existing
- Class II - Proposed

Class III: On-Road
Bike Route (Signage Only)

- Class III - Proposed

Multi-Purpose Trails

Open to horses, bikes and walking

- Existing
- Proposed

- Open Space
- Sphere of Influence
- City Boundary



0 0.5 1
Miles

Source: City of Murrieta, and ESRI - World Shaded Relief.