Twelve Oaks

Transportation Impact Analysis

Draft Report

Prepared for:

Standard Portfolio Temecula, LLC.

December 2016

OC14-0337

FEHR PEERS

CASE: CUP03719
EXHIBIT: Traffic Stdy
DATE: 2/1/2017
PLANNER: T. Wheeler
☐ Meeting ☑ Comment Agenda ☐ Final

COMMENT LEGEND
BROWN = BUILDING & SAFETY GRADING DIVISION
PURPLE = PLANNING DEPARTMENT
GREEN = ENVIRONMENTAL PROGRAMS DEPARTMENT
LIGHT ORANGE = TRANSPORTATION DEPARTMENT
BLUE = FLOOD CONTROL DISTRICT
LIGHT GREEN = REGIONAL PARKS & OPEN SPACE DISTRICT
RED = FIRE DEPARTMENT
YELLOW = ENVIRONMENTAL HEALTH DEPARTMENT
LIGHT BLUE = BUILDING & SAFETY PLAN CHECK
ORANGE = WASTE MANAGEMENT DEPARTMENT
PINK = ARCHAEOLOGY
GRAY = GEOLOGY

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1.0 EXECUTIVE SUMMARY

Fehr & Peers has completed a transportation assessment for the proposed Twelve Oaks Winery Resort project in Wine Country of Riverside County, California. This Traffic Impact Analysis (TIA) was developed based on the requirements within Riverside County's Traffic Impact Analysis Preparation Guide (April 2008).

The proposed project includes a full service hotel, winery production and tasting, a spa, restaurants, and would hold events such as weddings and conferences. The project also includes 76 single family homes and 20 Winery Estate Lots that would function like bed and breakfasts. It is proposed to open in 2020.

Future traffic forecasts were developed for each scenario identified below through the use of ambient growth rates and the addition of pending and approved development projects in the study area. The evaluation assessed eighteen study intersections and six proposed driveways. Intersections were evaluated using the Synchro and Sidra level of service analysis software and is consistent with Highway Capacity Manual (HCM) 2010 methodologies.

As part of Fehr & Peers' assessment, the following scenarios were evaluated:

- Existing Year (2014) Traffic Conditions
- Existing Plus Ambient Growth (2020) Plus Project Traffic Conditions
- Existing Plus Ambient Growth Plus Cumulative (2020) Plus Project Traffic Conditions

The results of the traffic analysis indicate that the six study intersections below were impacted by the addition of project traffic. Mitigation measures were developed that reduce each of these to **less-than significant.**

TABLE 1-1 IMPACTS SUMMARY

Intersection	Scenario(s) Where Impact Occurs	Possible Mitigation?
Rancho California Road & I-15 Southbound Ramp	E+A+P (PM, Wknd), E+A+C+P (PM, Wknd)	Yes
Rancho California Road & Calle Contento	E+A+P (Wknd), E+A+C+P (PM, Wknd)	Yes
Rancho California Road & Anza Road	E+A+P (Wknd), E+A+C+P (Wknd)	Yes
Rancho California Road & Glen Oaks Road	E+A+C+P (Wknd)	Yes
Anza Road & Temecula Parkway (SR-79)	E+A+P (Wknd), E+A+C+P (Wknd)	Yes

2.0 INTRODUCTION

The purpose of this report is to summarize the findings of the transportation impact analyses completed by Fehr & Peers for the proposed Twelve Oaks Winery Resort site and to identify the measures necessary to mitigate significant project impacts. A description of the analyses scenarios and assumptions used are included in this report.

This Transportation Impact Analysis (TIA) was developed based on requirements within Riverside County's *Traffic Impact Analysis Preparation Guide* (April 2008). For intersections within the City of Temecula, the City of Temecula's *Traffic Impact Study Guidelines* (2011) was applied. For intersections at Caltrans freeway ramps, the criteria presented in the Caltrans *Guide for the Preparation of Traffic Impact Studies* (2002) was applied. Assumptions for trip generation, geographic distribution, background traffic and study area were approved by County of Riverside staff in the *Approved Scoping Memo* provided in Appendix A.

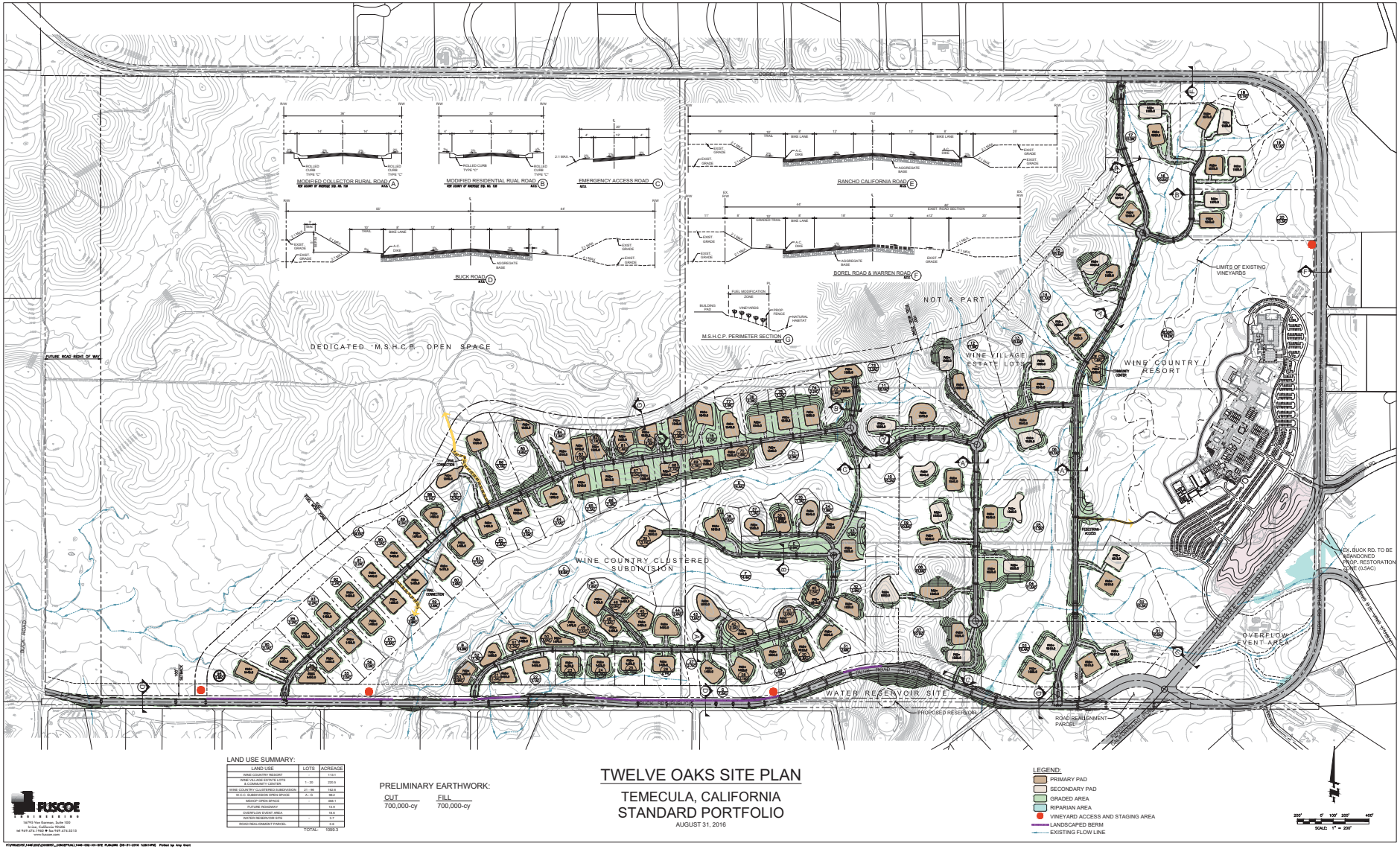
2.1 Project Description

The existing Twelve Oaks site is vacant and bound by Buck Road to the south and Warren Road to the east. The Twelve Oaks site is located roughly 4.5 miles east of the City of Temecula limits along Rancho California Road. According to the Riverside County Comprehensive Plan and the Wine Country Community Plan, the site is currently zoned for agriculture.

The project proposes to develop a large-scale winery resort consisting of a full service hotel and winery set to open in 2020. The winery is considered a large winery in terms of the Wine Country Community Plan and will be similar in size to the existing South Coast Winery. The winery will be equipped with a tank room and barrel room for wine production, lobby, retail space, offices, restaurant and general and VIP tasting rooms. The hotel will contain 250 rooms and will offer amenities such as a spa, café, fine dining restaurant, pool, fitness center and five different wedding venues. The project also proposes to develop 76 single-family homes and 20 Wine Village Estate Lots. The Wine Village Estate Lots will operate similar to a 5-room bed and breakfast and will have private access.

The project proposes to develop the adjacent roadways consistent with the Wine Country Community Plan by constructing a new Rancho California Road extension between Buck Road and Warren. A roundabout is proposed at the reconfigured intersection of Rancho California Road & Buck Road. The project would also pave Buck Road about 7,000 feet west of Rancho California Road. The hotel access driveway would be accessed from the extension of Rancho California Road while the winery access driveway would connect to the newly reconfigured intersection of Warren Road, Benton Road and Rancho California Road. The Winery Estate Lots would access the site from a driveway to the north of the project from Borel Road and also from Buck Road. The single-family homes also have two access points from Buck Road.

Figure 2-1 provides an overview of the Site Plan and Figure 2-2 provides a close up view of the winery and hotel.



LAND USE SUMMARY:

LAND USE	LOTS	ACREAGE
WINE COUNTRY RESORT		113.1
WINE VILLAGE ESTATE LOTS & COMMUNITY CENTER	1 - 20	209.9
WINE COUNTRY CLUSTERED SUBDIVISION	21 - 56	160.8
M.C.C. SUBDIVISION OPEN SPACE	A - D	99.2
MSHCP OPEN SPACE		699.1
FUTURE ROADWAY		13.9
OVERFLOW EVENT AREA		16.9
WATER RESERVOIR SITE		3.7
ROAD REALIGNMENT PARCEL		0.8
	TOTAL:	1099.3

PRELIMINARY EARTHWORK:

CUT	FILL
700,000-cy	700,000-cy

TWELVE OAKS SITE PLAN

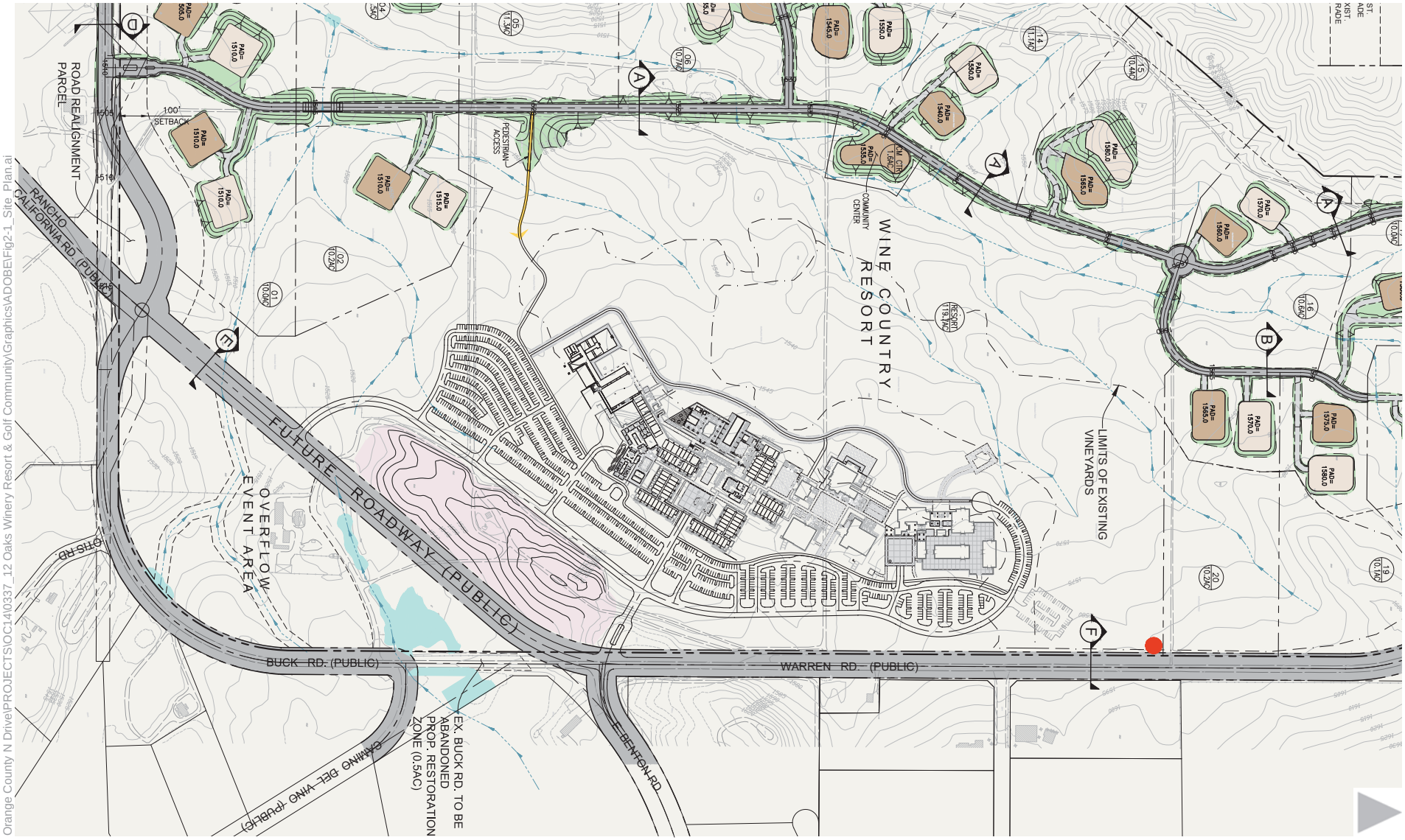
TEMECULA, CALIFORNIA
STANDARD PORTFOLIO
AUGUST 31, 2016

FUSCOE ENGINEERING
16795 Von Karman, Suite 100
Irvine, California 92606
tel 949.474.1960 ■ fax 949.474.5315
www.fuscoe.com

Orange County N Drive\PROJECTS\OC14\0337_12 Oaks Winery Resort & Golf Community\Graphics\ADOBE\Fig2-1_Site_Plan.ai

Figure 2-1

Project Site Plan



Orange County N Drive\PROJECTS\OC14\0337_12 Oaks Winery Resort & Golf Community\Graphics\ADOBE\Fig2-1_Site_Plan.ai

Figure 2-2

Project Site Plan (Winery & Hotel)

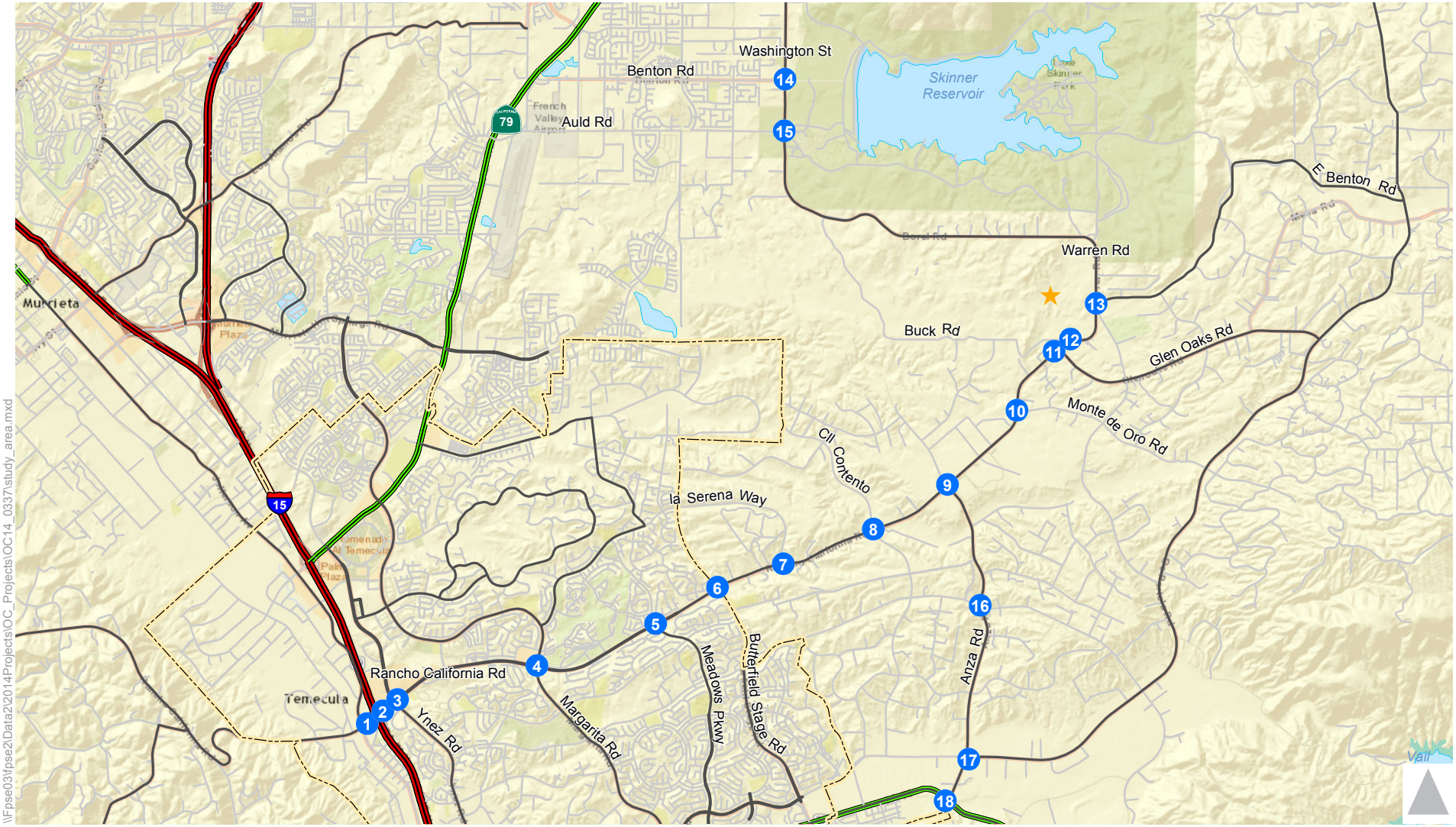
2.2 Project Study Area

In accordance with the County of Riverside Transportation & Land Management Agency (TLMA), the project study area covers the area adjacent to the project that would be utilized by project traffic. The study area consists of the stretch of Rancho California Road from I-15 to Buck Road, continues on Warren Road and Borel Road northwest to Washington Street. The project study area is shown in Figure 2-3.

2.2.1 STUDY INTERSECTIONS

Eighteen intersections were chosen for analysis. These locations are listed below and are shown in Figure 2-3. Also listed is the jurisdiction in control of each intersection:

1. Rancho California Road & I-15 Southbound Ramps, Caltrans
2. Rancho California Road & I-15 Northbound Ramps, Caltrans
3. Rancho California Road & Ynez Road, City of Temecula
4. Rancho California Road & Margarita Road, City of Temecula
5. Rancho California Road & Meadows Parkway, City of Temecula
6. Rancho California Road & Butterfield Stage Road, City of Temecula
7. Rancho California Road & La Serena Way, County of Riverside
8. Rancho California Road & Calle Contento, County of Riverside
9. Rancho California Road & Anza Road, County of Riverside
10. Rancho California Road & Monte De Oro, County of Riverside
11. Rancho California Road & Glen Oaks Road, County of Riverside
12. Rancho California Road & Buck Road, County of Riverside
13. Warren Road & East Benton Road, County of Riverside
14. Washington Street & Benton Road, County of Riverside
15. Borel Road & Auld Road, County of Riverside
16. 16. Anza Road & Pauba Road, County of Riverside
17. 17. Anza Road De Portola Road, County of Riverside
18. 18. Anza Road & Temecula Parkway (SR-79S), County of Riverside



\\Fpse03\fpse2\Data2\2014Projects\OC_Projects\OC14_0337\study_area.mxd

★ Project Site

1 Study Intersections

Temecula City Limits

Figure 2-3

Study Area

2.3 Analysis Scenarios

To identify significant project impacts, Fehr & Peers evaluated the following three scenarios for study area intersections as part of the proposed project:

- Existing Year (2014) Traffic Conditions – Consists of existing counts collected in the study area in 2014.
- Existing Plus Ambient Growth (2020) Plus Project Traffic Conditions – Consists of a 2% growth rate per year and the addition of project traffic to the existing counts. This scenario is the basis for determining project-specific impacts, mitigation, and conditions of approval.
- Existing Plus Ambient Growth Plus Cumulative Projects (2020) Plus Project Traffic Conditions – Applies traffic generated from pending and approved development projects in the study are to Existing Plus Ambient Growth (2020) Plus Project Traffic Conditions volumes. This scenario will be analyzed, and a determination made if improvements funded through the TUMF or other approved funding mechanism can accommodate the cumulative traffic at the target level of service (LOS) identified in the General Plan. If the "funded" improvements can provide the target LOS, payment into the TUMF (or other fee structure) will be considered as cumulative mitigation through the conditions of approval.

3.0 ANALYSIS METHODOLOGIES

At the direction of the County of Riverside, intersection analysis was performed to determine impacts to the study intersections. This chapter discusses County- and City-approved analysis methodologies and assumptions used to identify the project impacts.

3.1 Level of Service Analysis

Fehr & Peers' analysis of intersections employs a methodology based on empirical research conducted by the Transportation Research Board (TRB) and other authorities. Signalized and unsignalized intersection operations were evaluated using methodologies provided in *Highway Capacity Manual* (HCM) 2010 (TRB), are considered the state-of-the-practice methodologies for evaluating intersection operations, and are consistent with the County of Riverside *Traffic Impact Analysis Guidelines* requirements.

The HCM 2010 methodology for signalized and all-way stop-controlled intersections estimates the average control delay for the vehicle at the intersection. For side-street stop-controlled intersections, the methodology estimates the control delays for each turning movement and identifies the delay for the longest delayed approach (if there is a shared lane, delay is averaged for all turning movements from that lane). After the quantitative delay estimates are complete, the methodology assigns a qualitative letter grade that represents the operations of the intersection. These grades range from level of service (LOS) A (minimal delay) to LOS F (excessive congestion). LOS E represents at-capacity operations. Descriptions of the LOS letter grades for signalized and unsignalized intersections are provided in

Table 3-1 Intersection Level of Service Criteria

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3.2 Intersection Assessment

For signalized and all-way stop-controlled intersections, intersection level of service is determined based on average delay per the standard HCM 2010 methodology. For side-street stop-controlled intersections, intersection level of service is determined based on worst-case approach delay. Delay (in seconds) was calculated at each study intersection using Trafficware Synchro Software 8, and compared to the LOS thresholds outlined in the HCM 2010.

For roundabout assessment, delay was calculated using Sidra Intersection 6 and is similarly compared to the LOS thresholds outlined in the HCM. The software was programmed with gap acceptance parameters set for typical United States applications. To be consistent with HCM 2010, the unsignalized criteria for delay (50 seconds or more is LOS F) was used.

TABLE 3-1 INTERSECTION LEVEL OF SERVICE CRITERIA

Level of Service	Description	Signalized Delay (Seconds)	Unsignalized Delay (Seconds)
A	Operations with very low delay occurring with favorable progression and/or short cycle length.	≤ 10.0	≤ 10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	> 10.0 to 20.0	>10.0 to 15.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	> 20.0 to 35.0	>15.0 to 25.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	> 35.0 to 55.0	>25.0 to 35.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	> 55.0 to 80.0	>35.0 to 50.0
F	Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	> 80.0	>50.0

Source: Highway Capacity Manual (Transportation Research Board, 2010).

3.3 Intersection Impact Criteria

Due to the various jurisdictions within the Twelve Oaks study area, LOS thresholds were applied to determine traffic impacts based on the relevant jurisdictional standards. For the purposes of this project, the following jurisdictional significance criteria was applied.

3.3.1 RIVERSIDE COUNTY

The County of Riverside General Plan Circulation Element defines the following LOS standards for determining acceptable operations on their facilities:

- LOS C shall apply to all development proposals in any area of the Riverside County not located within the boundaries of an Area Plan, as well those areas located within the following Area Plans: REMAP, Eastern Coachella Valley, Desert Center, Palo Verde Valley, and those non-Community Development areas of the Elsinore, Lake Mathews/Woodcrest, Mead Valley and Temescal Canyon Area Plans.

- LOS D shall apply to all development proposals located within any of the following Area Plans: Eastvale, Jurupa, Highgrove, Reche Canyon/Badlands, Lakeview/Nuevo, Sun City/Menifee Valley, Harvest Valley/Winchester, Southwest Area, The Pass, San Jacinto Valley, Western Coachella Valley and those Community Development Areas of the Elsinore, Lake Mathews/Woodcrest, Mead Valley and Temescal Canyon Area Plans.
- LOS E may be allowed by the Board of Supervisors within designated areas where transit-oriented development and walkable communities are proposed.

For the purpose of this assessment, LOS D is defined as the minimum acceptable operating level in the County of Riverside since all the study intersections are within the Southwest Area Plan.

For unsignalized intersections, impacts are only designated for intersections operating below the acceptable threshold that also meet the *Manual on Uniform Traffic Control Devices* (MUTCD) peak hour warrant for signalization.

According to the County of Riverside *Traffic Impact Analysis Guidelines*, the following types of traffic impacts are considered to be "significant" under CEQA:

1. When existing traffic conditions exceed the General Plan target LOS.
2. When project traffic, when added to existing traffic, will deteriorate the LOS to below the target LOS, and impacts cannot be improved through project conditions of approval.
3. When cumulative traffic exceeds the target LOS, and impacts cannot be improved through the TUMF network (or other funding mechanism), project conditions of approval, or other implementation mechanisms.

3.3.2 CALTRANS

Caltrans' *Guide for the Preparation of Traffic Impact Studies* identifies that the desired level of service on state routes is the transition between LOS C and LOS D. As such, the following standards are applied to Caltrans facilities for this project:

- Degrades operations from an acceptable LOS C or better to an unacceptable LOS D, LOS E, or LOS F; or
- Increases density (freeway assessment), increases delay (for intersections), or adds traffic (for roadways already operating at LOS D, LOS E, or LOS F.

For the purpose of this assessment, LOS C is defined as the minimum acceptable operating level for Caltrans facilities.

3.3.3 CITY OF TEMECULA

The City of Temecula *Traffic Impact Analysis Guidelines* defines the following LOS standards for determining acceptable operations on their facilities for plus project conditions:

- LOS D or better at intersections during peak hours

According to the City of Temecula *Traffic Impact Analysis Guidelines*, "an increase in delay of 2.0 seconds or more at intersections operating at LOS 'E' or 'F' shall be considered a significant impact and mitigation measures will be required to reduce the delay to pre-project or acceptable conditions." The project is not responsible for mitigating intersections for which the project does not cause an increase in delay of 2.0 or more seconds, even if the intersection is operating at an unacceptable LOS (LOS E or LOS F).

3.4 Other Significance Criteria

In addition to the analysis of intersections, this analysis evaluated other factors based on the current CEQA Guidelines Checklist. Based on these other considerations, a significant impact occurs if any of the following conditions are met:

1. A significant impact would occur if the project conflicts with the Riverside County policies, including, but not limited to level of service standards and travel demand measures, or other standards established by the Congestion Management Program (CMP) for designated roads or highways.
2. A significant impact would occur if the project results in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.
3. A significant impact would occur if the project substantially increases hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment) or impede emergency vehicle access.
4. A significant impact would occur if the project conflicts with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

4.0 Existing Year (2014) Traffic Conditions

This chapter discusses the existing transportation conditions in the project study area, including the roadway, transit, and pedestrian networks.

4.1 Existing Roadway Facilities

Regional access to the project site is provided by Interstate 15 (I-15) and local access is provided by Rancho California Road and Warren Road/Borel Road. Roadways in the study area are classified per the County of Riverside and City of Temecula General Plans and described in detail below.

REGIONAL ROADS

There is one regional road in the study area:

- Interstate 15 Freeway (I-15) – I-15 is a north-south freeway that extends from San Diego into Riverside County and further north through the states of Nevada, Arizona, Utah, Idaho, and Montana, terminating at the United States/Canada border. In the study area, I-15 generally has eight lanes (four in each direction). Access to the project corridor is provided by the Winchester Road and Rancho California ramps.

4.1.1 LOCAL ACCESS ROADS

Access roads in the study area are described below:

- Rancho California Road – Rancho California Road is classified in the Wine Country Community Plan as a Mountain Arterial north of Butterfield Stage Road. Rancho California Road is classified in the Temecula General Plan Roadway Plan as an Urban Arterial between Old Town Front Street and Ynez Road, as a Principal Arterial between Ynez Road and Margarita Road, and as a Major Arterial between Margarita Road and Butterfield Stage Road. The roadway runs in the east-west direction and provides direct access to the I-15 Freeway. Rancho California Road generally contains three lanes in each direction, divided, as an Urban Arterial, four lanes in each direction, divided, as a Principal Arterial and Major Arterial, and one lane in each direction, undivided, as a Rural Highway. On-street parking is generally not permitted along Rancho California Road, and there are bike lanes between Moraga Road and Riesling Court. The posted speed limit on Rancho California Road varies between 40 and 50 mph.
- Butterfield Stage Road – Butterfield Stage Road is classified in the Wine Country Community Plan as an Arterial and is classified in the Temecula General Roadway Plan as a Major Arterial. The roadway extends from State Route 79 (SR-79) (Temecula Parkway) north to Murrieta Hot Springs

Road and on to Auld Road. South of Rancho California Road, Butterfield Stage Road is a 4-lane divided roadway that features left-turn bays at intersections and bike lanes. North of Rancho California Road the Butterfield Stage is a 2-lane undivided roadway. The speed limit on Butterfield Stage Road is 50 mph.

- Anza Road – Anza Road is classified as a Major Road in the Wine Country Community Plan. The 2-lane undivided roadway runs from SR 79 north to Vino Way. Its intersection with Rancho California is the first of several planned roundabouts constructed along Rancho California. The speed limit on Anza road is 55 mph.

- Temecula Parkway (SR-79S) – Temecula Parkway is classified as an Urban Arterial between I-15 and Pechanga Parkway, a Principal Arterial between Pechanga Parkway and the Temecula city limits, and a Rural Highway beyond the city limits. Temecula Parkway is an east-west roadway north of the project site, providing direct access to I-15. Temecula Parkway is generally a 6-lane facility with a center median from I-15 to Butterfield Stage Road, where it transitions to a 4- and then a 2-lane facility as it extends eastward. On-street parking is not permitted along Temecula Parkway and the posted speed limit is 55 mph.

- Buck Road – Buck Road is classified as a Mountain Arterial in the Wine Country Community Plan. It currently extends from Borel Road southeast to Rancho California Road and terminates at the intersection of Warren Road & East Benton Road. The speed limit on Buck Road is 55 mph.

- Borel Road – Borel Road is classified as a Mountain Arterial in the Wine Country Community Plan. The 2-lane undivided roadway extends from Warren Road west to Auld Road where it becomes Washington Street. The speed limit on Borel Road is 55 mph.

- East Benton Road – East Benton Road is classified as a Mountain Arterial in the Wine Country Community Plan. This roadway contains one lane in each direction and is undivided. The speed limit on Benton Road is 50 mph.

- Washington Street – Washington Street is classified as an Urban Arterial in the Wine Country Community Plan. Washington Street changes name to Borel Road south of Auld Road. This roadway contains one lane in each direction and is undivided. The speed limit is 55 mph.

- Pauba Road – Pauba Road is classified as Mountain Arterial according to the Wine Country Community Plan. The four lanes and a median are maintained until Margarita Road where it transitions to a 3-lane facility with median. At Lindfield Way/Via Rami, the section narrows to two lanes with a median and continues east until the median phases out at Meadows Parkway. The road continues east out of the City into the County as a 2-lane highway. Near the study area, Pauba Road has a posted speed limit of 40 mph.

- De Portola Road – De Portola Road is classified as a Major Road in the City of Temecula and as a Mountain Arterial in the County of Riverside according to the Wine Country Community Plan. The road begins where Jedidiah Smith Road meets Ynez Road in the City as a 2-lane road with a median and continues east. At Margarita Road it expands to four lanes and maintains that section to the city limits at Butterfield Stage Road. Near the study area, the posted speed limit on De Portola Road is 45 mph.

4.1.2 BUS TRANSIT FACILITIES

The study area is serviced by the Riverside Transit Agency, which operates one bus route near the Wine Country area:

- Route 24 – Route 24 is a circulator bus route primarily serving the City of Temecula. It connects retail uses at the north end of the City to Old Town, Pechanga Resort, and Redhawk areas of the City. It operates on Rancho California Road and Margarita Road, among others, within the study area. The bus stop closest to the project site is over six miles away at the intersection of Rancho California Road & Margarita Road. Route 24 operates on 30- to 60-minute headways during weekdays and on 60-minute headways on weekends.

4.1.3 BICYCLE FACILITIES

Bicycle facilities are provided throughout Temecula, but in general, there are limited bicycle routes through the Wine Country area. Only multi-use trails are designated near the project site, which allow for equestrian, pedestrian, and bicycle uses on unpaved facilities. The multi-use trails do not provide pavement for bicyclists. These multi-use trails are designated adjacent to the following roadways:

- Rancho California Road (from Margarita Road to Butterfield Stage Road and from La Serena Way to Buck Road)
- Calle Contento (north of Rancho California Road)
- La Serena Way (from Walcott Lane to Rancho California Road)
- Anza Road (the entire length)
- Meadows Parkway (north of Rancho California Road)

4.1.4 PEDESTRIAN FACILITIES

Pedestrian facilities near the project site are mostly limited to the multi-use paths described above. Sidewalks are generally not provided along most roads near the study area.

4.2 Traffic Volumes and Lane Configurations

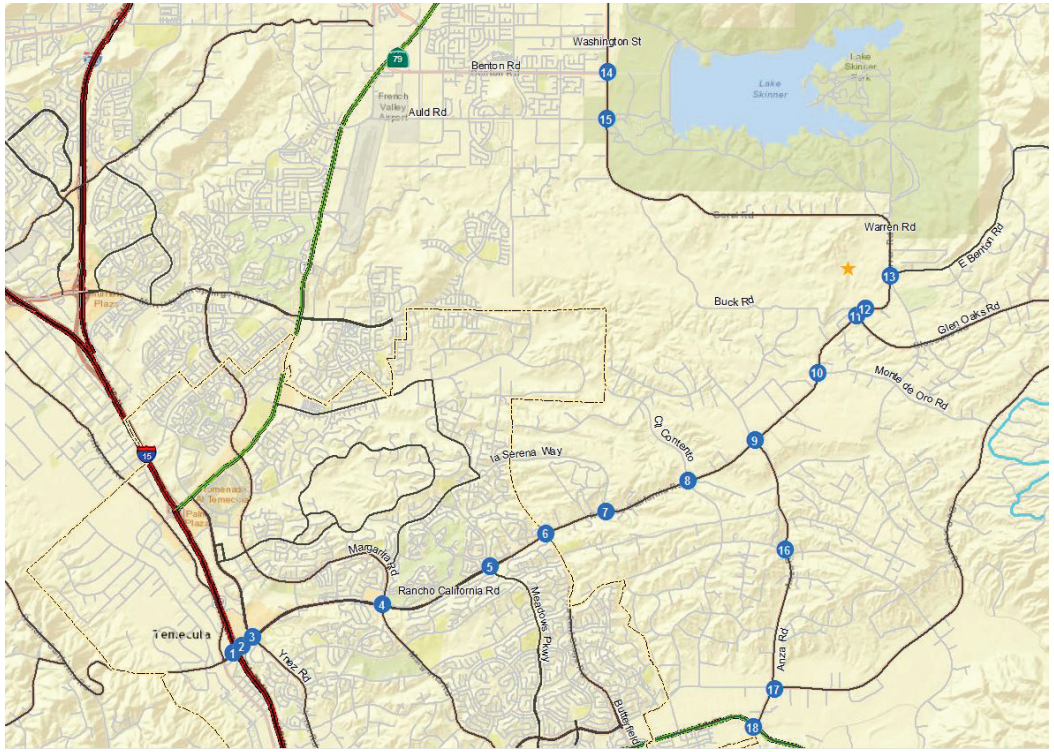
Fehr & Peers collected existing traffic counts on Thursday November 6, 2014 at five study intersections in the morning from 7:00 to 9:00 AM, in the evening from 4:00 to 6:00 PM, and on Saturday November 8, 2014 from 2:00 to 4:00 PM. Counts at the other study intersections were obtained from recent studies. Figure 4-1 summarizes the existing intersection turning movement volumes for the AM, PM, and weekend peak hours from both data sources and is used to represent Existing Year (2014) Traffic Conditions. Existing traffic count data is provided in Appendix B.

4.3 Intersection Operations

Existing traffic volumes described above, lane configurations collected in the field, and signal timing information provided by City staff (all signalized intersections are in the City of Temecula) were used to evaluate operations at the study intersections for existing AM and PM peak hour conditions. The results are summarized in Table 4-1. Lane configurations and peak hour traffic volumes at study intersections for Existing Year (2014) Traffic Conditions are shown on Figure 4-1. The Existing LOS reports are provided in Appendix C.

As shown in Table 4-1, all of the study intersections will operate acceptably during the peak hours, except for the following locations:

- Rancho California Road & I-15 Southbound Ramp - Weekend Peak Hour
- Rancho California Road & Butterfield Stage Road - PM and Weekend Peak Hours
- Rancho California Road & Calle Contento - Weekend Peak Hour
- Rancho California Road & Monte De Oro Road - PM and Weekend Peak Hours



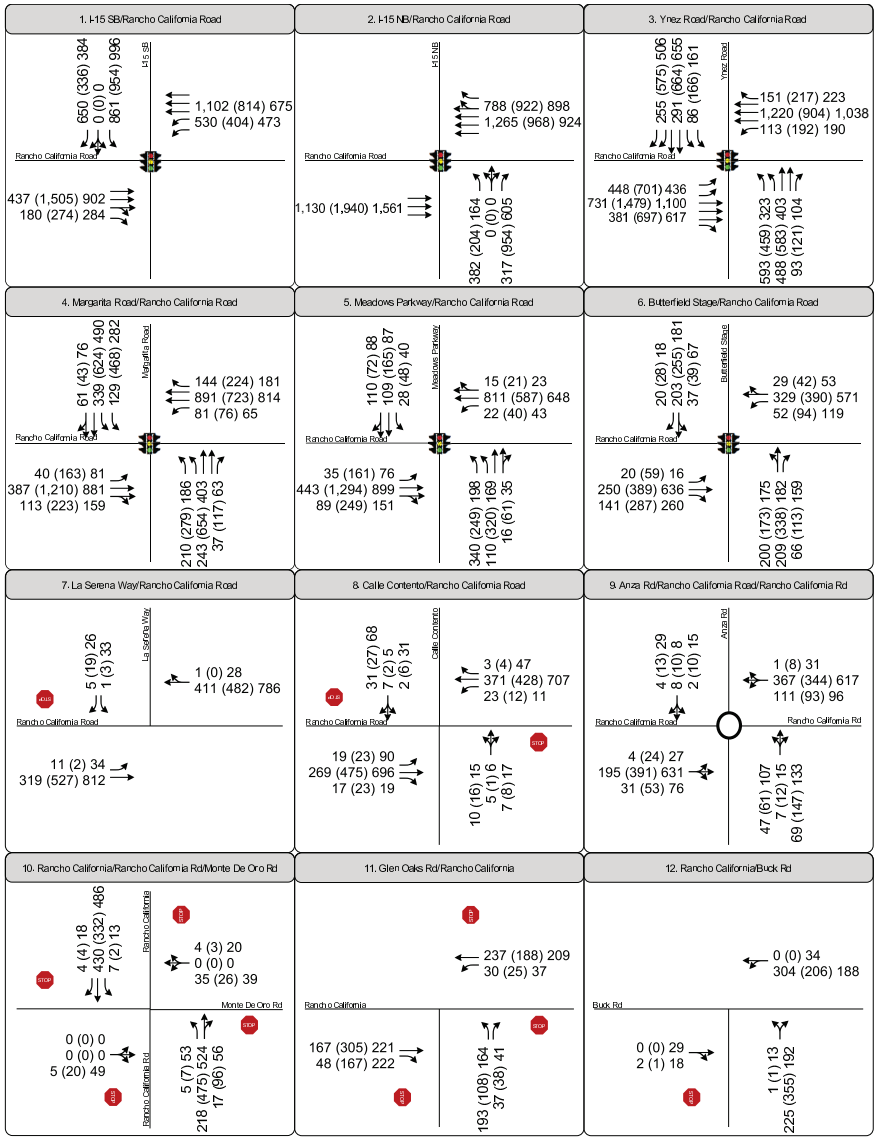
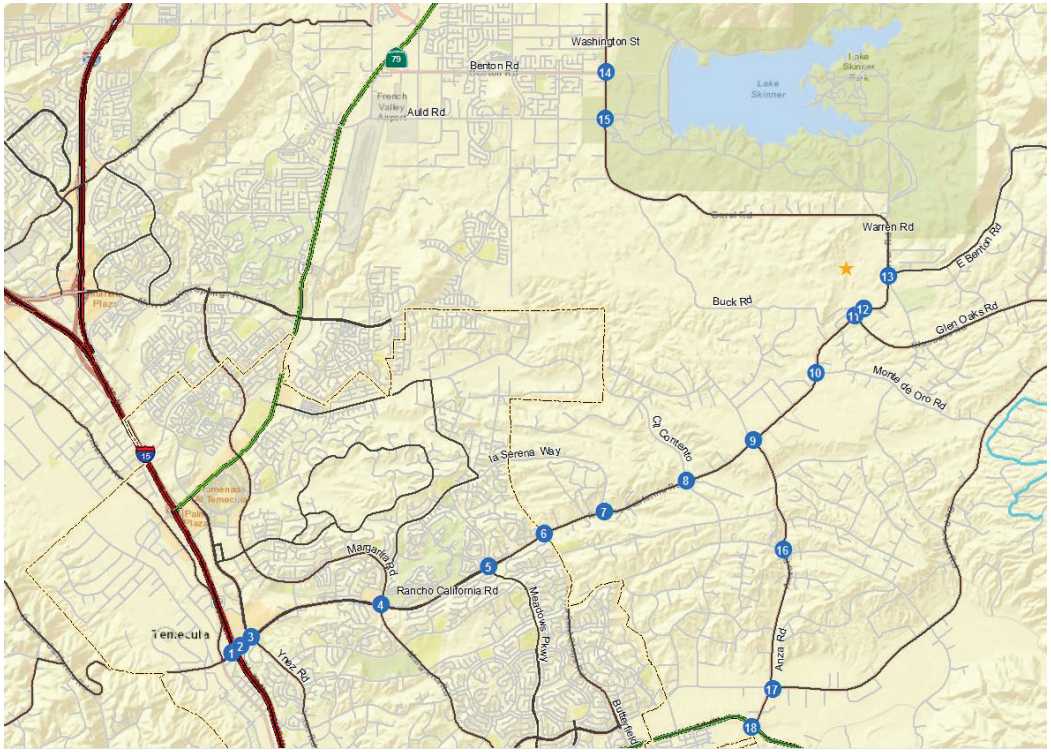
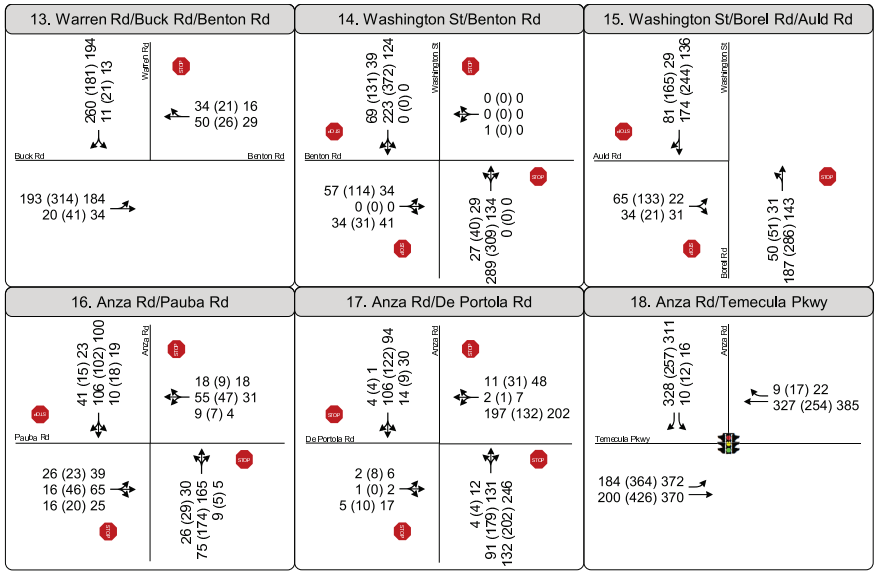
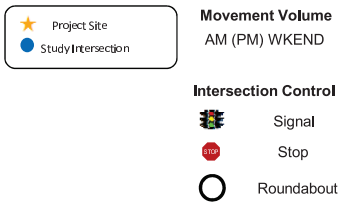


Figure 4-1
Peak Hour Traffic Volumes and Lane Configurations
Existing Year (2014) Conditions







Movement Volume
AM (PM) WKEND

Intersection Control
Signal
Stop
Roundabout

Figure 4-1
Peak Hour Traffic Volumes and Lane Configurations
Existing Year (2014) Conditions

TABLE 4-1 INTERSECTION LEVEL OF SERVICE:
EXISTING YEAR (2014) TRAFFIC CONDITIONS

Intersection	Control	AM Peak		PM Peak		Weekend Peak	
		Delay	LOS	Delay	LOS	Delay	LOS
1. Rancho California Rd & I-15 SB Ramp	Signal	27.7	C	31.7	C	**35.6**	**D**
2. Rancho California Rd & I-15 NB Ramp	Signal	7.1	A	14.8	B	8.6	A
3. Rancho California Rd & Ynez Rd	Signal	32.0	C	30.2	C	26.0	C
4. Rancho California Rd & Margarita Rd	Signal	22.8	C	45.8	D	24.6	C
5. Rancho California Rd & Meadow Pkwy	Signal	20.6	C	23.9	C	17.7	B
6. Rancho California Rd & Butterfield Stage Rd	Signal	31.5	C	**58.1**	**E**	**59.3**	**E**
7. Rancho California Rd & La Serena Rd	Side Street Stop[2]	11.2	B	12.1	B	20.5	C
8. Rancho California Rd & Calle Contento	Side Street Stop	15.6	C	20.1	C	**>50.0**	**F**
9. Rancho California Rd & Anza Rd	Roundabout	5.7	A	6.2	A	8.5	A
10. Rancho California Rd & Monte De Oro Rd	All-Way Stop	13.8	B	**42.6**	**E**	**40.5**	**E**
11. Rancho California Rd & Glen Oaks Rd	All-Way Stop	11.3	B	10.9	B	11.0	B
12. Rancho California Rd & Buck Rd	Side Street Stop	0	A	0	A	8.6	A
13. Warren Rd & East Benton Rd	Side Street Stop	8.7	A	8.7	A	8.6	A
14. Washington St & Benton Rd	All-Way Stop	11.8	B	16.0	C	8.2	A
15. Borel Rd & Auld Rd	All-Way Stop	9.9	A	12.5	B	8.2	A
16. Anza Rd & Pauba Rd	All-Way Stop	8.2	A	8.8	A	8.9	A
17. Anza Rd & De Portola Rd	All-Way Stop	9.5	A	10.6	B	11.9	B
18. Anza Rd & Temecula Pkwy (SR-79)	Signal	16.1	B	16.1	B	23.8	C

Notes:
1. Intersections operating below acceptable standards are noted in **bold.**
2. Worst case movement delay is reported for side street stop controlled intersections.

Source: Fehr & Peers, 2016

5.0 Existing Plus Ambient Growth (2020) Plus Project Traffic Conditions

This chapter provides near-term future year traffic volumes considering ambient growth and the effect of proposed project traffic in the year 2020. Traffic conditions prior to the time that the proposed development is completed were estimated and traffic generated by the proposed project were added. The impacts on the circulation system were then analyzed as the basis for determining project-specific impacts, mitigation, and conditions of approval

5.1 Roadway Improvements

Roadway improvements assumed to be in place by 2020 are documented below. Regional roadway improvements are expected improvements in the study area that are proposed and funded regardless of the proposed project. Project roadway improvements are project-specific improvements to the study area that are proposed as part of the project.

5.1.1 REGIONAL ROADWAY IMPROVEMENTS

The only regional roadway improvement assumed to be implemented by 2020 is the intersection improvement at Butterfield Ranch Road and Rancho California Road. The following lane configurations have been assumed in the 2020 "No Project" condition analysis:

- Eastbound: two left-turn lanes, one through lane, one right-turn lane
- Westbound: one left-turn lane, one through lane and one shared through/right lane
- Northbound: one left-turn lane, one through lane and one shared through/right lane
- Southbound: one left-turn lane, one through lane and one shared through/right lane

Please note that Riverside County is currently planning/designing the next four roundabouts on Rancho California Road, one of which may be completed by 2020. However, given the uncertainty in construction timing, no improvements have been assumed.

5.1.2 PROJECT ROADWAY IMPROVEMENTS

The project proposes to improve the roadway network adjacent to the project by extending Rancho California Road from Buck Road to the intersection of Warren Road and East Benton Road (consistent with the Wine Country Community Plan). A roundabout is proposed at the intersection of Buck Road & Rancho California Road. This improvement would also realign Camino Del Vino to the existing alignment of Rancho California Road.

The project proposes that the hotel access driveway will be from of Rancho California Road (between Buck Road and Warren Road). The winery access driveway would connect as the fourth leg at the intersection of Rancho California Road, Benton Road and Warren Road. The Winery Estates have an access driveway to the north of the project site at Warren Road and to the south of the project at Buck Road. The residential subdivision would have two driveways that access to the south of the site from Buck Road.

5.2 Traffic Volumes

Traffic volumes for the ambient growth scenario were based on a 2% annual growth increase over six years from existing conditions in 2014 to 2020. Traffic generated by the proposed project was then added to these traffic volumes based on the approach outlined below.

5.2.1 PROJECT TRIP GENERATION

Fehr & Peers estimated the project trip generation based on our knowledge of the study area and the Wine Country Plan. The Wine Country Plan estimates trips at wineries based on empirical research by the size of the winery and the different amenities offered. Based on the Wine Country winery size designations, the project should be treated as a large winery, similar to the size of South Coast Winery. South Coast Winery, however, has fewer hotel rooms than proposed by the project. Therefore, additional trips were estimated by applying standard trip generation rates, based on the Institute of Transportation Engineers' (ITE's) *Trip Generation 9th Edition* (2012) for hotels. Use of these rates is consistent with state of the practice procedures for estimating traffic impacts. The project trip generation estimates are provided in Table 5-1.

5.2.2 PROJECT TRIP DISTRIBUTION

The project trips were assigned to the network based on the following assumptions:

- 15% of the trips ingress/egress from/to the north on Washington Street
- 15% of the trips ingress/egress from/to the east on Benton Road
- 50% of the trips ingress/egress from/to the west to access I-15:
    - 45% of these trips ingress/egress from/to the north
    - 5% of these trips egress/ingress from/to the south
- 20% of the trips ingress/egress from/to the south on Anza Road:
    - 5% of these trips ingress/egress from/to the east on De Portola Road
    - 15% of these trips ingress/egress from/to the south on I-15
    - 5% of these trips ingress/egress from/to the south on Pechanga Parkway

Please note that it was assumed that 15% of the residential trips are assumed to use Berenda Road from Anza Road to access the site. The remainder of the project trips that access at Buck Road use Rancho California Road.

TABLE 5-1 PROJECT TRIP GENERATION ESTIMATES

Use	ITE Code	Intensity	AM Peak				PM Peak				Saturday Peak			
			Trip Rate	Total	In	Out	Trip Rate	Total	In	Out	Trip Rate	Total	In	Out
Winery	-	Large	-	8	5	3	-	183	86	97	-	343	158	185
Hotel Rooms	310	200 rooms	0.67	134	78	56	0.70	140	69	71	0.87	174	87	87
Single-Family Homes	210	76 units	0.75	57	14	43	1.00	76	48	28	0.93	71	38	33
Winery Estates	320	100 beds	0.64	64	23	41	0.58	58	31	27	0.76	76	34	42
Net Trip Generation				**263**	**120**	**143**		**457**	**234**	**223**		**664**	**317**	**347**
Pass-by (Winery Only) (-33%)				-	-	-		-60	-28	-32		-113	-52	-61
Internalization (Hotel Only) (-20%)				-	-	-		-28	-13	-14		-35	-16	-17
Total External Trips				**263**	**120**	**143**		**369**	**193**	**177**		**516**	**249**	**269**

5.2.3 PROJECT TRIPS

Error! Reference source not found. provides the estimated trip generation for the proposed project. As presented in **Error! Reference source not found.**, a pass-by reduction of 33% was applied to the net winery trip generation and an internalization reduction of 20% were applied to the net hotel trip generation.

The pass-by reduction was applied to the PM and weekend winery trip generation estimates only. The 33% reduction is based on the assumption that winery visitors commonly visit more than one winery per visit to Wine Country and therefore, one third of the existing trips to the winery already exist on the network. Considering the typical traffic patterns in Wine Country, 33% is a realistic estimate and was approved by county staff.

The internalization reduction is based on the mixed land uses on the project site and that many of the winery guests will also be staying at the hotel. The 20% was only applied to hotel trips and assumed that 1/5 of the hotel trips for local vacation destinations, such as winery visits, spa visits and dining would be satisfied onsite. Given the uses on site, 20% is a reasonable estimate and was approved by county staff.

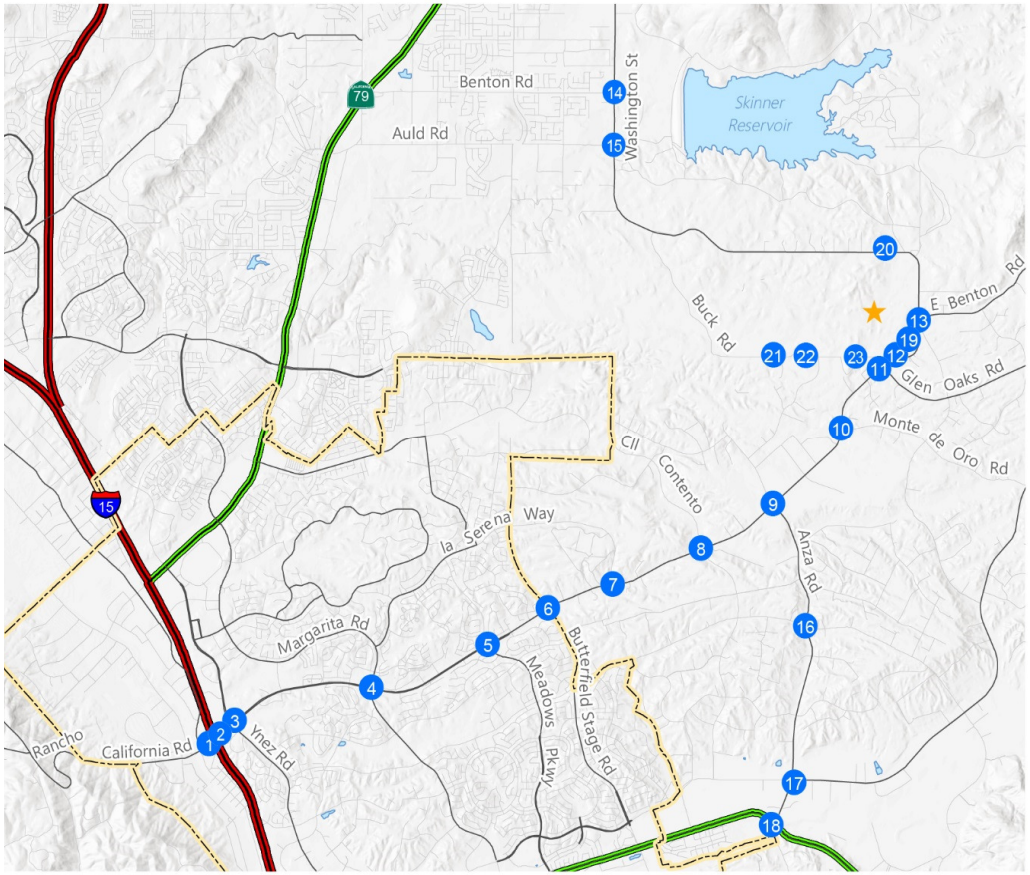
The Winery Estates are assumed to function like a bed and breakfast. There are 20 lots with an assumed five beds in each, which equates to 100 total beds.

Lane configurations and peak hour traffic volumes at study intersections for Existing Plus Ambient Growth (2020) Plus Project Traffic Conditions are shown on Figure 5-1. The Existing Plus Ambient Growth (2020) Plus Project Traffic Conditions LOS reports are provided in Appendix D.

5.3 Intersection Operations

The intersection LOS results are summarized in Table 5-2. As shown in Table 5-2 all of the study intersections will operate acceptably during the peak hours, except for the following locations:

- Rancho California Road & I-15 Southbound Ramp - PM and Weekend Peak Hours
- Rancho California Road & Calle Contento - Weekend Peak Hour
- Rancho California Road & Anza Road – Weekend Peak Hour
- Rancho California Road & Monte De Oro Road – PM and Weekend Peak Hours
- Anza Road & Temecula Parkway (SR-79) – Weekend Peak Hour



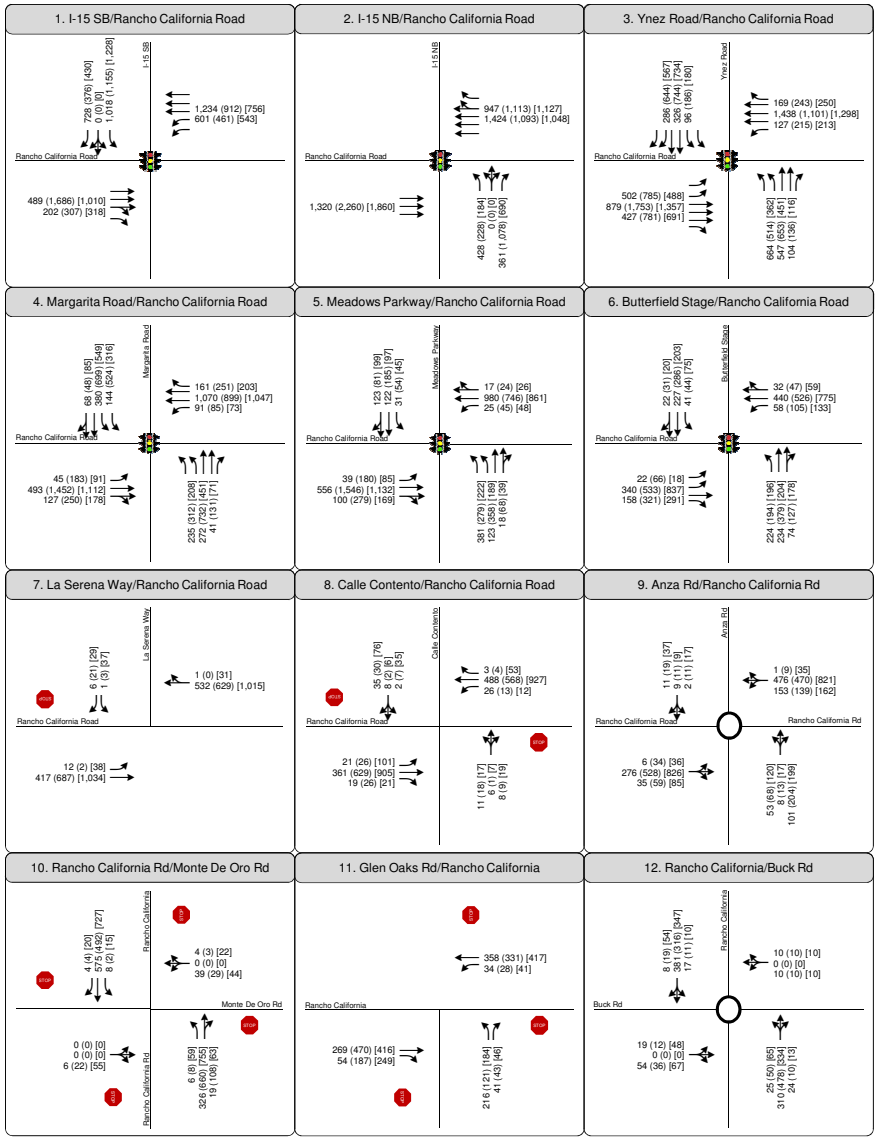
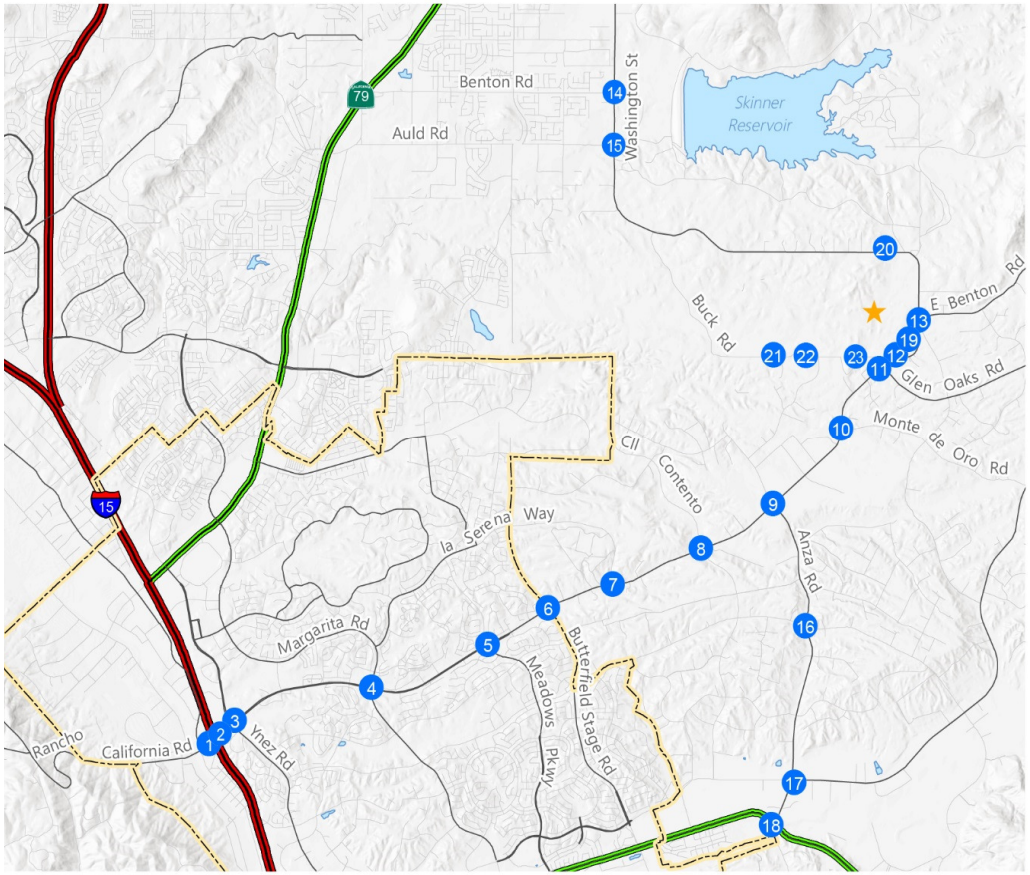


Figure 5-1
Peak Hour Traffic Volumes and Lane Configurations
Existing Plus Ambient Growth (2020) Plus Project Conditions



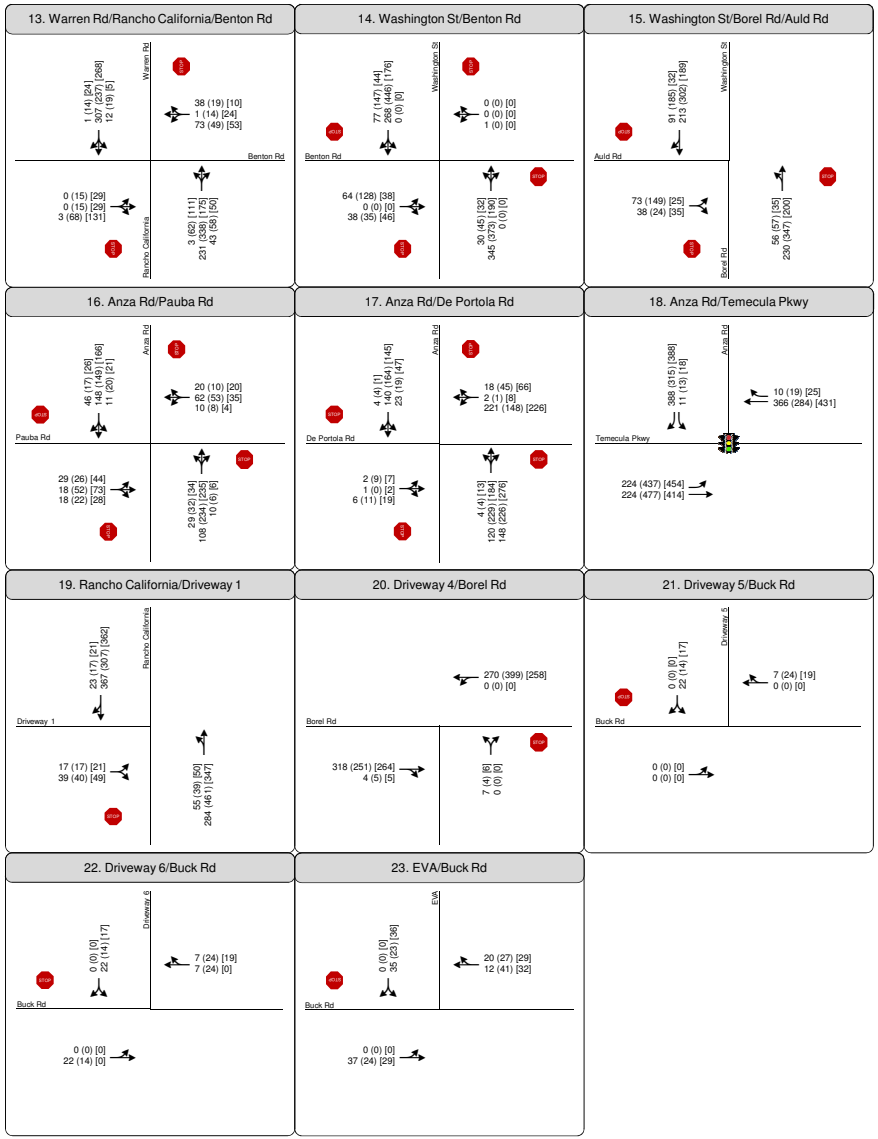


Figure 5-1
Peak Hour Traffic Volumes and Lane Configurations
Existing Plus Ambient Growth (2020) Plus Project Conditions

TABLE 5-2 INTERSECTION LEVEL OF SERVICE:
EXISTING PLUS AMBIENT GROWTH (2020) PLUS PROJECT TRAFFIC CONDITIONS

Intersection	Control	AM Peak		PM Peak		Weekend Peak	
		Delay	LOS	Delay	LOS	Delay	LOS
1. Rancho California Road & I-15 SB Ramp	Signal	34.6	C	**51.9**	**D**	**66.2**	**E**
2. Rancho California Road & I-15 NB Ramp	Signal	8.3	A	19.9	B	11.3	B
3. Rancho California Road & Ynez Road	Signal	46.3	D	48.6	D	41.0	D
4. Rancho California Road & Margarita Road	Signal	29.0	C	40.1	D	37.5	D
5. Rancho California Road & Meadow Parkway	Signal	28.2	C	30.4	C	22.0	C
6. Rancho California Road & Butterfield Stage Road	Signal	28.2	C	32.6	C	38.0	D
7. Rancho California Road & La Serena Way	Side Street Stop	12.4	B	13.9	B	28.9	D
8. Rancho California Road & Calle Contento	Side Street Stop	20.5	C	31.1	D	**>50.0**	**F**
9. Rancho California Road & Anza Road	Roundabout	5.9	A	7.0	A	**>50.0**	**F**
10. Rancho California Road & Monte De Oro Road	All-Way Stop	25.2	D	**44.1**	**E**	**55.5**	**F**
11. Rancho California Road & Glen Oaks Road	All-Way Stop	15.6	C	18.9	C	22.8	C
12. Rancho California Road & Buck Road	Side Street Stop	5.3	A	5.3	A	6.0	A
13. Warren Road & Benton Road/Buck Road	Side Street Stop	15.5	C	24.8	C	30.4	D
14. Washington Street & Benton Road	All-Way Stop	11.8	B	25.7	D	8.9	A
15. Washington Street/Borel Road & Auld Road	All-Way Stop	10.3	B	17.3	C	9.0	A
16. Anza Road & Pauba Road	All-Way Stop	8.8	A	9.8	A	10.2	B
17. Anza Road & De Portola Road	All-Way Stop	10.4	B	12.9	B	16.3	C
18. Anza Road & Temecula Parkway	Signal	20.3	C	24.2	C	**50.2**	**D**
19. Driveway 1 & Rancho California Road	Side Street Stop	13.4	B	13.4	B	14	B
20. Driveway 2 &Warren Road	Side Street Stop	13.2	B	14.0	B	12.5	B

TABLE 5-2 INTERSECTION LEVEL OF SERVICE:
EXISTING PLUS AMBIENT GROWTH (2020) PLUS PROJECT TRAFFIC CONDITIONS

Intersection	Control	AM Peak		PM Peak		Weekend Peak	
		Delay	LOS	Delay	LOS	Delay	LOS
21. Driveway 3 & Warren Road	Side Street Stop	8.6	A	8.6	A	8.6	A
22. Driveway 4 & Buck Road	Side Street Stop	8.8	A	8.8	A	8.6	A
23. Driveway 5 & Buck Road	Side Street Stop	9.0	A	9.0	A	9.1	A

Notes:
1. Intersections operating below acceptable standards are noted in **bold.**
2. Worst case movement delay is reported for side street stop controlled intersections.

Source: Fehr & Peers, 2016

5.4 Signal Warrant Assessment

Given that four unsignalized intersections are operating unacceptably under the "Plus Project" condition, peak hour signal warrants were conducted. The signal warrant analysis was based on the criteria established in the 2014 California Edition of the MUTCD. Traffic Signal Warrant worksheets are provided in Appendix G.

The following traffic signal warrants were conducted and their results are shown below:

- Rancho California Road & Calle Contento –Weekend Peak Hour
  - The traffic volumes forecast at this intersection **satisfy** the weekend peak hour signal warrant.
- Rancho California Road & Anza Road – Weekend Peak Hour
  - The traffic volumes forecast at this intersection **satisfy** the weekend peak hour signal warrant.
- Rancho California Road & Monte De Oro Road – AM, PM and Weekend Peak Hours
  - The traffic volumes forecast at this intersection **do not satisfy** the peak hour signal warrant.

5.5 Intersection Impact Assessment

Table 6-3 compares the changes in delay and LOS at intersections that operate below acceptable thresholds between "Base" and "Plus Project" scenarios to determine project impacts. Changes in delay are compared to the allowable change outlined in Section 3.1.

As shown in Table 5-3, the project will significantly impact the following study intersections under Existing Plus Ambient Growth (2020) Plus Project Traffic Conditions:

- Rancho California Road & I-15 Southbound Ramp – PM and Weekend Peak Hours
- Rancho California Road & Calle Contento – Weekend Peak Hour
- Rancho California Road & Anza Road – Weekend Peak Hour
- Anza Road & Temecula Parkway (SR-79) – Weekend Peak Hour

TABLE 5-3 IMPACT SUMMARY:
EXISTING PLUS AMBIENT GROWTH (2020) PROJECT TRAFFIC CONDITIONS

Intersection	Control	Peak Hour	LOS	Allowable Δ Delay	Existing	With Project	Δ Delay
1. Rancho California Road & I-15 Southbound Ramp	Signal	AM	C	--	--	**--**	**--**
		PM	D	--	31.7	***51.9***	***20.2***
		WKND	E	--	35.6	***66.2***	***30.6***
8. Rancho California Road & Calle Contento	Side Street Stop	AM	C	--	--	**--**	**--**
		PM	D	--	--	**--**	**--**
		WKND	F	--	71.3	***407.7***	***336.4***
	Satisfies Signal Warrant						
9. Rancho California Road & Anza Road	Roundabout	AM	A	--	--	--	--
		PM	A	--	--	--	--
		WKND	E	--	8.5	***58.1***	***49.6***
	Satisfies Signal Warrant						
10. Rancho California Road & Monte De Oro Road	All-Way Stop	AM	D	--	--	--	--
		PM	E	--	42.6	44.1	1.5
		WKND	F	--	40.5	55.5	15.0
	Does Not Satisfy Signal Warrant						
18. Anza Road & Temecula Parkway (SR-79)	Signal	AM	C	--	**--**	**--**	**--**
		PM	C	--	**--**	**--**	**--**
		WKND	D	--	23.8	***50.2***	***26.4***

Notes:
1. Delay is measured in seconds. Calculated using Synchro 8 software package for stop-controlled and signalized intersections. Calculated using Sidra software package for roundabouts.
2. ***Bold-italicized*** type indicates project impact.

Source: Fehr & Peers, 2016

6.0 Existing Plus Ambient Growth Plus Cumulative (2020) Plus Project Traffic Conditions

This chapter provides near-term future year traffic volumes considering ambient growth, cumulative development projects and the effect of proposed project traffic in the year 2020. Traffic conditions prior to the time that the proposed development is completed were estimated and traffic generated by pending and approved development projects, and the proposed project were added. The impacts on the circulation system were then analyzed as the basis for determining cumulative impacts, mitigation, and conditions of approval

6.1 Roadway Improvements

This scenario assumes the same regional and project roadway improvements detailed in the Existing Plus Ambient Growth (2020) Plus Project Traffic Conditions scenario.

6.2 Traffic Volumes

Traffic volumes for the Existing Plus Ambient Growth Plus Cumulative (2020) Plus Project scenario are estimated by applying pending and approved development project volumes to the Existing Plus Ambient Growth (2020) Plus Project Traffic Condition volumes.

The locations of the pending and approved developments projects to be assumed in operation by 2020 are shown in Figure 6-1. Table 6-1 shows the trip generation estimates from the pending and approved developments that was applied to the roadway network. Existing traffic studies were referenced when available for trip generation estimates and trip distribution. Otherwise, the assumptions used in the Wine Country Community Plan EIR Traffic Study for small and large wineries were assumed.

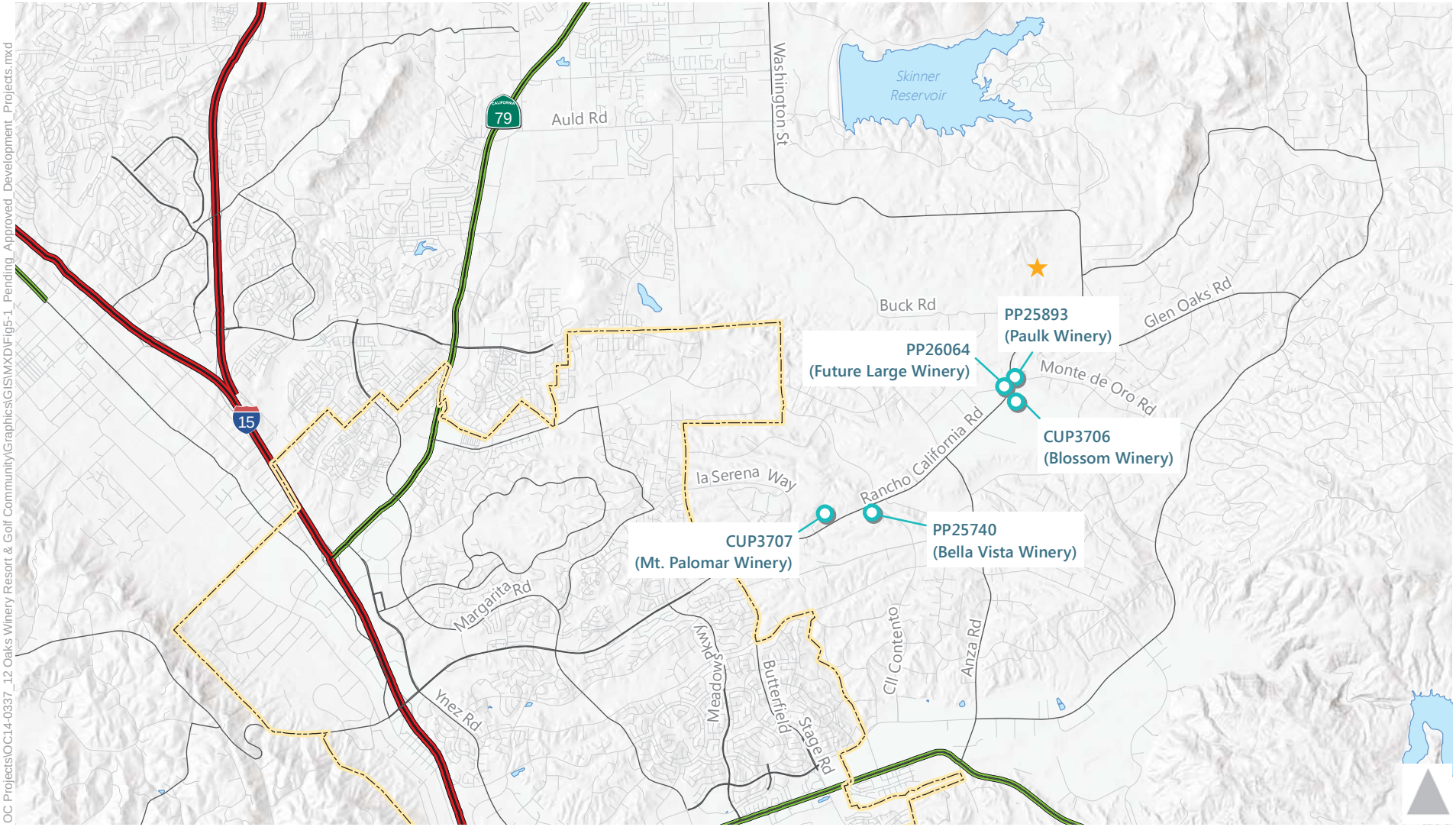
Lane configurations and peak hour traffic volumes at study intersections for Existing Plus Ambient Growth Plus Cumulative (2020) Plus Project Traffic Conditions are shown on Figure 6-2. The Existing Plus Ambient Growth Plus Cumulative (2020) Plus Project Traffic Conditions LOS reports are provided in Appendix E.

TABLE 6-1 PENDING AND APPROVED DEVELOPMENT PROJECT TRIP GENERATION ESTIMATES

Project	Use	AM Peak			PM Peak			Saturday Peak		
		Total	In	Out	Total	In	Out	Total	In	Out
CUP3706 (Blossom Winery)[2]	Small Winery	45	32	13	86	43	43	161	79	82
CUP3707 (Mt. Palomar Winery)[3]	Small Winery	8	5	3	123	58	65	230	106	124
PP25740 (Bella Vista Winery)[1]	Small Winery	1	1	0	12	5	7	28	13	15
PP25893 (Paulk Winery)[1]	Small Winery	1	1	0	12	5	7	28	13	15
PP26064 (Newly Submitted Winery)[1]	Large Winery	8	5	3	123	58	65	230	106	124

Sources:

1. *Traffic Study for the Wine Country Community Plan, Riverside County, CA, Fehr & Peers, 2011*
2. *Trip Generation and Site Access Letter for Ponte Ranch, Kimley Horn, 2014*
3. *Mt. Palomar Winery Traffic Study, Farah Khorashadi, 2015*



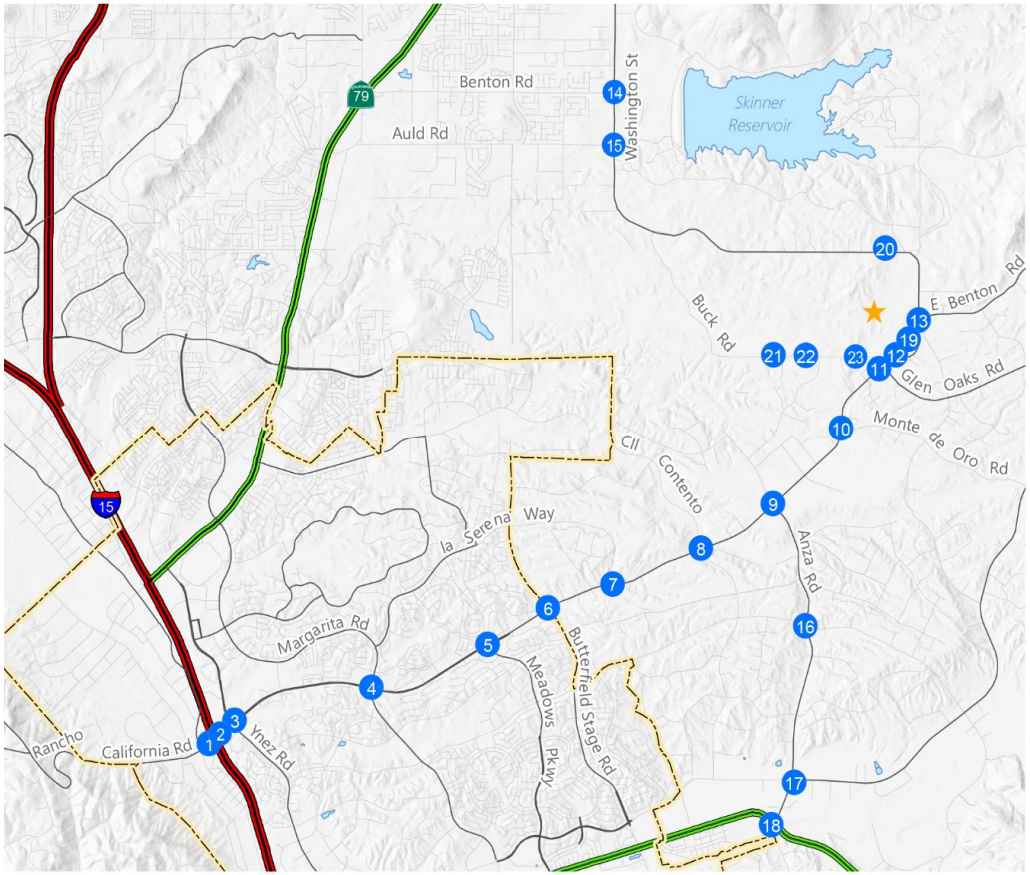
Project Site

Pending and Approved Development Projects

Temecula City Limits

Figure 6-1

Pending and Approved Development Projects



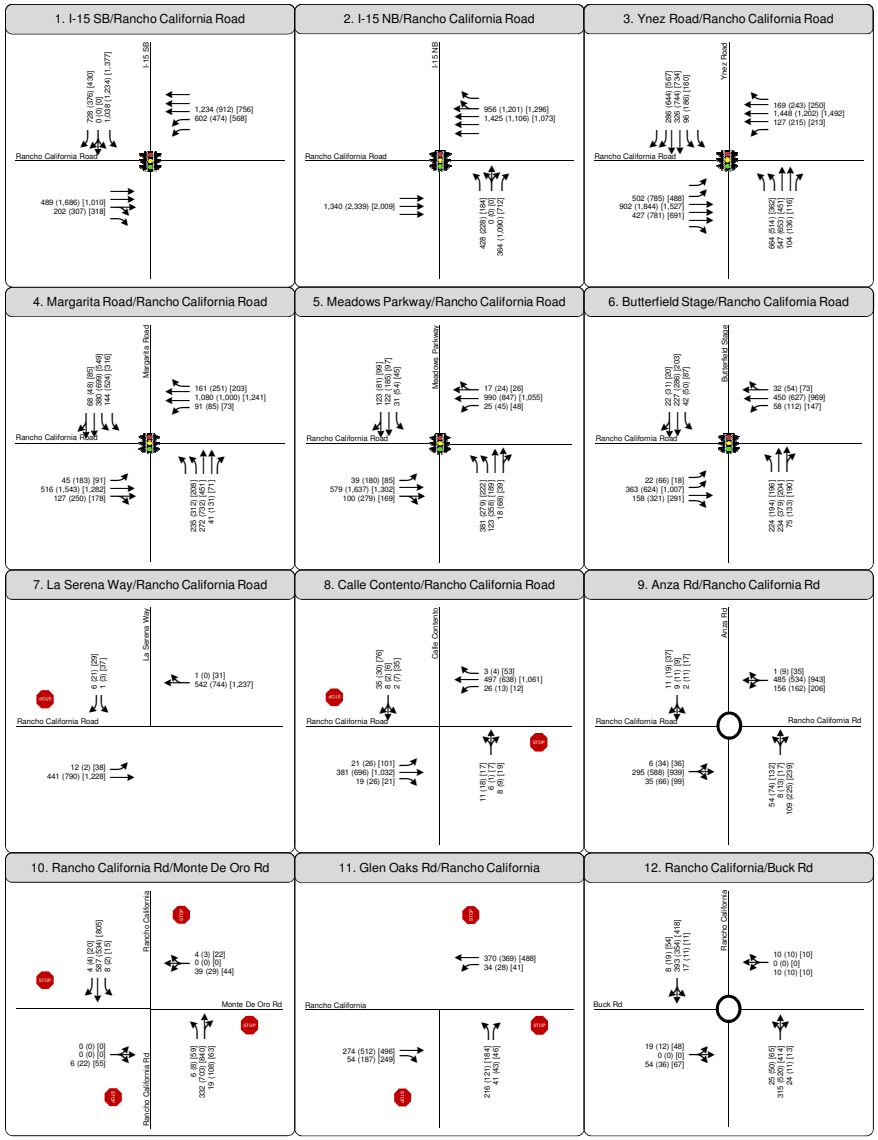
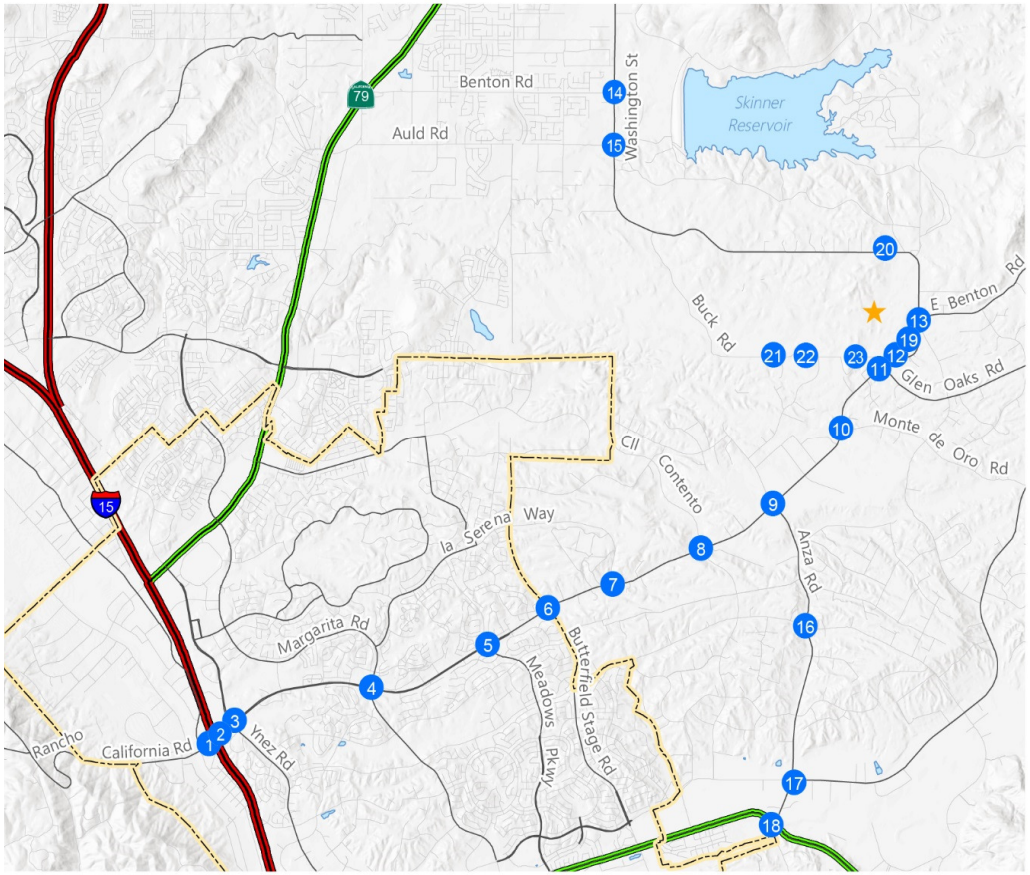


Figure 6-2
Peak Hour Traffic Volume and Lane Configurations
Existing Plus Ambient Growth Plus Cumulative (2020) Plus Project Conditions



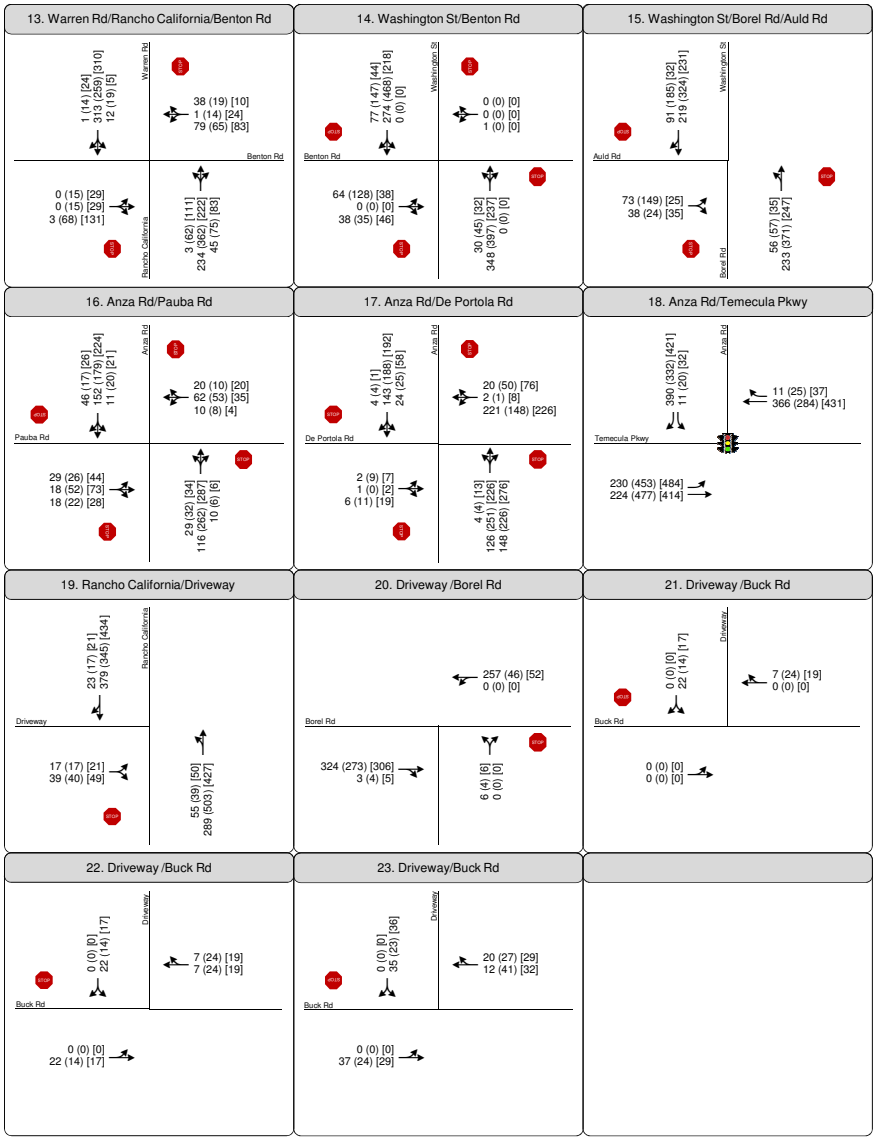


Figure 6-2
Peak Hour Traffic Volume and Lane Configurations
Existing Plus Ambient Growth Plus Cumulative (2020) Plus Project Conditions

6.3 Intersection Operations

The intersection LOS results are summarized in Table 6-2. LOS results for this scenario are provided in Appendix E.

As shown in Table 6-2, all of the study intersections will operate acceptably during the peak hours, except for the following locations:

- Rancho California Road & I-15 Southbound Ramp - PM and Weekend Peak Hours
- Rancho California Road & La Serena Road - Weekend Peak Hour
- Rancho California Road & Calle Contento - PM and Weekend Peak Hours
- Rancho California Road & Anza Road - Weekend Peak Hour
- Rancho California Road & Monte De Oro Road – PM and Weekend Peak Hours
- Rancho California Road & Glen Oaks Road – Weekend Peak Hour
- Anza Road & Temecula Parkway (SR-79) – Weekend Peak Hour

TABLE 6-2 INTERSECTION LEVEL OF SERVICE:
EXISTING PLUS AMBIENT GROWTH PLUS CUMULATIVE (2020) PLUS PROJECT TRAFFIC CONDITIONS

Intersection	Control	AM Peak		PM Peak		Weekend Peak	
		Delay	LOS	Delay	LOS	Delay	LOS
1. Rancho California Rd & I-15 SB Ramp	Signal	34.8	C	**61.8**	**E**	**89.5**	**F**
2. Rancho California Rd & I-15 NB Ramp	Signal	8.3	A	20.3	C	11.4	B
3. Rancho California Rd & Ynez Rd	Signal	46.9	D	53.9	D	50.8	D
4. Rancho California Rd & Margarita Rd	Signal	29.1	C	40.1	D	44.8	D
5. Rancho California Rd & Meadow Pkwy	Signal	28.2	C	34.6	C	21.8	C
6. Rancho California Rd & Butterfield Stage Rd	Signal	28.0	C	33.1	C	50.1	D
7. Rancho California Rd & La Serena Rd	Side Street Stop	12.6	B	15.6	C	**40.5**	**E**
8. Rancho California Rd & Calle Contento	Side Street Stop	21.3	C	**39.2**	**E**	**>50.0**	**F**

TABLE 6-2 INTERSECTION LEVEL OF SERVICE:
EXISTING PLUS AMBIENT GROWTH PLUS CUMULATIVE (2020) PLUS PROJECT TRAFFIC CONDITIONS

Intersection	Control	AM Peak		PM Peak		Weekend Peak	
		Delay	LOS	Delay	LOS	Delay	LOS
9. Rancho California Rd & Anza Rd	Roundabout	6.2	A	9.4	A	**>50.0**	**F**
10. Rancho California Rd & Monte De Oro	All-Way Stop	27.0	D	**46.6**	**E**	**>50.0**	**F**
11. Rancho California Rd & Glen Oaks Rd	All-Way Stop	16.2	C	23.9	C	**39.6**	**E**
12. Rancho California Rd & Buck Rd	Roundabout	5.3	A	5.3	A	6.1	A
13. Warren Rd & East Benton Rd & Winery Driveway	Side Street Stop	6.0	A	6.5	A	6.6	A
14. Washington St & Benton Rd	All-Way Stop	12.0	B	30.1	D	9.7	A
15. Borel Rd & Auld Rd	All-Way Stop	10.4	B	19.1	C	9.6	A
16. Anza Rd & Pauba Rd	All-Way Stop	8.8	A	10.3	B	11.4	B
17. Anza Rd & De Portola Rd	All-Way Stop	10.6	B	14.0	B	20.5	C
18. Anza Rd & Temecula Pkwy (SR-79)	Signal	20.7	C	26.5	C	**66.5**	**E**
19. Rancho California Rd & Hotel Driveway	Side Street Stop	13.6	B	14.4	B	16	C
20. Borel Rd & Winery Estates Northern Driveway	Side Street Stop	13.1	B	14.3	B	13.1	B
21. Buck Rd & Residential Western Driveway	Side Street Stop	8.6	A	8.6	A	8.6	A
22. Buck Rd & Residential Eastern Driveway	Side Street Stop	8.8	A	8.8	A	8.8	A
23. Buck Rd & Winery Estates Southern Driveway	Side Street Stop	9.0	A	9.0	A	9.1	A

Notes:
1. Intersections operating below acceptable standards are noted in **bold.**
2. Worst case movement delay is reported for side street stop controlled intersections.

Source: Fehr & Peers, 2016

6.4 Signal Warrant Assessment

Given that four unsignalized intersections are operating unacceptably under the "Plus Project" condition, peak hour signal warrants were conducted. The signal warrant analysis was based on the criteria established in the 2014 California Edition of the MUTCD. Traffic Signal Warrant worksheets are provided in Appendix G.

The following traffic signal warrants were conducted and their results are shown below:

- Rancho California Road & La Serena Road – Weekend Peak Hour
    - The traffic volumes forecast at this intersection **do not satisfy** the peak hour signal warrant.
- Rancho California Road & Calle Contento – PM and Weekend Peak Hours
    - The traffic volumes forecast at this intersection **satisfy** the weekend peak hour signal warrant.
- Rancho California Road & Anza Road – Weekend Peak Hour
    - The traffic volumes forecast at this intersection **satisfy** the weekend peak hour signal warrant.
- Rancho California Road & Monte De Oro Road – PM and Weekend Peak Hours
    - The traffic volumes forecast at this intersection **do not satisfy** the peak hour signal warrant.
- Rancho California Road & Glen Oaks Road – Weekend Peak Hour
    - The traffic volumes forecast at this intersection **satisfy** the weekend peak hour signal warrant.

6.5 Intersection Impact Assessment

Table 6-3 compares the changes in delay and LOS at intersections that operate below acceptable thresholds between "Base" and "Plus Project" scenarios to determine project impacts. Changes in delay are compared to the allowable change outlined in Section 3.1.

As shown in Table 6-3, the project will significantly impact the following study intersections under Existing Plus Ambient Growth (2020) Plus Project Traffic Conditions:

- Rancho California Road & I-15 Southbound Ramp – PM and Weekend Peak Hours
- Rancho California Road & Calle Contento – PM and Weekend Peak Hours
- Rancho California Road & Anza Road – Weekend Peak Hour
- Rancho California Road & Glen Oaks Road – Weekend Peak Hour
- Anza Road & Temecula Parkway (SR-79) – Weekend Peak Hour

TABLE 6-3 IMPACT SUMMARY:
EXISTING PLUS AMBIENT GROWTH PLUS CUMULATIVE (2020) PLUS PROJECT TRAFFIC CONDITIONS

Intersection	Control	Peak Hour	LOS	Allowable Δ Delay	Existing	With Project	Δ Delay
1. Rancho California Road & I-15 Southbound Ramp	Signal	AM	C	--	--	***--***	***--***
		PM	E	--	31.7	***61.8***	***30.1***
		WKND	F	--	35.6	***89.5***	***53.9***
7. Rancho California Road & La Serena Road	Side Street Stop	AM	B	--	--	--	--
		PM	C	--	--	--	--
		WKND	E	--	20.5	40.5	20.0
	Does Not Satisfy Signal Warrant						
8. Rancho California Road & Calle Contento	Side Street Stop	AM	C	--	--	***--***	***--***
		PM	E	--	20.1	***39.2***	***10.2***
		WKND	F	--	71.3	***920.0***	***848.7***
	Satisfies Signal Warrant						
9. Rancho California Road & Anza Road	Roundabout	AM	A	--	--	--	--
		PM	A	--	--	--	--
		WKND	F	--	8.5	***121.8***	***113.3***
	Satisfies Signal Warrant						
10. Rancho California Road & Monte De Oro Road	All-Way Stop	AM	D	--	--	--	--
		PM	E	--	42.6	46.6	4.0
		WKND	F	--	40.5	56.2	15.7
	Does Not Satisfy Signal Warrant						
11. Rancho California Road & Glen Oaks Road	All-Way Stop	AM	C	--	--	--	--
		PM	C	--	--	--	--
		WKND	E	--	11.0	***39.6***	***28.6***
	Satisfies Signal Warrant						
18. Anza Road & Temecula Parkway (SR-79)	Signal	AM	C	--	***--***	***--***	***--***
		PM	C	--	***--***	***--***	***--***
		WKND	E	--	23.8	***66.5***	***42.7***

Notes:
1. Delay is measured in seconds. Calculated using Synchro 8 software package for stop-controlled and signalized intersections. Calculated using Sidra software package for roundabouts.
2. ***Bold-italicized*** type indicates project impact.

Source: Fehr & Peers, 2015

7.0 Non-Automotive Assessment

The Non-Automotive assessment evaluates the project's consistency with existing and planned bicycle, pedestrian, and transit facilities in the area. As such, one significance criterion is applied, the Non-Automotive Threshold, in which a significant impact occurs if the project conflicts with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decreases the performance or safety of such facilities.

7.1 Goals and Policies

Based on a review of the County of Riverside Circulation Element, the following policies were found that apply to future bicycle, pedestrian and transit facilities.

- ***Planned Circulation Systems***
  - ***Policy:*** Support the development of transit connections that link the community centers located throughout the County and as identified in the Land Use Element and in the individual area plans. (AI 26)
  - ***Policy:*** Encourage and support the development of projects that facilitate and enhance the use of alternative modes of transportation, including pedestrian-oriented retail and activity centers, dedicated bicycle lanes and paths, and mixed-use community centers.
- ***Pedestrian Facilities***
  - ***Policy:*** Assure pedestrian access from developments to existing and future transit routes and terminal facilities through project design. (AI 26, 45)
  - ***Policy:*** Plan for pedestrian access that is consistent with road design standards while designing street and road projects. Provisions for pedestrian paths or sidewalks and timing of traffic signals to allow safe pedestrian street crossing shall be included.
  - ***Policy:*** Coordinate with all transit operators to ensure that pedestrian facilities are provided along and/or near all transit routes, whenever feasible. New land developments may be required to provide pedestrian facilities due to existing or future planned transit routes even if demand for pedestrian facility is not otherwise warranted. (AI 45)
- ***Public Transportation System***
  - ***Policy:*** Encourage the development of a mass multi-modal transit system with reduced noise characteristics.
  - ***Policy:*** Support programs developed by transit agencies/operators to provide paratransit service. (AI 50)
  - ***Policy:*** Incorporate the potential for public transit service in the design of developments that are identified as major trip attractions (i.e., community centers, tourist and employment

centers), as indicated in ordinances Regulating the Division of Land of the County of Riverside.

- ***Non-Motorized transportation***
  - ***Policy:*** Implement and later expand an effective non-motorized transportation system.
  - ***Policy:*** Develop a trail system which connects County parks and recreation areas while providing links to open space areas, equestrian communities, local municipalities, and regional recreational facilities (including other regional trail systems).
  - ***Policy:*** Implement the County trail system as depicted in the Bikeways and Trails Plan.
  - ***Policy:*** Develop a multi-purpose recreational trail network with support facilities which provide a linkage with regional facilities. (AI 35)
  - ***Policy:*** Develop Class I Bike Paths, Class II Bike Lanes and Class I Bike Paths/Regional Trails (Combo Trails) as shown in the Trails Plan (Figure C-7), to the design standards as outlined in the California Department of Transportation Highway Design Manual, and other County Guidelines.
  - ***Policy:*** Ensure that alternative modes of motorized transportation, such as buses, trains, etc., plan and provide for transportation of recreational and commuting bicyclists and bicycles on public transportation systems.

7.2 Transit Analysis

The only existing transit route in the study area is Riverside Transit Agency Route 24, and there are no planned routes in the area. Route 24 does not provide direct service near the project site.

Since the proposed project will not affect existing and planned transit service in the study area, the impact to transit is considered **less-than-significant.**

7.3 Bicycle Analysis

Bicycle facilities are provided throughout the study area and one multi-use path provides direct access to the project site. Additional facilities are planned throughout the study area, but none are planned adjacent or near the project site.

Since the project does not conflict with any existing or planned bicycle facility in the area, the project impact to bicycle facilities is considered **less-than-significant.**

7.4 Pedestrian Analysis

Throughout the study area there are existing and planned multi-use trails that provide access directly to the site. These multi-use trails are accessible for pedestrians, bicycles and equestrians.

Since the project is consistent with policies related to pedestrian facilities, the impact is considered **less-than-significant.**

8.0 Findings and Mitigation Measures

This chapter provides a summary of the key findings and project impacts for each scenario analyzed, and recommended measures to mitigate these impacts.

8.1 Summary of Project Impacts at Intersections

Based on the significance criteria outlined in Section 3.3.1, the addition of the project will significantly impact the following locations under each analyzed scenario:

Existing Plus Ambient Growth (2020) Plus Project Traffic Conditions

- Rancho California Road & I-15 Southbound Ramp – PM and Weekend Peak Hours
- Rancho California Road & Calle Contento – Weekend Peak Hour
- Rancho California Road & Anza Road – Weekend Peak Hour
- Anza Road & Temecula Parkway (SR-79) – Weekend Peak Hour

Existing Plus Ambient Growth (202) Plus Project with Cumulative Traffic Conditions

- Rancho California Road & I-15 Southbound Ramp – PM and Weekend Peak Hours
- Rancho California Road & Calle Contento – PM and Weekend Peak Hours
- Rancho California Road & Anza Road – Weekend Peak Hour
- Rancho California Road & Glen Oaks Road – Weekend Peak Hour
- Anza Road & Temecula Parkway (SR-79) – Weekend Peak Hour

8.2 Recommended Improvements for Intersections

Measures were developed to reduce the project impacts to the study intersections. With implementation of the mitigation measures described below, the "plus project" scenarios would no longer result in a significant impact. A description of all mitigation measures recommended is provided below. LOS results for mitigation measures are provided in Appendix F. Many of the recommended mitigation measures below reference the mitigation measures from the Wine Country Community Plan (WCP) which is provided in Appendix H.

8.2.1 EXISTING PLUS AMBIENT GROWTH (2020) PLUS PROJECT TRAFFIC CONDITIONS IMPROVEMENTS

- Rancho California Road & I-15 Southbound Ramp
    - The addition of project traffic degrades the intersection operations to LOS D in the PM peak hour and LOS E in the weekend peak hour.
    - To mitigate the impact, the project shall make a fair share contribution through the regional TUMF program (this interchange is identified for improvements through the regional TUMF) toward improving the intersection by optimizing the signal timing, consistent with the requirements in the WCP.
    - Additionally, since Rancho California Road is a coordinated corridor, the Adaptive Traffic Signal Timing Program would need to be updated.
    - Implementing the above improvements would improve intersection operations to acceptable conditions in the PM peak hours and pre-project conditions in the weekend peak hours and would reduce the impact to a **less-than-significant** level.
- Rancho California Road & Calle Contento
    - The addition of project traffic degrades the intersection operations to LOS F in the weekend peak hour.
    - Improving the intersection to a multi-lane roundabout with 2-lane approaches from the eastbound and westbound directions would mitigate the intersection operations to an acceptable LOS C or better.
    - Given that installation of a roundabout at the intersection is consistent with mitigation measures identified in the WCP, the project shall make fair share contribution in order to reduce the impact to a **less-than-significant** level.
- Rancho California Road & Anza Road
    - The project traffic increases delay to the intersection already operating at LOS F during the weekend peak hour.
    - Improving the intersection to a multi-lane roundabout with two lane approaches at the northbound, westbound and eastbound legs would mitigate the intersection operations to acceptable LOS C or better.
    - Given that installation of a roundabout at the intersection is consistent with mitigation measures identified in the WCP, the project shall make fair share contribution in order to reduce the impact to a **less-than-significant** level.

- Anza Road & Temecula Parkway (SR-79)
    - The addition of project traffic degrades the intersection operations to LOS D during the weekend peak hour.
    - To mitigate the impact, the project shall make a fair share contribution through the regional TUMF program toward improving the eastbound approach by adding one left-turn lane, which is less as intensive as the improvements identified in the WCP.
    - Additionally, since Temecula Parkway (SR-79) is a coordinated corridor, the Adaptive Traffic Signal Timing Program would need to be updated.
    - With the above referenced improvements, the intersection would operate at an acceptable LOS C and the impact would be reduced to a **less-than-significant** level.

8.2.2 EXISTING PLUS AMBIENT GROWTH PLUS CUMULATIVE (2020) PLUS PROJECT TRAFFIC CONDITIONS IMPROVEMENTS

- Rancho California Road & I-15 Southbound Ramp
    - The addition of project plus cumulative traffic degrades the intersection operations to LOS E in the PM peak hour and LOS F in the weekend peak hour.
    - To mitigate the impact, the project shall make a fair share contribution through the regional TUMF program (this interchange is identified for improvements through the regional TUMF) toward improving the intersection by optimizing the signal timing, consistent with the requirements in the WCP.
    - Additionally, since Rancho California Road is a coordinated corridor, the Adaptive Traffic Signal Timing Program would need to be updated.
    - Implementing the above improvements would improve intersection operations to better than pre-project conditions in the PM and weekend peak hours and would reduce the impact to a **less-than-significant** level.
- Rancho California Road & Calle Contento
    - The addition of project plus cumulative traffic degrades the intersection operations to LOS E in the PM peak hour and LOS F in the weekend peak hour.
    - Improving the intersection to a multi-lane roundabout with 2-lane approaches from the eastbound and westbound directions would mitigate the intersection operations to an acceptable LOS C or better.
    - Given that installation of a roundabout at the intersection is consistent with mitigation measures identified in the WCP, the project shall make fair share contribution in order to reduce the impact to a **less-than-significant** level.

- Rancho California Road & Anza Road
    - The project plus cumulative traffic increases delay to the intersection already operating at LOS F during the weekend peak hour.
    - Improving the intersection to a multi-lane roundabout with two lane approaches at the northbound, westbound and eastbound legs would mitigate the intersection operations to acceptable LOS C or better.
    - Given that installation of a roundabout at the intersection is consistent with mitigation measures identified in the WCP, the project shall make fair share in order to reduce the impact to a **less-than-significant** level.
- Rancho California Road & Glen Oaks Road
    - The addition of project plus cumulative traffic degrades the intersection operations to LOS E during the weekend peak hour.
    - Improving the intersection to a roundabout would mitigate the intersection operations to an acceptable LOS C or better.
    - Given that installation of a roundabout at the intersection is consistent with mitigation measures identified in the WCP, the project shall make fair share contribution in order to reduce the impact to a **less-than-significant** level.
- Anza Road & Temecula Parkway (SR-79)
    - The addition of project plus cumulative traffic degrades the intersection operations to LOS E during the weekend peak hour.
    - To mitigate the impact, the project shall make a fair share contribution through the regional TUMF program toward improving the eastbound approach by adding one left-turn lane, which is less as intensive as the improvements identified in the WCP.
    - Additionally, since Temecula Parkway (SR-79) is a coordinated corridor, the Adaptive Traffic Signal Timing Program would need to be updated.
    - With the above referenced improvements, the intersection would operate at an acceptable LOS C and the impact would be reduced to a **less-than-significant** level.

8.3 Other Impact Considerations

In addition to the analysis of intersections, this analysis also evaluated other factors based on the current CEQA Guidelines Checklist:

1. Since the project does not conflict with any Riverside County level of service standards or travel demand measures, and does not conflict with any standards established by the CMP the impact is considered **less-than-significant.**
2. Since the project does not result in a change in air traffic patterns the impact is considered **less-than-significant.**
3. Since the project does not propose any hazardous design features, the impact is considered **less-than-significant.**
4. Since the project does not conflict with any adopted policies, plans or programs regarding public transit, bicycle or pedestrian facilities, the impact is considered **less-than-significant.** A detailed assessment covering non-automotive impacts is provided in Section 10.

9.0 Site Access and On-Site Circulation

This chapter summarizes our review of parking, site access, and on-site circulation. Fehr & Peers' review is based on the site plan dated August 31, 2016.

9.1 Site Access

Vehicle access to the project site is provided from Rancho California Road, Buck Road, Borel Road and Warren Road. Rancho California Road provides access to many wineries throughout the area and is a highly used road during peak winery hours. The majority of project traffic is expected to come from the west and use Rancho California Road to access the site. Warren Road and Borel Road provides additional access from the north. The project proposes to construct a roundabout at Rancho California Road and Buck Road that will connect to the proposed extension of Rancho California Road.

The winery and hotel project site is accessible by the following two driveways:

- The primary hotel access driveway connects to the proposed extension of Rancho California Road between Buck Road and Warren Road. This driveway provides access to the major parking lot designated for the hotel, spa, restaurant and event uses along with employee parking. This driveway can also be used to access the winery.
- The primary winery access driveway is proposed to connect to the reconfigured intersection of Warren Road, Benton Road, and Rancho California Road. This driveway provides primary access to the fine dining restaurant and the winery tasting parking lot and can also access the hotel.

The Winery Estate lots and residential subdivision is accessible by the following four driveways:

- The primary Winery Estate access driveway is the southern access point from the proposed extension of Buck Road. This is intended to be a private entrance.
- The secondary Winery Estate access driveway is at the northern portion of the site at Borel Road.
- The residential subdivision can be accessed from two driveways off the proposed extension of Buck Road.

All of the access driveways are forecast to operate acceptably as side-street stop controlled intersections with one approach lane.

Given that the project offers six different access points, motorists are provided with adequate vehicle access to the project sites.

In addition to this vehicular access, Fehr & Peers recommends that the area's fire and police departments review the site plan to ensure adequate accessibility is provided for emergency responders.

The project site can also be accessed by the multi-use trail along Rancho California Road. This provides pedestrians, bicyclists and equestrians the opportunity to reach the site. Fehr & Peers recommends that safe crossings be provided at each of the roundabouts for the non-auto uses.

9.2 On-Site Circulation

On-site circulation for the winery and hotel is provided by an internal roadway that offers access to five separate parking lots on site. The internal roadway functions as a loop at the north end of the site while also providing access to the two northern driveways, one of which is a cul-de-sac. This system provides for adequate space to turn around if needed.

Though vehicle circulation on-site is separated into two distinct areas, the pedestrian circulation provides access to all facilities. Extensive sidewalks and trails are provided throughout the site for access between the hotel, winery, spa, vineyards and restaurants. Most of these sidewalks are separated from the drive aisles and limit the number of vehicle-pedestrian conflicts.

The Winery Estate Lots and single family homes are all connected by internal roadways with traffic circles at all intersections. These roadways provide direct access to the homes and Winery Estate driveways. There are also emergency vehicle access driveways that connect the two subdivisions, as well as a connection to Buck Road. The roadways provide direct access to each home and estate and have been designed to County of Riverside widths. Therefore, the on-site circulation has been deemed adequate.

APPENDIX A: APPROVED SCOPING MEMO

Exhibit B

SCOPING AGREEMENT FOR TRAFFIC IMPACT STUDY

This letter acknowledges the Riverside County Transportation Department requirements for traffic impact analysis of the following project. The analysis must follow the Riverside County Transportation Department Traffic Study Guidelines dated February 2005.

Case No. Pending

Related Cases -

SP No. *Provide SP No. and list of other approved or active projects within the SP.*

EIR No. TM 34466, CUP 3719, CZ07861, APN 964-160-0, 964-160-007, 964-160-009

GPA No. 1139 Tentative Tract #34466

CZ No.

Project Name: Twelve Oaks Winery Resort & Residential Community

Project Address: Northwest quadrant of Rancho California Rd & Buck Rd

Project Description: Winery Resort with Hotel, Restaurants & Tasting Room, 76 SF Homes, 20 Cottage lots

	Consultant	Developer
Name:	Fehr & Peers	Standard Temecula, LLC
Address:	8141 E. Kaiser Blvd Suite 110 Anaheim, CA 92808	488 E. Santa Clara St Suite 203 Arcadia, CA 91006
Telephone:	(714)941-8800	(626)263-5105
Fax:	(949)859-3209	(626)263-5899

A. Trip Generation Source: (ITE 7th Edition or other)

Current GP Land Use: Open Space (R) — Proposed Land Use: Winery, Hotel, Residential

Current Zoning: Winery District — Proposed Zoning: Winery District

Current Trip Generation: Zero Daily Trips

Proposed Trip Generation

	In	Out	Total		In	Out	Total
AM Trips	120	143	263	Sat Trips	249	269	516
PM Trips	193	177	369				

Internal Trip Allowance [X] Yes [ ] No (20 % Trip Discount (Hotel Only))

Pass-By Trip Allowance [X] Yes [ ] No (33 % Trip Discount (Winery Only))

A passby trip discount of 25% is allowed for appropriate land uses. The passby trips at adjacent study area intersections and project driveways shall be indicated on a report figure.

B. Trip Geographic Distribution: (attach exhibit for detailed assignment) N 15 % S 20 % E 15 % W 50 %

C. Background Traffic

Project Build-out Year: 2020

Annual Ambient Growth Rate: 2 %

Phase Year(s) n/a

Other area projects to be analyzed:

Model/Forecast methodology: Addendum to previous MND, no cumulative analysis required.

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

1. See attachment for 18 study intersections.
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

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

1. n/a
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

E. Other Jurisdictional Impacts

Is this project within a City's Sphere of Influence or one-mile radius of City boundaries? ☐ Yes ☐ No

If so, name of City Jurisdiction: n/a

F. Site Plan (please attach reduced copy)

G. Specific issues to be addressed in the Study (in addition to the standard analysis described in the Guideline) (To be filled out by Transportation Department)
(NOTE: If the traffic study states that "a traffic signal is warranted" (or "a traffic signal appears to be warranted," or similar statement) at an existing unsignalized intersection under existing conditions, 8-hour approach traffic volume information must be submitted in addition to the peak hourly turning movement counts for that intersection.)

_____

H. Existing Conditions

Traffic count data must be new or recent. Provide traffic count dates if using other than new counts.
Date of counts 2014

***NOTE* Traffic Study Submittal Form and appropriate fee must be submitted with, or prior to submittal of this form. Transportation Department staff will not process the Scoping Agreement prior to receipt of the fee.**

Recommended by:

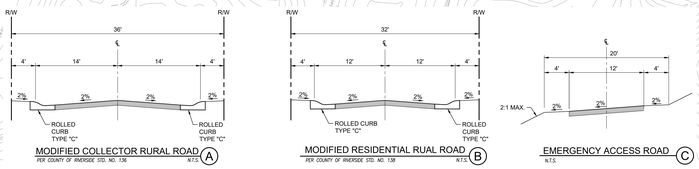
_____ 8/16/16
Consultant's Representative — Date

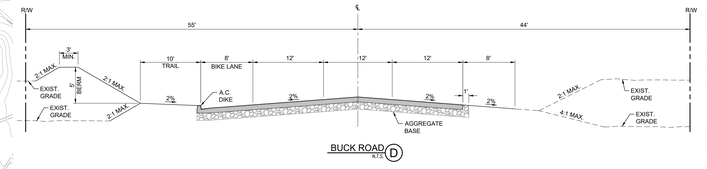
Approved Scoping Agreement:

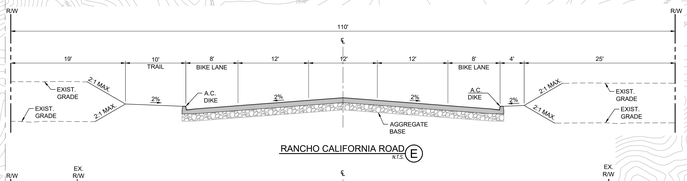
_____ 08/23/2016
Riverside County Transportation Department — Date

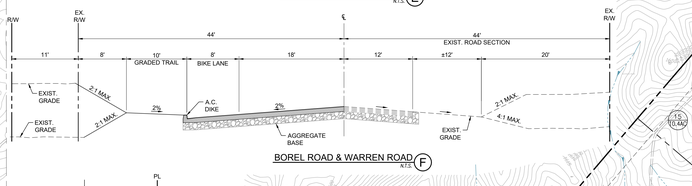
Scoping Agreement Submitted on 8/16/2016

Revised on _____









BOREL RD.

DEDICATED M.S.H.C.P. OPEN SPACE

FUTURE ROAD RIGHT OF WAY

NOT A PART

WINE VILLAGE ESTATE LOTS

WINE COUNTRY RESORT

COMMUNITY CENTER

WINE COUNTRY CLUSTERED SUBDIVISION

LIMITS OF EXISTING VINEYARDS

WARREN RD. (PUBLIC)

BENTON RD

FUTURE ROADWAY (PUBLIC)

CAMINO DEL VINO (PUBLIC)

BUCK RD. (PUBLIC)

EX. BUCK RD. TO BE ABANDONED PROP. RESTORATION ZONE (0.5AC)

OVERFLOW EVENT AREA

PEDESTRIAN ACCESS

TRAIL CONNECTION

TRAIL 100' ZONE

FUEL MOD. ZONE

100' SETBACK

150' SETBACK

BUCK ROAD

BUCK ROAD (FUTURE PUBLIC)

BUCK RD. (PUBLIC)

WATER RESERVOIR SITE

PROPOSED RESERVOIR

ROAD REALIGNMENT PARCEL

RANCHO CALIFORNIA RD. (PUBLIC)

OTIS RD

LAND USE SUMMARY:

LAND USE	LOTS	ACREAGE
WINE COUNTRY RESORT	-	113.1
WINE VILLAGE ESTATE LOTS & COMMUNITY CENTER	1 - 20	220.5
WINE COUNTRY CLUSTERED SUBDIVISION	21 - 96	162.6
W.C.C. SUBDIVISION OPEN SPACE	A - G	98.2
MSHCP OPEN SPACE	-	468.1
FUTURE ROADWAY		13.9
OVERFLOW EVENT AREA		18.6
WATER RESERVOIR SITE	-	3.7
ROAD REALIGNMENT PARCEL		0.6
	TOTAL:	1099.3

PRELIMINARY EARTHWORK:

CUT	FILL
700,000-cy	700,000-cy

TWELVE OAKS SITE PLAN

TEMECULA, CALIFORNIA
STANDARD PORTFOLIO

AUGUST 31, 2016

LEGEND:
- PRIMARY PAD
- SECONDARY PAD
- GRADED AREA
- RIPARIAN AREA
- VINEYARD ACCESS AND STAGING AREA
- LANDSCAPED BERM
- EXISTING FLOW LINE

SCALE: 1" = 200'

FUSCOE ENGINEERING
16795 Von Karman, Suite 100
Irvine, California 92606
tel 949.474.1960 fax 949.474.5315
www.fuscoe.com

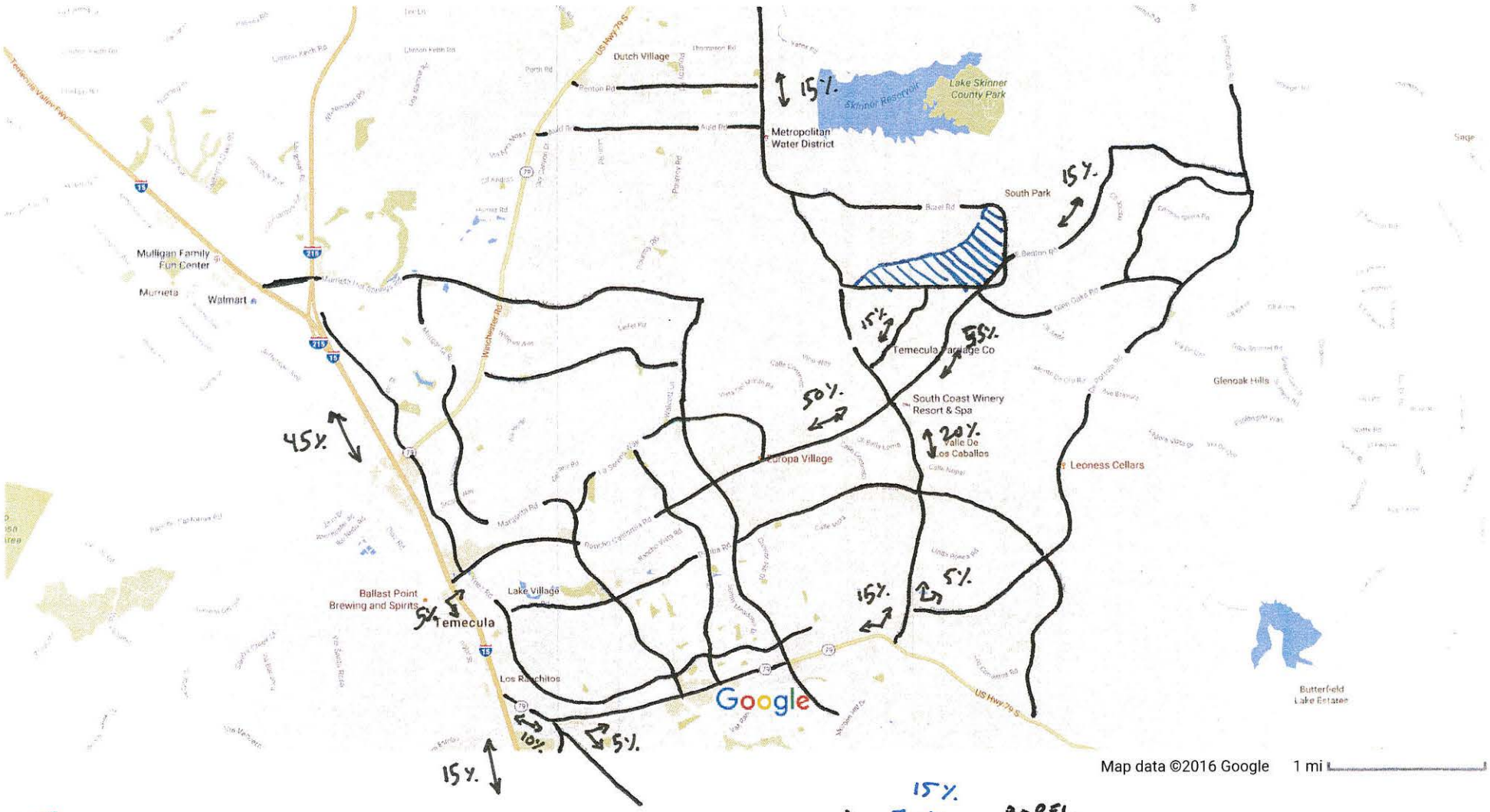
F:\PROJECTS\1446\002\EXHIBITS_CONCEPTUAL\1446-002-XH-SITE PLAN.DWG (08-31-2016 1:26:14PM) Plotted by: Amy Grant

12 Oaks Winery Trip Generation Estiamtes																
					Daily		AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
Land Use	**Land Use Codes**	**Trip Generation Source**	**Size**	**Unit**	**Weekday**	**Weekend**	**Inbound**	**Outbound**	**Total**	**Inbound**	**Outbound**	**Total**	**Inbound**	**Outbound**	**Total**
Hotel[1]	Hotel (ITE 310)	ITE 9th Edition	200	DU	1,784	2,100	78	56	134	69	71	140	87	87	174
Winery & Retail[1]	Winery & Support Retail	WCP EIR/Travel Demand Model	Large	Winery	1,522	2,284	5	3	8	86	97	183	158	185	343
Housing	Single Family Detached Housing (ITE 210	ITE 9th Edition	76	DU	724	753	14	43	57	48	28	76	38	33	71
Bed & Breakfast	Motel (ITE 320)	ITE 9th Edition	100	DU	911	884	23	41	64	31	27	58	34	42	76
				Subtotal	4,941	6,021	120	143	263	234	223	457	317	347	664
				Passby (Winery Only) (33%)	(502)	(754)	-	-	-	(28)	(32)	(60)	(52)	(61)	(113)
				Internatization (Hotel Only) (20%)	(357)	(420)	-	-	-	(13)	(14)	(28)	(16)	(17)	(35)
				Total Net New Trips	**4,082**	**4,847**	**120**	**143**	**263**	**193**	**177**	**369**	**249**	**269**	**516**

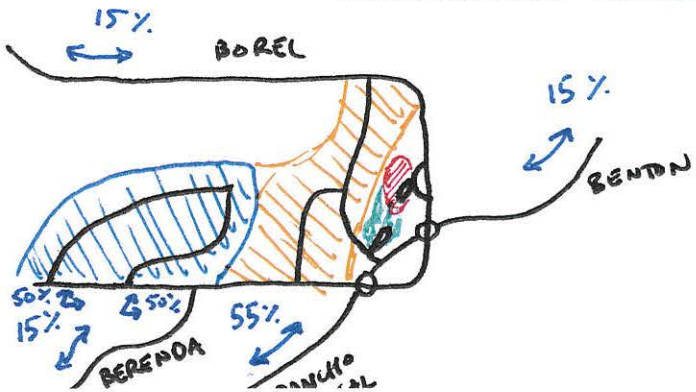
Notes: 1. The proposed hotel contains 250 rooms, but the Large Winery trip generation is based off of a Winery site that also contains a hotel with 50 rooms. Therefore, the trip generation for the hotel assumes only 200 rooms since the Winery Trip Generation estimate already accounts for 50 rooms.

8/12/16

Google Maps 12 Oaks Project Trip Distribution - SINGLE FAMILY HOMES

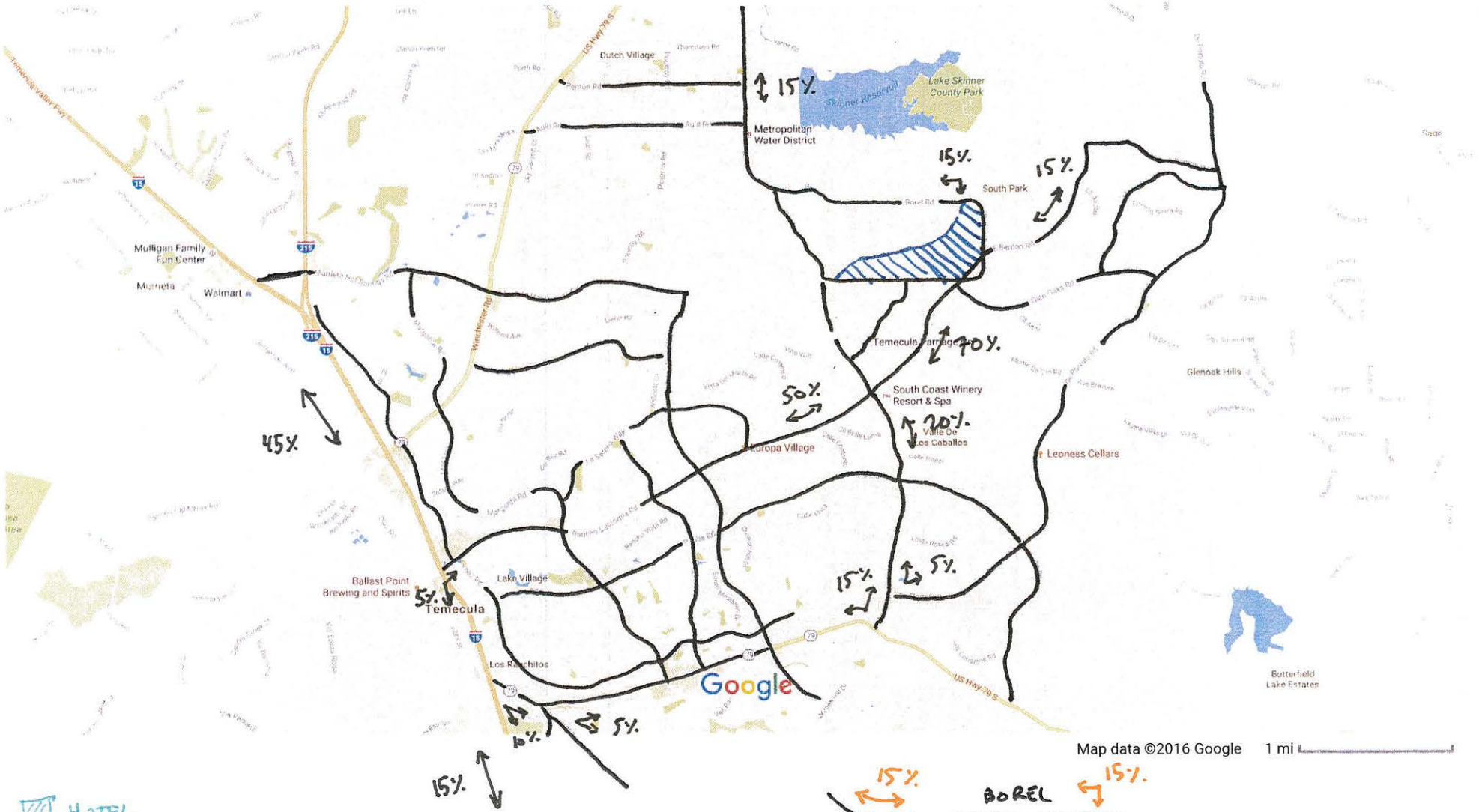


HOTEL
WINERY
SF HOMES
B+B LOTS

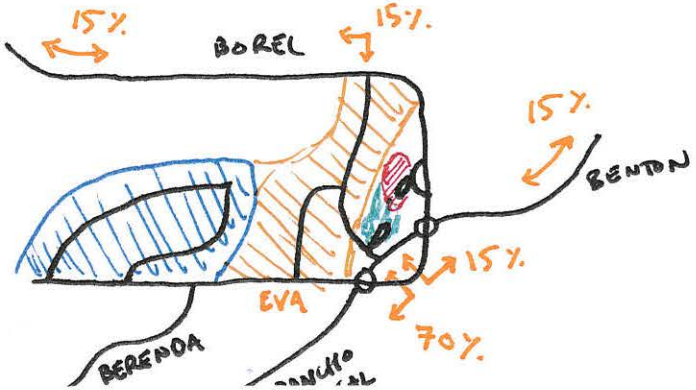


8/12/16

Google Maps 12 Oaks Project Trip Distribution - B+B LOTS

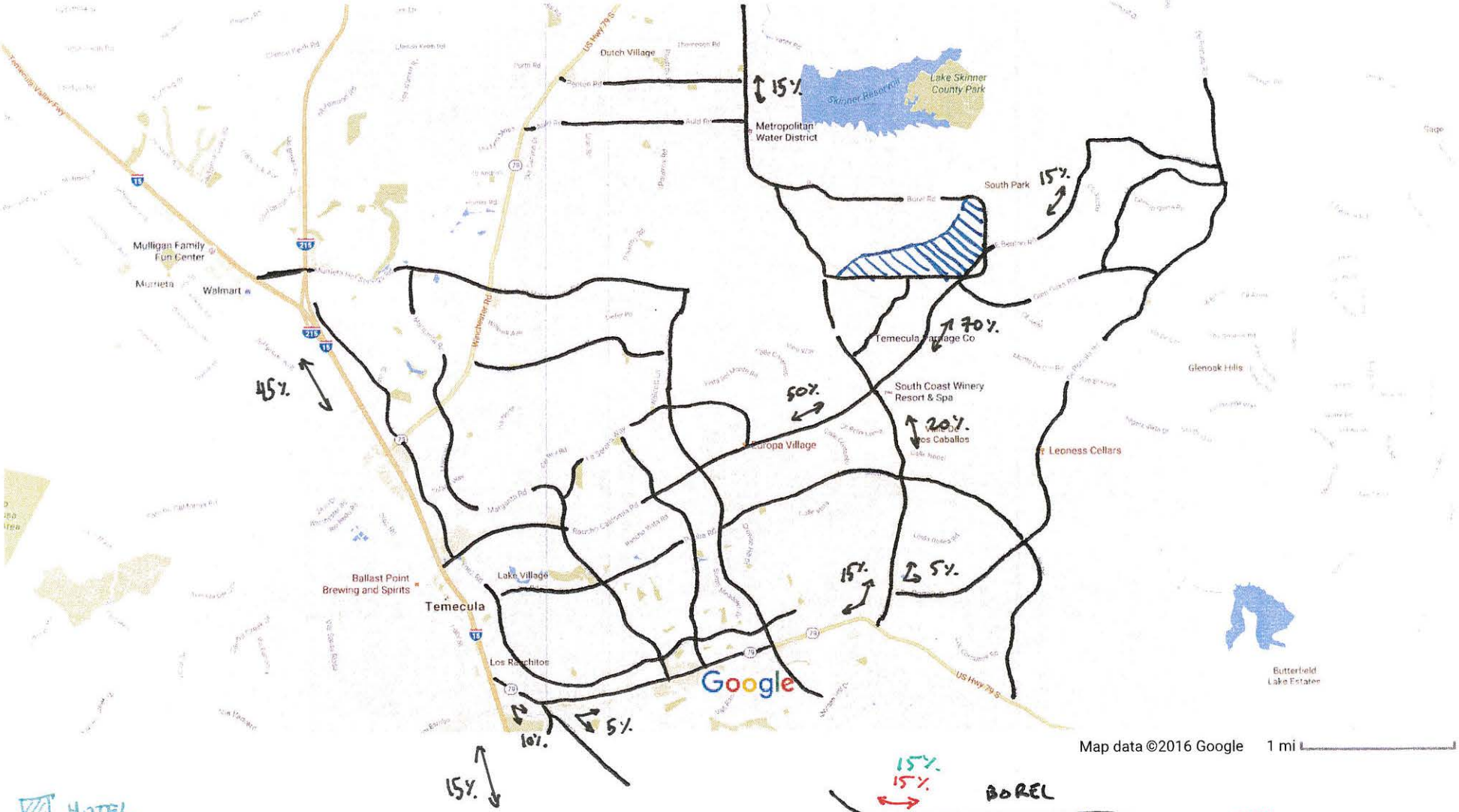


HOTEL
WINERY
SF HOMES
B&B LOTS

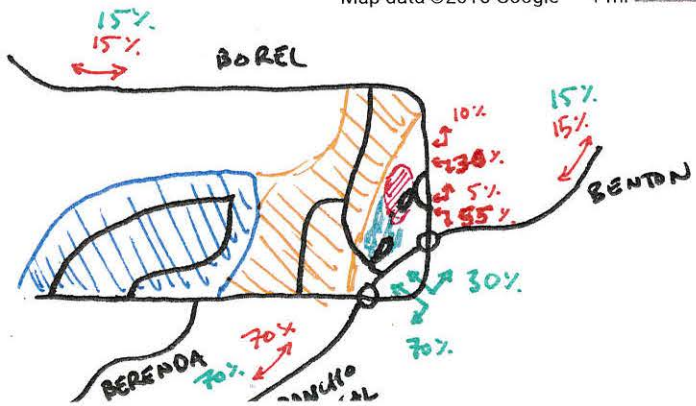


8/12/16

Google Maps 12 Oaks Project Trip Distribution - WINERY + HOTEL

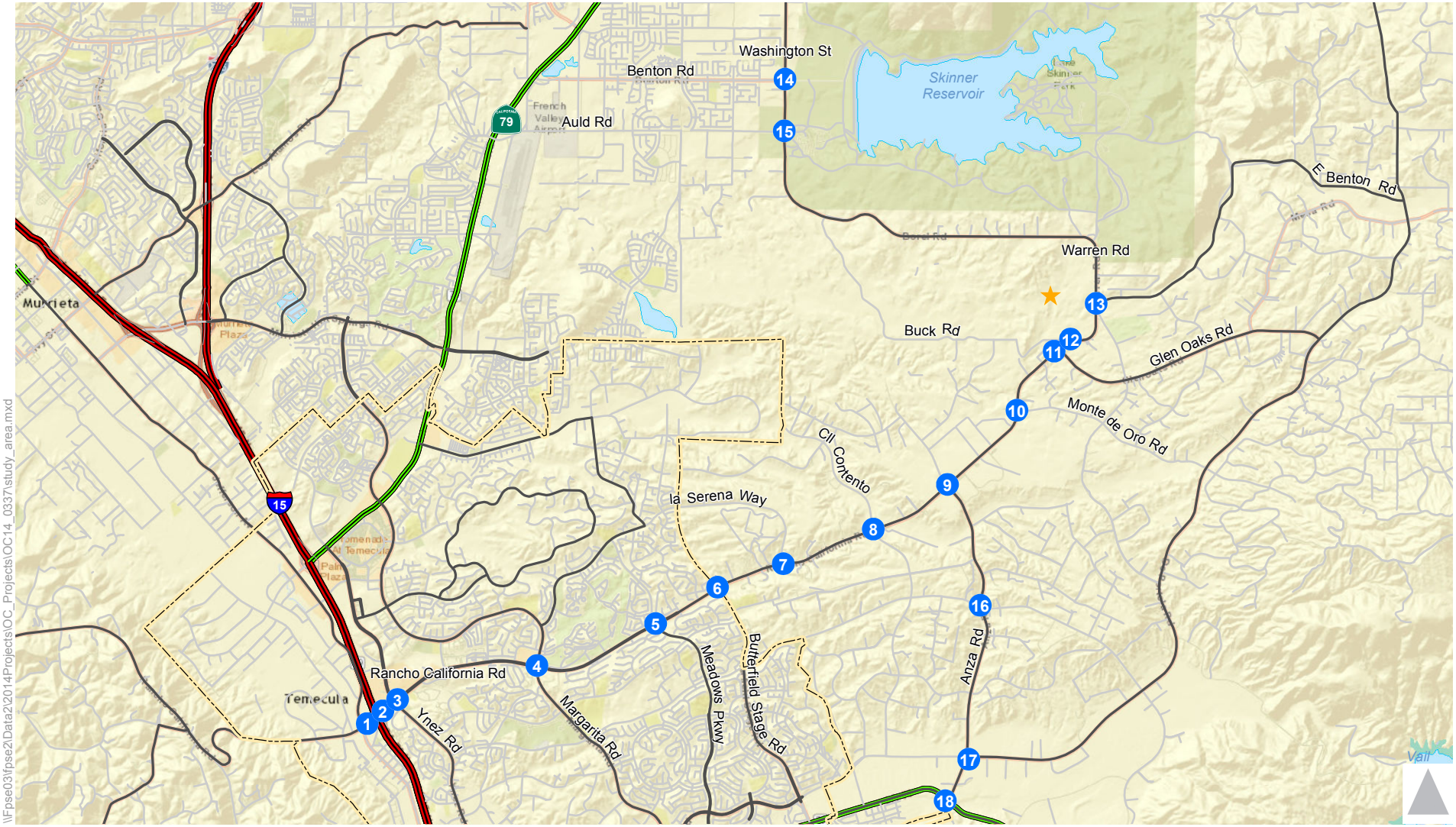


HOTEL
WINERY
SF HOMES
B&B LOTS



12 Oaks Winery Study Intersections

1. Rancho California Road & I-15 Southbound Ramps
2. Rancho California Road & I-15 Northbound Ramps
3. Rancho California Road & Ynez Road
4. Rancho California Road & Margarita Road
5. Rancho California Road & Meadows Parkway
6. Rancho California Road & Butterfield Stage Road
7. Rancho California Road & La Serena Way
8. Rancho California Road & Calle Contento
9. Rancho California Road & Anza Road
10. Rancho California Road & Monte De Oro
11. Rancho California Road & Glen Oaks Road
12. Rancho California Road & Buck Road
13. Warren Road & Benton Road
14. Washington Street & Benton Road
15. Borel Road & Auld Road
16. Anza Road & Pauba Road
17. Anza Road De Portola Road
18. Anza Road & Temecula Parkway (SR-79S)



\\Fpse03\fpse2\Data2\2014Projects\OC_Projects\OC14_0337\study_area.mxd

★ Project Site

1 Study Intersections

Temecula City Limits

Figure 2-3

Study Area

APPENDIX B: EXISTING TRAFFIC COUNTS

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

City of Temecula
N/S: I-15 Southbound Ramps
E/W: Rancho California Road
Weather: Sunny

File Name : TEMI15SBRCAM
Site Code : 06714004
Start Date : 1/9/2014
Page No : 1

Groups Printed- Total Volume

	I-15 Southbound Off Ramp Southbound				Rancho California Road Westbound				I-15 Southbound On Ramp Northbound				Rancho California Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	158	0	98	256	169	164	0	333	0	0	0	0	0	72	41	113	702
07:15 AM	176	1	97	274	161	179	0	340	0	0	0	0	0	74	24	98	712
07:30 AM	225	1	128	354	158	209	0	367	0	0	0	0	0	80	36	116	837
07:45 AM	250	0	190	440	110	344	0	454	0	0	0	0	0	114	42	156	1050
Total	809	2	513	1324	598	896	0	1494	0	0	0	0	0	340	143	483	3301
08:00 AM	162	0	181	343	145	297	0	442	0	0	0	0	0	121	55	176	961
08:15 AM	224	1	151	376	117	252	0	369	0	0	0	0	0	122	47	169	914
08:30 AM	227	0	112	339	87	227	0	314	0	0	0	0	0	125	28	153	806
08:45 AM	261	2	188	451	98	279	0	377	0	0	0	0	0	159	35	194	1022
Total	874	3	632	1509	447	1055	0	1502	0	0	0	0	0	527	165	692	3703
Grand Total	1683	5	1145	2833	1045	1951	0	2996	0	0	0	0	0	867	308	1175	7004
Apprch %	59.4	0.2	40.4		34.9	65.1	0		0	0	0		0	73.8	26.2		
Total %	24	0.1	16.3	40.4	14.9	27.9	0	42.8	0	0	0	0	0	12.4	4.4	16.8	

	I-15 Southbound Off Ramp Southbound				Rancho California Road Westbound				I-15 Southbound On Ramp Northbound				Rancho California Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	225	**1**	128	354	**158**	209	0	367	0	0	0	0	0	80	36	116	837
07:45 AM	**250**	0	**190**	**440**	110	**344**	0	**454**	0	0	0	0	0	114	42	156	**1050**
08:00 AM	162	0	181	343	145	297	0	442	0	0	0	0	0	121	**55**	**176**	961
08:15 AM	224	1	151	376	117	252	0	369	0	0	0	0	0	**122**	47	169	914
Total Volume	861	2	650	1513	530	1102	0	1632	0	0	0	0	0	437	180	617	3762
% App. Total	56.9	0.1	43		32.5	67.5	0		0	0	0		0	70.8	29.2		
PHF	.861	.500	.855	.860	.839	.801	.000	.899	.000	.000	.000	.000	.000	.895	.818	.876	.896

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City of Temecula
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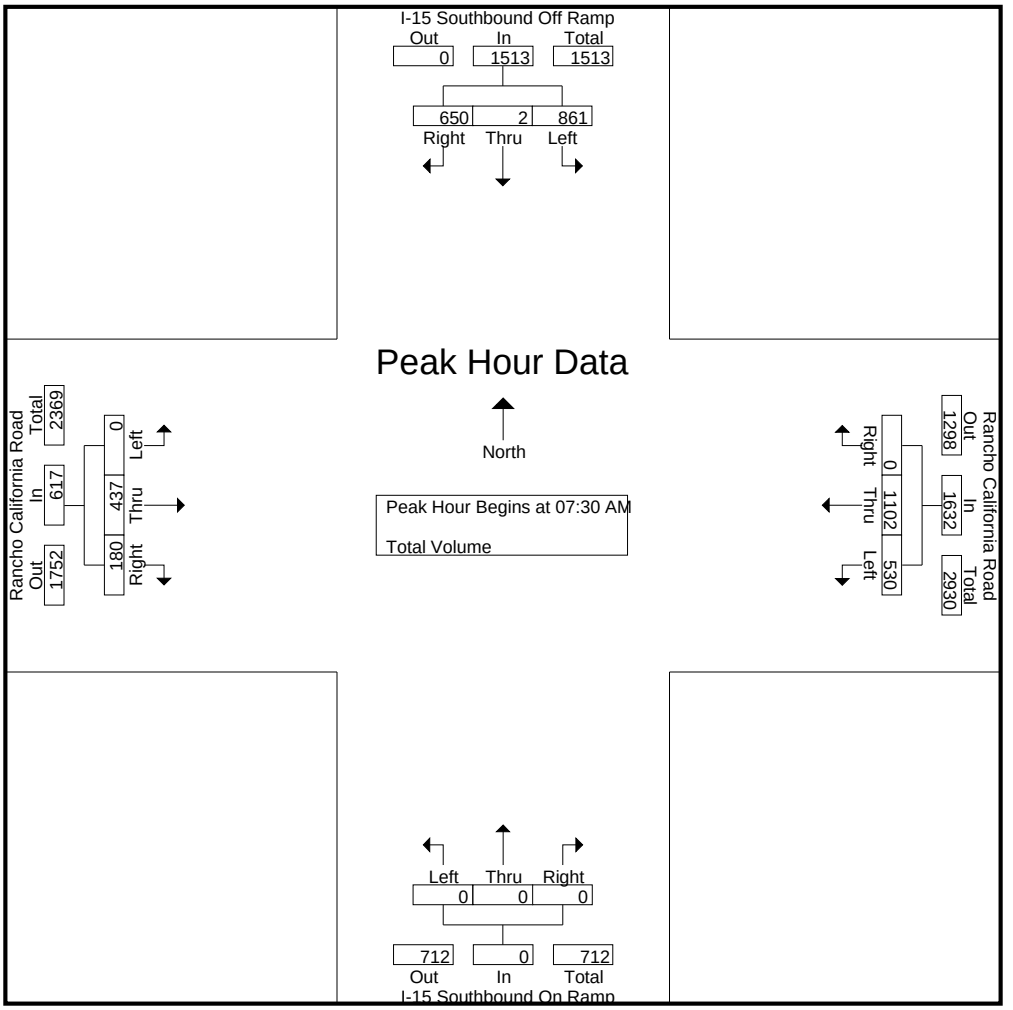
File Name : TEMI15SBRCAM
Site Code : 06714004
Start Date : 1/9/2014
Page No : 2



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

	07:30 AM				07:30 AM				07:00 AM				08:00 AM			
+0 mins.	225	**1**	128	354	**158**	209	0	367	0	0	0	0	0	121	**55**	176
+15 mins.	**250**	0	**190**	**440**	110	**344**	0	**454**	0	0	0	0	0	122	47	169
+30 mins.	162	0	181	343	145	297	0	442	0	0	0	0	0	125	28	153
+45 mins.	224	1	151	376	117	252	0	369	0	0	0	0	0	**159**	35	**194**
Total Volume	861	2	650	1513	530	1102	0	1632	0	0	0	0	0	527	165	692
% App. Total	56.9	0.1	43		32.5	67.5	0		0	0	0		0	76.2	23.8	
PHF	.861	.500	.855	.860	.839	.801	.000	.899	.000	.000	.000	.000	.000	.829	.750	.892

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City of Temecula
N/S: I-15 Southbound Ramps
E/W: Rancho California Road
Weather: Sunny

File Name : TEMI15SBRCPM
Site Code : 06714004
Start Date : 1/14/2014
Page No : 1

Groups Printed- Total Volume

	I-15 Southbound Off Ramp Southbound				Rancho California Road Westbound				I-15 Southbound On Ramp Northbound				Rancho California Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	220	0	105	325	83	178	0	261	0	0	0	0	0	361	80	441	1027
04:15 PM	250	0	92	342	104	203	0	307	0	0	0	0	0	268	92	360	1009
04:30 PM	237	0	105	342	84	194	0	278	0	0	0	0	0	358	85	443	1063
04:45 PM	256	0	77	333	105	215	0	320	0	0	0	0	0	335	80	415	1068
Total	963	0	379	1342	376	790	0	1166	0	0	0	0	0	1322	337	1659	4167
05:00 PM	200	1	73	274	124	216	0	340	0	0	0	0	0	463	57	520	1134
05:15 PM	261	0	81	342	91	189	0	280	0	0	0	0	0	349	52	401	1023
05:30 PM	228	0	67	295	78	178	0	256	0	0	0	0	0	353	54	407	958
05:45 PM	265	1	107	373	54	149	0	203	0	0	0	0	0	249	34	283	859
Total	954	2	328	1284	347	732	0	1079	0	0	0	0	0	1414	197	1611	3974
Grand Total	1917	2	707	2626	723	1522	0	2245	0	0	0	0	0	2736	534	3270	8141
Apprch %	73	0.1	26.9		32.2	67.8	0		0	0	0		0	83.7	16.3		
Total %	23.5	0	8.7	32.3	8.9	18.7	0	27.6	0	0	0	0	0	33.6	6.6	40.2	

	I-15 Southbound Off Ramp Southbound				Rancho California Road Westbound				I-15 Southbound On Ramp Northbound				Rancho California Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	237	0	**105**	**342**	84	194	0	278	0	0	0	0	0	358	**85**	443	1063
04:45 PM	256	0	77	333	105	215	0	320	0	0	0	0	0	335	80	415	1068
05:00 PM	200	**1**	73	274	**124**	**216**	0	**340**	0	0	0	0	0	**463**	57	**520**	**1134**
05:15 PM	**261**	0	81	342	91	189	0	280	0	0	0	0	0	349	52	401	1023
Total Volume	954	1	336	1291	404	814	0	1218	0	0	0	0	0	1505	274	1779	4288
% App. Total	73.9	0.1	26		33.2	66.8	0		0	0	0		0	84.6	15.4		
PHF	.914	.250	.800	.944	.815	.942	.000	.896	.000	.000	.000	.000	.000	.813	.806	.855	.945

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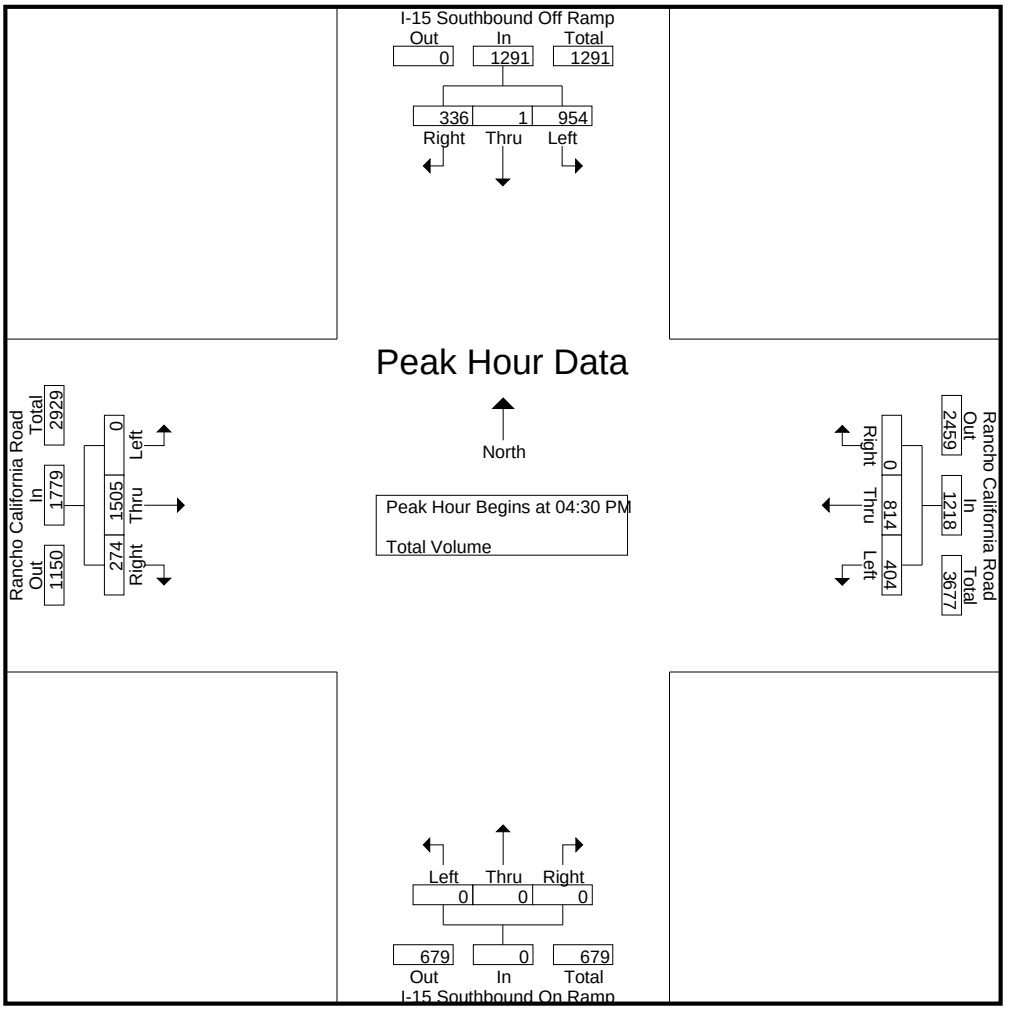
City of Temecula
N/S: I-15 Southbound Ramps
E/W: Rancho California Road
Weather: Sunny

File Name : TEMI15SBRCPM
Site Code : 06714004
Start Date : 1/14/2014
Page No : 2



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

	04:00 PM				04:15 PM				04:00 PM				04:30 PM			
+0 mins.	220	0	**105**	325	104	203	0	307	0	0	0	0	0	358	**85**	443
+15 mins.	250	0	92	**342**	84	194	0	278	0	0	0	0	0	335	80	415
+30 mins.	237	0	105	342	105	215	0	320	0	0	0	0	0	**463**	57	**520**
+45 mins.	**256**	0	77	333	**124**	**216**	0	**340**	0	0	0	0	0	349	52	401
Total Volume	963	0	379	1342	417	828	0	1245	0	0	0	0	0	1505	274	1779
% App. Total	71.8	0	28.2		33.5	66.5	0		0	0	0		0	84.6	15.4	
PHF	.940	.000	.902	.981	.841	.958	.000	.915	.000	.000	.000	.000	.000	.813	.806	.855

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City of Temecula
N/S: I-15 Northbound Ramps
E/W: Rancho California Road
Weather: Sunny

File Name : TEMI15NBRCAM
Site Code : 06714004
Start Date : 1/9/2014
Page No : 1

Groups Printed- Total Volume

	I-15 Northbound On Ramp Southbound				Rancho California Road Westbound				I-15 Northbound On / Off Ramps Northbound				Rancho California Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	280	158	438	58	0	49	107	0	200	37	237	782
07:15 AM	0	0	0	0	0	282	168	450	53	0	69	122	0	224	31	255	827
07:30 AM	0	0	0	0	0	340	200	540	68	0	68	136	0	279	44	323	999
07:45 AM	0	0	0	0	0	341	203	544	124	0	84	208	0	326	45	371	1123
Total	0	0	0	0	0	1243	729	1972	303	0	270	573	0	1029	157	1186	3731
08:00 AM	0	0	0	0	0	285	197	482	102	0	85	187	0	244	39	283	952
08:15 AM	0	0	0	0	0	299	188	487	88	1	80	169	0	281	62	343	999
08:30 AM	0	0	0	0	0	237	177	414	83	0	73	156	0	307	51	358	928
08:45 AM	0	0	0	0	0	272	230	502	95	0	86	181	0	381	49	430	1113
Total	0	0	0	0	0	1093	792	1885	368	1	324	693	0	1213	201	1414	3992
Grand Total	0	0	0	0	0	2336	1521	3857	671	1	594	1266	0	2242	358	2600	7723
Apprch %	0	0	0		0	60.6	39.4		53	0.1	46.9		0	86.2	13.8		
Total %	0	0	0	0	0	30.2	19.7	49.9	8.7	0	7.7	16.4	0	29	4.6	33.7	

	I-15 Northbound On Ramp Southbound				Rancho California Road Westbound				I-15 Northbound On / Off Ramps Northbound				Rancho California Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	340	200	540	68	0	68	136	0	279	44	323	999
07:45 AM	0	0	0	0	0	**341**	**203**	**544**	**124**	0	84	**208**	0	**326**	45	**371**	**1123**
08:00 AM	0	0	0	0	0	285	197	482	102	0	**85**	187	0	244	39	283	952
08:15 AM	0	0	0	0	0	299	188	487	88	**1**	80	169	0	281	**62**	343	999
Total Volume	0	0	0	0	0	1265	788	2053	382	1	317	700	0	1130	190	1320	4073
% App. Total	0	0	0		0	61.6	38.4		54.6	0.1	45.3		0	85.6	14.4		
PHF	.000	.000	.000	.000	.000	.927	.970	.943	.770	.250	.932	.841	.000	.867	.766	.889	.907

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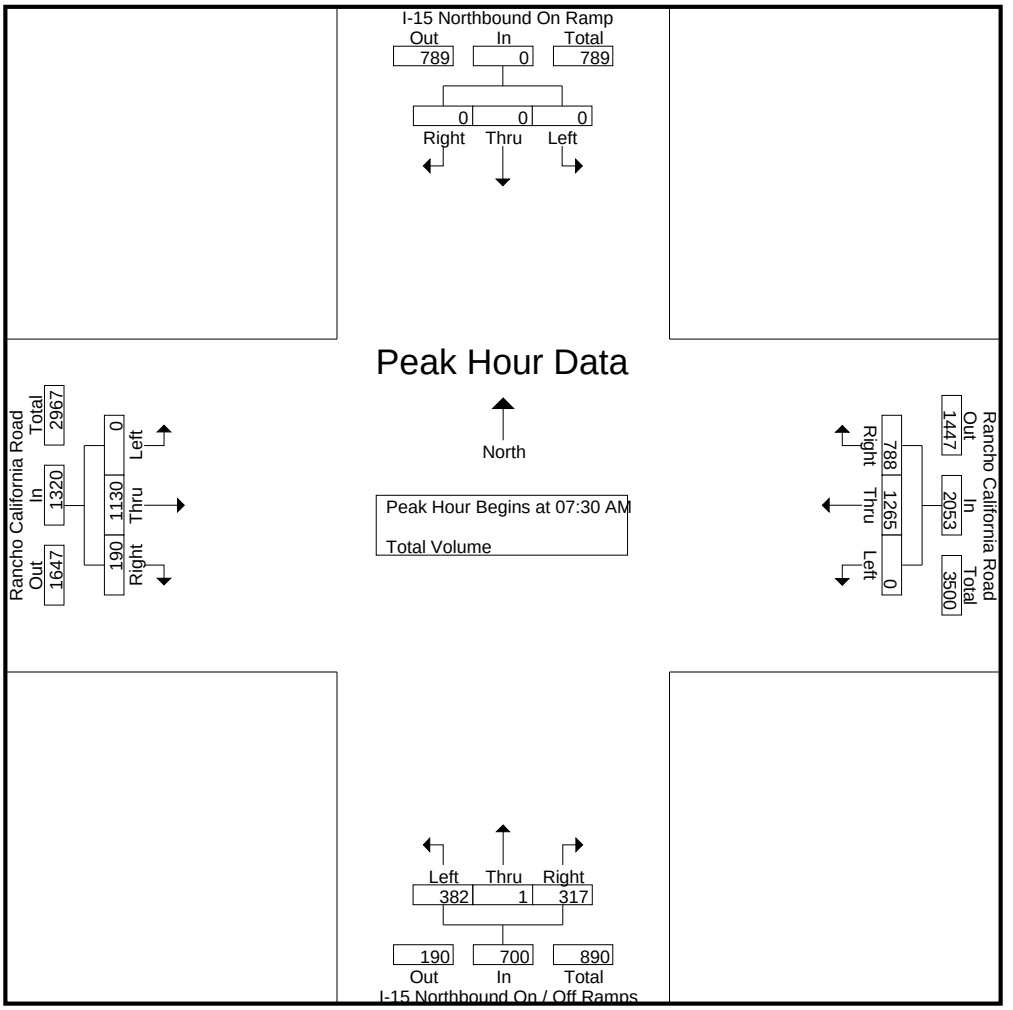
File Name : TEMI15NBRCAM
Site Code : 06714004
Start Date : 1/9/2014
Page No : 2



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

	07:00 AM				07:30 AM				07:45 AM				08:00 AM			
+0 mins.	0	0	0	0	0	340	200	540	**124**	0	84	**208**	0	244	39	283
+15 mins.	0	0	0	0	0	**341**	**203**	**544**	102	0	**85**	187	0	281	**62**	343
+30 mins.	0	0	0	0	0	285	197	482	88	**1**	80	169	0	307	51	358
+45 mins.	0	0	0	0	0	299	188	487	83	0	73	156	0	**381**	49	**430**
Total Volume	0	0	0	0	0	1265	788	2053	397	1	322	720	0	1213	201	1414
% App. Total	0	0	0		0	61.6	38.4		55.1	0.1	44.7		0	85.8	14.2	
PHF	.000	.000	.000	.000	.000	.927	.970	.943	.800	.250	.947	.865	.000	.796	.810	.822

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City of Temecula
N/S: I-15 Northbound Ramps
E/W: Rancho California Road
Weather: Sunny

File Name : TEMI15NBRCPM
Site Code : 06714004
Start Date : 1/14/2014
Page No : 1

Groups Printed- Total Volume

	I-15 Northbound On Ramp Southbound				Rancho California Road Westbound				I-15 Northbound On / Off Ramps Northbound				Rancho California Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	233	225	458	61	0	231	292	0	465	105	570	1320
04:15 PM	0	0	0	0	0	223	224	447	61	0	221	282	0	407	116	523	1252
04:30 PM	0	0	0	0	0	225	259	484	52	4	229	285	0	454	134	588	1357
04:45 PM	0	0	0	0	0	245	266	511	46	1	279	326	0	491	126	617	1454
Total	0	0	0	0	0	926	974	1900	220	5	960	1185	0	1817	481	2298	5383
05:00 PM	0	0	0	0	0	261	197	458	56	3	236	295	0	473	168	641	1394
05:15 PM	0	0	0	0	0	237	200	437	50	2	210	262	0	522	112	634	1333
05:30 PM	0	0	0	0	0	200	204	404	38	1	220	259	0	447	120	567	1230
05:45 PM	0	0	0	0	0	189	141	330	36	0	220	256	0	445	113	558	1144
Total	0	0	0	0	0	887	742	1629	180	6	886	1072	0	1887	513	2400	5101
Grand Total	0	0	0	0	0	1813	1716	3529	400	11	1846	2257	0	3704	994	4698	10484
Apprch %	0	0	0		0	51.4	48.6		17.7	0.5	81.8		0	78.8	21.2		
Total %	0	0	0	0	0	17.3	16.4	33.7	3.8	0.1	17.6	21.5	0	35.3	9.5	44.8	

	I-15 Northbound On Ramp Southbound				Rancho California Road Westbound				I-15 Northbound On / Off Ramps Northbound				Rancho California Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	225	259	484	52	**4**	229	285	0	454	134	588	1357
04:45 PM	0	0	0	0	0	245	**266**	**511**	46	1	**279**	**326**	0	491	126	617	**1454**
05:00 PM	0	0	0	0	0	**261**	197	458	**56**	3	236	295	0	473	**168**	**641**	1394
05:15 PM	0	0	0	0	0	237	200	437	50	2	210	262	0	**522**	112	634	1333
Total Volume	0	0	0	0	0	968	922	1890	204	10	954	1168	0	1940	540	2480	5538
% App. Total	0	0	0		0	51.2	48.8		17.5	0.9	81.7		0	78.2	21.8		
PHF	.000	.000	.000	.000	.000	.927	.867	.925	.911	.625	.855	.896	.000	.929	.804	.967	.952

Counts Unlimited, Inc.
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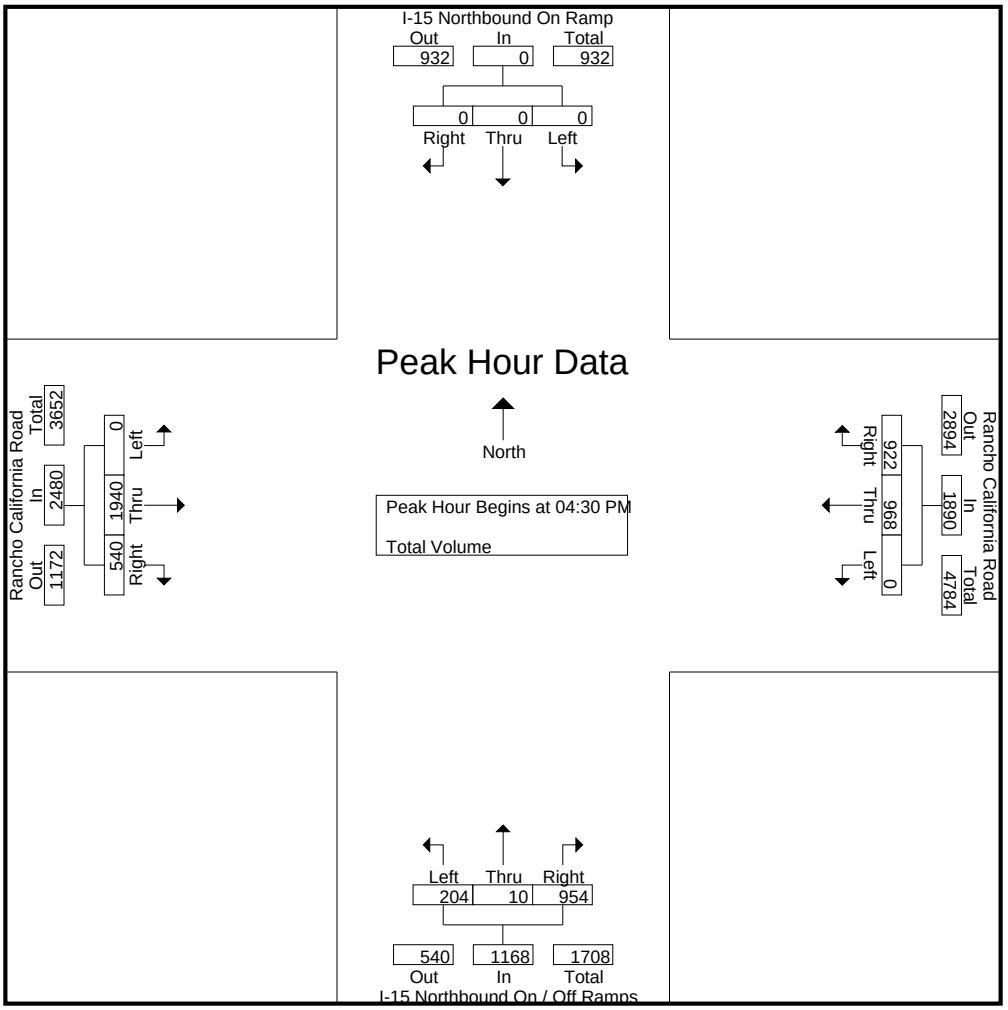
City of Temecula
N/S: I-15 Northbound Ramps
E/W: Rancho California Road
Weather: Sunny

File Name : TEMI15NBRCPM
Site Code : 06714004
Start Date : 1/14/2014
Page No : 2



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

	04:00 PM				04:00 PM				04:15 PM				04:30 PM			
+0 mins.	0	0	0	0	0	233	225	458	**61**	0	221	282	0	454	134	588
+15 mins.	0	0	0	0	0	223	224	447	52	**4**	229	285	0	491	126	617
+30 mins.	0	0	0	0	0	225	259	484	46	1	**279**	**326**	0	473	**168**	**641**
+45 mins.	0	0	0	0	0	**245**	**266**	**511**	56	3	236	295	0	**522**	112	634
Total Volume	0	0	0	0	0	926	974	1900	215	8	965	1188	0	1940	540	2480
% App. Total	0	0	0		0	48.7	51.3		18.1	0.7	81.2		0	78.2	21.8	
PHF	.000	.000	.000	.000	.000	.945	.915	.930	.881	.500	.865	.911	.000	.929	.804	.967

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City of Temecula
N/S: Ynez Road
E/W: Rancho California Road
Weather: Sunny

File Name : TEMYNRCAM
Site Code : 06714004
Start Date : 1/9/2014
Page No : 1

Groups Printed- Total Volume

	Ynez Road Southbound				Rancho California Road Westbound				Ynez Road Northbound				Rancho California Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	6	51	64	121	17	260	18	295	124	62	7	193	27	114	99	240	849
07:15 AM	8	60	50	118	21	300	25	346	113	67	15	195	57	106	131	294	953
07:30 AM	3	69	60	132	25	348	34	407	166	91	21	278	58	129	151	338	1155
07:45 AM	12	69	68	149	15	341	33	389	174	138	19	331	90	203	113	406	1275
Total	29	249	242	520	78	1249	110	1437	577	358	62	997	232	552	494	1278	4232
08:00 AM	19	77	68	164	27	309	32	368	156	124	23	303	113	154	74	341	1176
08:15 AM	20	63	56	139	27	329	41	397	123	111	18	252	104	175	90	369	1157
08:30 AM	16	64	62	142	27	278	41	346	124	107	30	261	85	188	112	385	1134
08:45 AM	31	87	69	187	32	304	37	373	190	146	22	358	146	214	105	465	1383
Total	86	291	255	632	113	1220	151	1484	593	488	93	1174	448	731	381	1560	4850
Grand Total	115	540	497	1152	191	2469	261	2921	1170	846	155	2171	680	1283	875	2838	9082
Apprch %	10	46.9	43.1		6.5	84.5	8.9		53.9	39	7.1		24	45.2	30.8		
Total %	1.3	5.9	5.5	12.7	2.1	27.2	2.9	32.2	12.9	9.3	1.7	23.9	7.5	14.1	9.6	31.2	

	Ynez Road Southbound				Rancho California Road Westbound				Ynez Road Northbound				Rancho California Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	19	77	68	164	27	309	32	368	156	124	23	303	113	154	74	341	1176
08:15 AM	20	63	56	139	27	**329**	**41**	**397**	123	111	18	252	104	175	90	369	1157
08:30 AM	16	64	62	142	27	278	41	346	124	107	**30**	261	85	188	**112**	385	1134
08:45 AM	**31**	**87**	**69**	**187**	**32**	304	37	373	**190**	**146**	22	**358**	**146**	**214**	105	**465**	**1383**
Total Volume	86	291	255	632	113	1220	151	1484	593	488	93	1174	448	731	381	1560	4850
% App. Total	13.6	46	40.3		7.6	82.2	10.2		50.5	41.6	7.9		28.7	46.9	24.4		
PHF	.694	.836	.924	.845	.883	.927	.921	.935	.780	.836	.775	.820	.767	.854	.850	.839	.877

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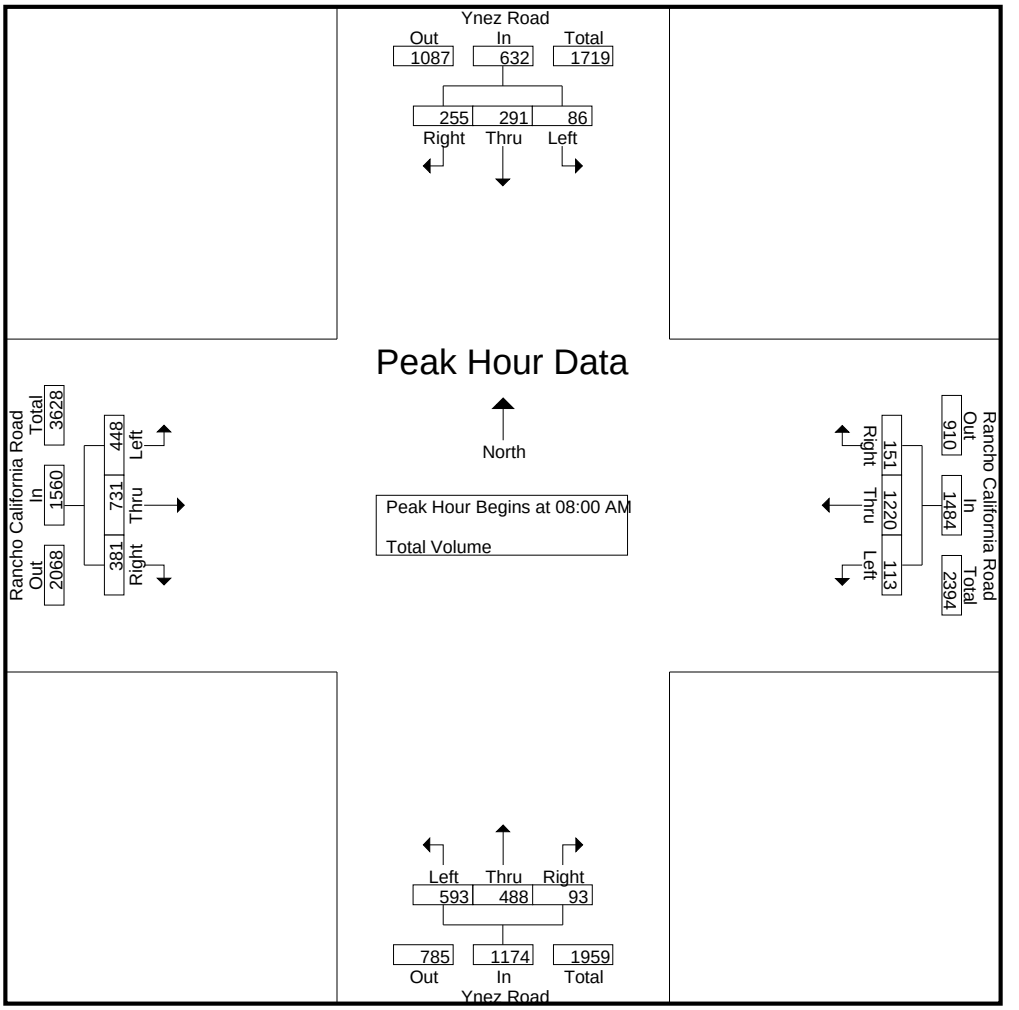
City of Temecula
N/S: Ynez Road
E/W: Rancho California Road
Weather: Sunny

File Name : TEMYNRCAM
Site Code : 06714004
Start Date : 1/9/2014
Page No : 2



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

	08:00 AM				07:30 AM				08:00 AM				08:00 AM			
+0 mins.	19	77	68	164	25	**348**	34	**407**	156	124	23	303	113	154	74	341
+15 mins.	20	63	56	139	15	341	33	389	123	111	18	252	104	175	90	369
+30 mins.	16	64	62	142	**27**	309	32	368	124	107	**30**	261	85	188	**112**	385
+45 mins.	**31**	**87**	**69**	**187**	27	329	**41**	397	**190**	**146**	22	**358**	**146**	**214**	105	**465**
Total Volume	86	291	255	632	94	1327	140	1561	593	488	93	1174	448	731	381	1560
% App. Total	13.6	46	40.3		6	85	9		50.5	41.6	7.9		28.7	46.9	24.4	
PHF	.694	.836	.924	.845	.870	.953	.854	.959	.780	.836	.775	.820	.767	.854	.850	.839

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City of Temecula
N/S: Ynez Road
E/W: Rancho California Road
Weather: Sunny

File Name : TEMYNRCPM
Site Code : 06714004
Start Date : 1/14/2014
Page No : 1

Groups Printed- Total Volume

	Ynez Road Southbound				Rancho California Road Westbound				Ynez Road Northbound				Rancho California Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	44	146	104	294	47	220	48	315	124	190	25	339	143	357	164	664	1612
04:15 PM	37	144	128	309	39	249	61	349	94	122	26	242	136	324	152	612	1512
04:30 PM	50	132	147	329	42	207	59	308	119	131	27	277	202	358	162	722	1636
04:45 PM	38	186	144	368	43	259	52	354	105	131	34	270	152	364	194	710	1702
Total	169	608	523	1300	171	935	220	1326	442	574	112	1128	633	1403	672	2708	6462
05:00 PM	47	163	150	360	55	213	50	318	122	163	24	309	179	396	184	759	1746
05:15 PM	31	183	134	348	52	225	56	333	113	158	36	307	168	361	157	686	1674
05:30 PM	47	156	117	320	38	200	51	289	113	152	39	304	170	366	174	710	1623
05:45 PM	43	187	105	335	47	190	55	292	92	183	30	305	165	321	142	628	1560
Total	168	689	506	1363	192	828	212	1232	440	656	129	1225	682	1444	657	2783	6603
Grand Total	337	1297	1029	2663	363	1763	432	2558	882	1230	241	2353	1315	2847	1329	5491	13065
Apprch %	12.7	48.7	38.6		14.2	68.9	16.9		37.5	52.3	10.2		23.9	51.8	24.2		
Total %	2.6	9.9	7.9	20.4	2.8	13.5	3.3	19.6	6.8	9.4	1.8	18	10.1	21.8	10.2	42	

	Ynez Road Southbound				Rancho California Road Westbound				Ynez Road Northbound				Rancho California Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	**50**	132	147	329	42	207	**59**	308	119	131	27	277	**202**	358	162	722	1636
04:45 PM	38	**186**	144	**368**	43	**259**	52	**354**	105	131	34	270	152	364	**194**	710	1702
05:00 PM	47	163	**150**	360	**55**	213	50	318	**122**	**163**	24	**309**	179	**396**	184	**759**	**1746**
05:15 PM	31	183	134	348	52	225	56	333	113	158	**36**	307	168	361	157	686	1674
Total Volume	166	664	575	1405	192	904	217	1313	459	583	121	1163	701	1479	697	2877	6758
% App. Total	11.8	47.3	40.9		14.6	68.8	16.5		39.5	50.1	10.4		24.4	51.4	24.2		
PHF	.830	.892	.958	.954	.873	.873	.919	.927	.941	.894	.840	.941	.868	.934	.898	.948	.968

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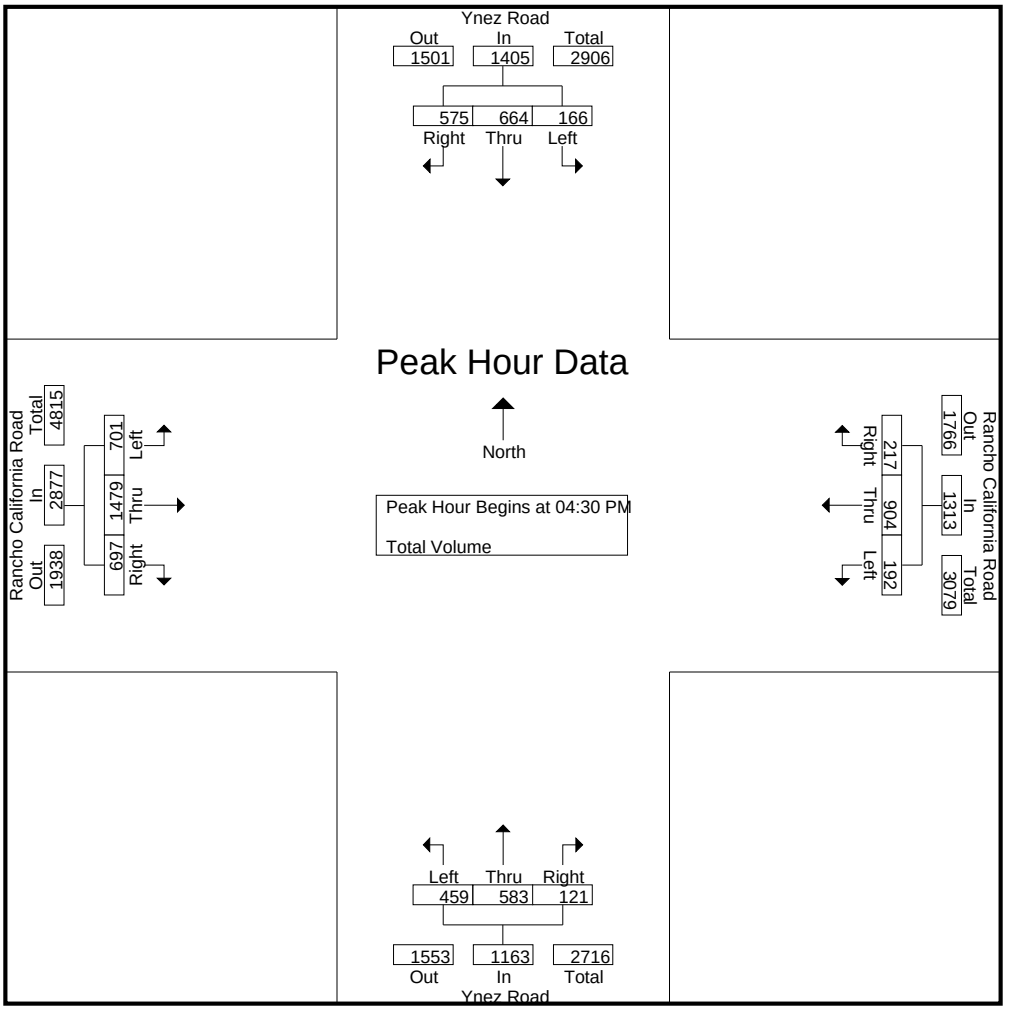
City of Temecula
N/S: Ynez Road
E/W: Rancho California Road
Weather: Sunny

File Name : TEMYNRCPM
Site Code : 06714004
Start Date : 1/14/2014
Page No : 2



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

	04:30 PM				04:15 PM				05:00 PM				04:30 PM			
+0 mins.	**50**	132	147	329	39	249	**61**	349	**122**	163	24	**309**	**202**	358	162	722
+15 mins.	38	**186**	144	**368**	42	207	59	308	113	158	36	307	152	364	**194**	710
+30 mins.	47	163	**150**	360	43	**259**	52	**354**	113	152	**39**	304	179	**396**	184	**759**
+45 mins.	31	183	134	348	**55**	213	50	318	92	**183**	30	305	168	361	157	686
Total Volume	166	664	575	1405	179	928	222	1329	440	656	129	1225	701	1479	697	2877
% App. Total	11.8	47.3	40.9		13.5	69.8	16.7		35.9	53.6	10.5		24.4	51.4	24.2	
PHF	.830	.892	.958	.954	.814	.896	.910	.939	.902	.896	.827	.991	.868	.934	.898	.948

INTERSECTION TURNING MOVEMENT COUNTS

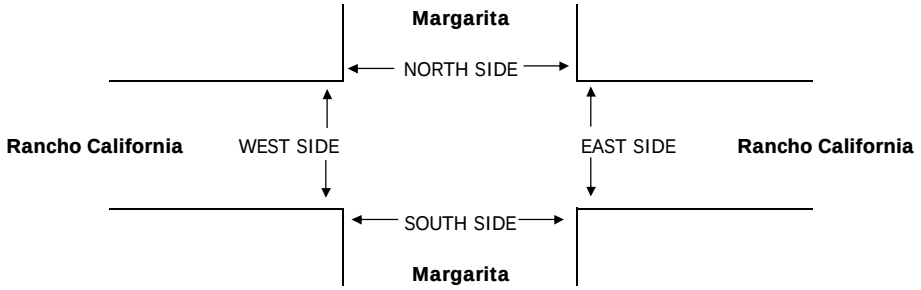
PREPARED BY: AimTD LLC. tel: 951 249 3226 pacific@aimtd.com

DATE:					
Tue, Jun 10, 14	LOCATION:	Temecula	PROJECT #:	SC0392	
	NORTH & SOUTH:	Margarita	LOCATION #:	1	
	EAST & WEST:	Rancho California	CONTROL:	SIGNAL	

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

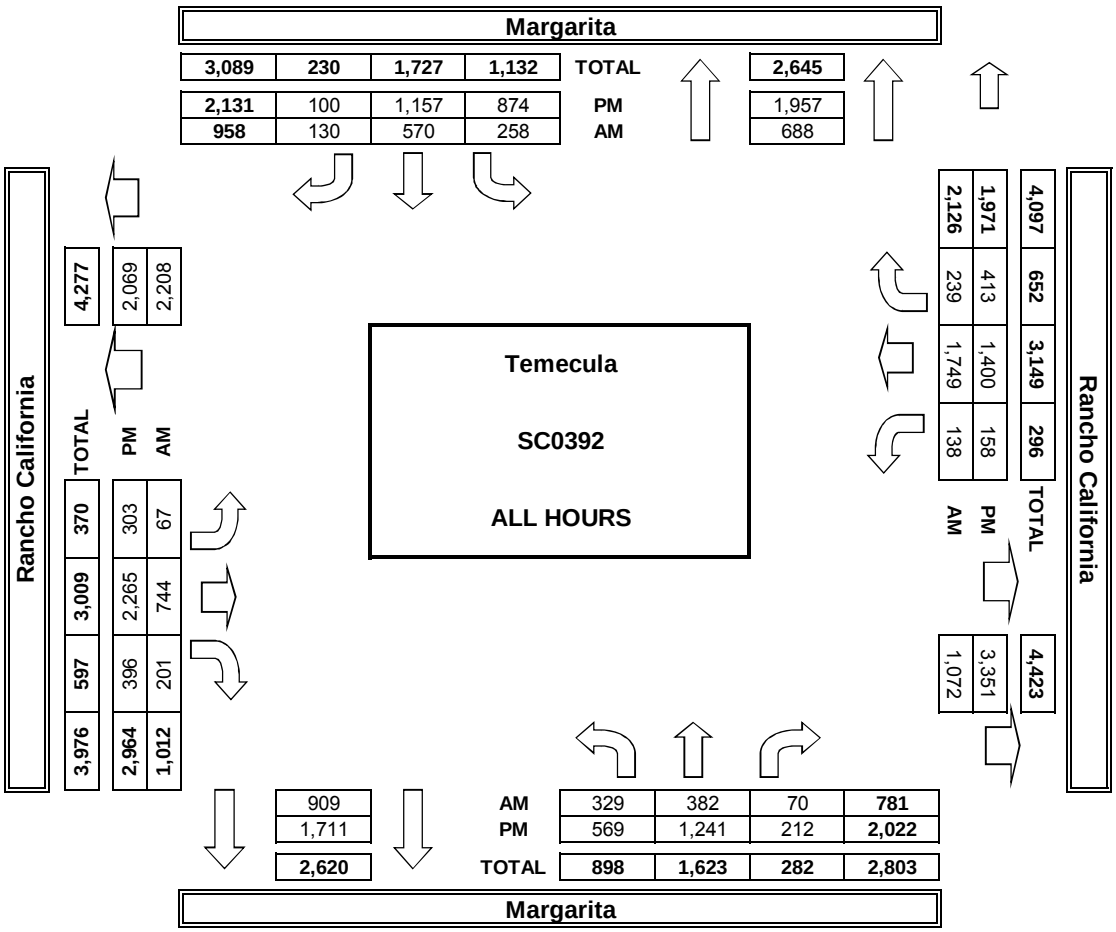
		NORTHBOUND Margarita			SOUTHBOUND Margarita			EASTBOUND Rancho California			WESTBOUND Rancho California				U-TURNS				
	LANES:	NL 2	NT 2	NR 0	SL 2	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 1	TOTAL	NB X	SB X	EB 0	WB 0	TTL
AM	7:00 AM	23	21	4	40	38	20	3	87	30	8	199	15	488	0	0	0	0	0
	7:15 AM	27	30	14	29	38	16	7	67	9	14	194	21	466	0	0	0	0	0
	7:30 AM	35	44	7	22	57	20	7	84	17	10	217	30	550	0	0	0	0	0
	7:45 AM	34	44	8	38	98	13	10	119	32	25	248	29	698	0	0	0	0	0
	8:00 AM	58	39	8	28	44	15	10	87	16	12	223	26	566	0	0	0	0	0
	8:15 AM	35	59	9	33	72	21	9	82	27	13	197	25	582	0	0	0	0	0
	8:30 AM	44	56	6	30	86	13	12	97	33	22	243	38	680	0	0	0	0	0
	8:45 AM	73	89	14	38	137	12	9	121	37	34	228	55	847	0	0	1	0	1
	VOLUMES	329	382	70	258	570	130	67	744	201	138	1,749	239	4,878	0	0	1	0	1
	APPROACH %	42%	49%	9%	27%	59%	14%	7%	74%	20%	6%	82%	11%						
	APP/DEPART	781	/	688	958	/	909	1,013	/	1,072	2,126	/	2,209	0					
	BEGIN PEAK HR		8:00 AM																
	VOLUMES	210	243	37	129	339	61	40	387	113	81	891	144	2,675					
	APPROACH %	43%	50%	8%	24%	64%	12%	7%	72%	21%	7%	80%	13%						
	PEAK HR FACTOR		0.696			0.707			0.808			0.880		0.790					
	APP/DEPART	490	/	427	529	/	533	540	/	553	1,116	/	1,162	0					
PM	4:00 PM	58	126	17	122	146	14	38	203	37	15	154	55	985	0	0	1	0	1
	4:15 PM	67	140	26	85	126	12	38	242	47	21	195	49	1,048	0	0	0	0	0
	4:30 PM	78	174	31	105	127	16	27	292	37	27	155	47	1,116	0	0	0	0	0
	4:45 PM	74	138	45	123	146	12	38	321	56	20	191	58	1,222	0	0	1	0	1
	5:00 PM	85	167	24	136	174	11	36	286	60	23	183	64	1,249	0	0	0	1	1
	5:15 PM	50	148	22	96	145	13	50	353	59	15	202	51	1,204	0	0	0	0	0
	5:30 PM	70	201	26	113	159	7	39	250	48	18	147	51	1,129	1	0	0	0	1
	5:45 PM	87	147	21	94	134	15	37	318	52	19	173	38	1,135	0	0	0	1	1
	VOLUMES	569	1,241	212	874	1,157	100	303	2,265	396	158	1,400	413	9,093	1	0	2	2	5
	APPROACH %	28%	61%	10%	41%	54%	5%	10%	76%	13%	8%	71%	21%						
	APP/DEPART	2,023	/	1,957	2,131	/	1,712	2,966	/	3,353	1,973	/	2,071	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	279	654	117	468	624	43	163	1,210	223	76	723	224	4,804					
	APPROACH %	27%	62%	11%	41%	55%	4%	10%	76%	14%	7%	71%	22%						
	PEAK HR FACTOR		0.884			0.884			0.864			0.947		0.962					
	APP/DEPART	1,050	/	1,041	1,135	/	923	1,596	/	1,795	1,023	/	1,045	0					

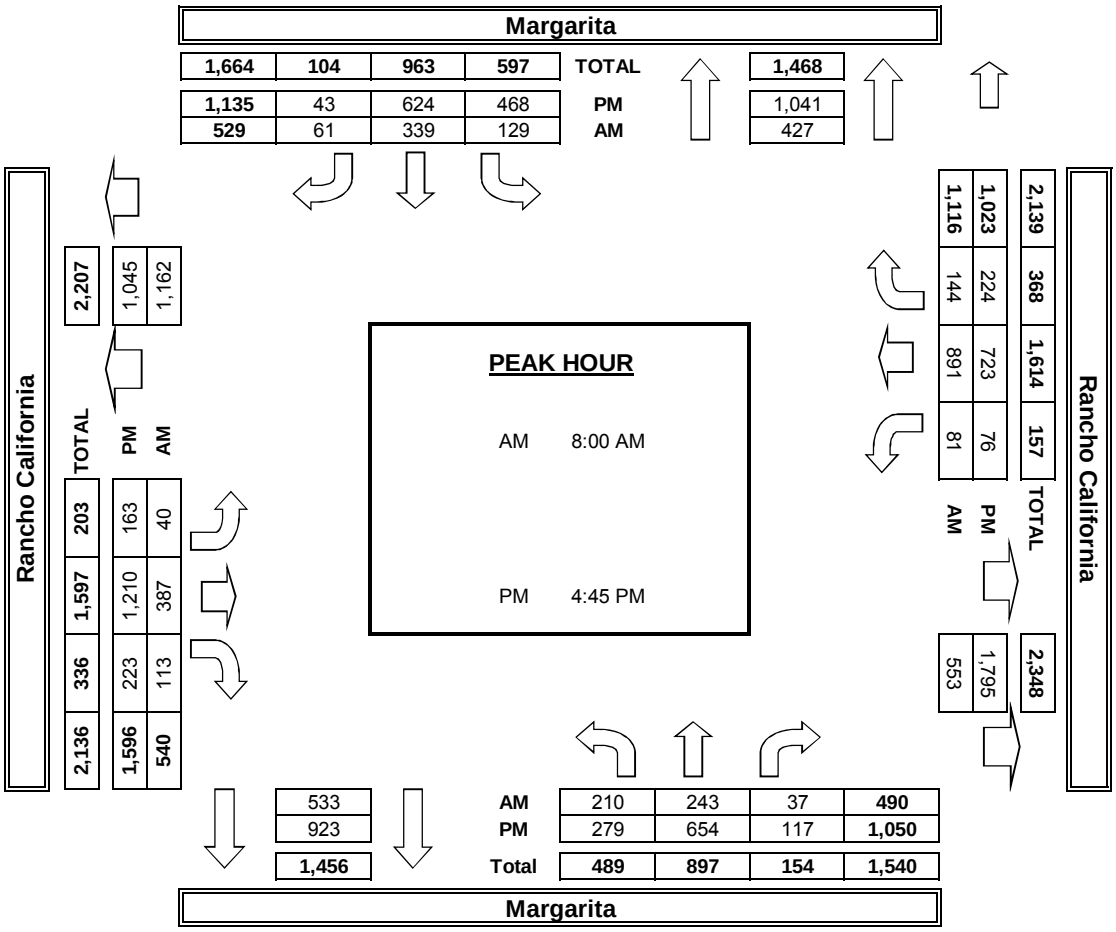


		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	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
	8:30 AM	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	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	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	0	0	0	0	0	0
	4:45 PM	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
	5:15 PM	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	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PACIFIC TRAFFIC DATA SERVICES

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

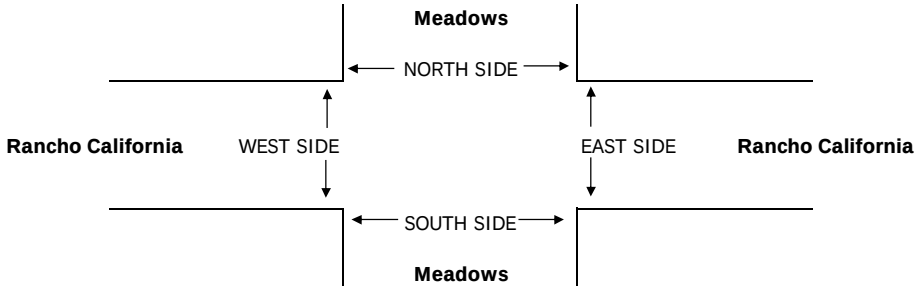
PREPARED BY: AimTD LLC. tel: 951 249 3226 pacific@aimtd.com

DATE:	LOCATION:	Temecula	PROJECT #:	SC0392
Tue, Jun 10, 14	NORTH & SOUTH:	Meadows	LOCATION #:	2
	EAST & WEST:	Rancho California	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

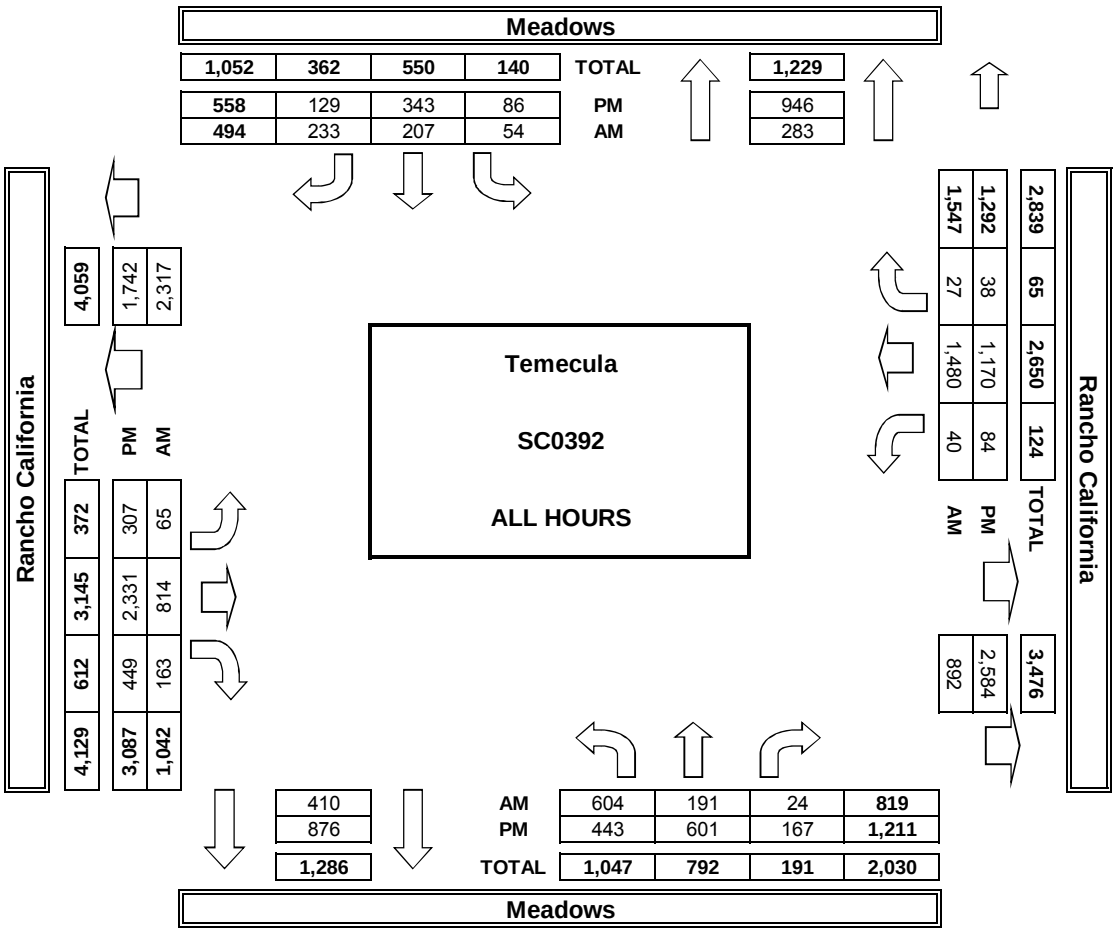
		NORTHBOUND (Meadows)			SOUTHBOUND (Meadows)			EASTBOUND (Rancho California)			WESTBOUND (Rancho California)				U-TURNS				
	LANES:	NL 2	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL	NB X	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	42	12	3	7	19	32	10	84	18	1	133	5	366	0	0	1	0	1
	7:15 AM	57	20	1	5	27	30	5	87	14	1	144	3	394	0	0	0	0	0
	7:30 AM	67	18	1	7	22	29	5	85	10	10	156	1	411	0	0	0	2	2
	7:45 AM	104	34	7	7	37	31	10	158	26	8	222	2	646	0	0	0	0	0
	8:00 AM	51	12	4	7	24	26	12	89	19	2	213	8	467	0	0	0	0	0
	8:15 AM	80	22	2	12	19	22	6	104	21	6	172	2	468	0	0	0	1	1
	8:30 AM	105	42	3	2	29	31	7	92	23	6	204	3	547	1	0	0	0	1
	8:45 AM	98	31	3	7	30	32	10	115	32	6	236	3	603	1	0	0	0	1
	VOLUMES	604	191	24	54	207	233	65	814	163	40	1,480	27	3,908	2	0	1	3	6
	APPROACH %	74%	23%	3%	11%	42%	47%	6%	78%	16%	3%	96%	2%						
	APP/DEPART	821	/	283	494	/	412	1,043	/	895	1,550	/	2,318	0					
	BEGIN PEAK HR		7:45 AM																
	VOLUMES	340	110	16	28	109	110	35	443	89	22	811	15	2,128					
	APPROACH %	73%	24%	3%	11%	44%	45%	6%	78%	16%	3%	96%	2%						
	PEAK HR FACTOR		0.777			0.823			0.731			0.914		0.824					
	APP/DEPART	466	/	160	247	/	220	567	/	487	848	/	1,261	0					
PM	4:00 PM	7	82	79	7	31	10	29	195	54	12	154	2	662	12	0	0	1	13
	4:15 PM	65	72	11	9	45	15	39	269	39	9	161	4	738	0	0	0	1	1
	4:30 PM	68	56	11	9	39	19	34	282	43	11	131	3	706	0	0	0	1	1
	4:45 PM	66	78	15	11	43	12	42	310	55	13	137	7	789	0	0	0	0	0
	5:00 PM	72	79	13	12	39	26	40	281	49	14	153	4	782	1	0	1	2	4
	5:15 PM	54	86	21	15	46	18	32	389	66	6	159	3	895	0	0	0	0	0
	5:30 PM	57	77	12	10	37	16	47	314	79	7	138	7	801	1	0	0	1	2
	5:45 PM	54	71	5	13	63	13	44	291	64	12	137	8	775	0	0	0	0	0
	VOLUMES	443	601	167	86	343	129	307	2,331	449	84	1,170	38	6,169	14	0	1	6	21
	APPROACH %	37%	50%	14%	15%	61%	23%	10%	76%	15%	7%	91%	3%						
	APP/DEPART	1,225	/	946	558	/	890	3,088	/	2,590	1,298	/	1,743	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	249	320	61	48	165	72	161	1,294	249	40	587	21	3,267					
	APPROACH %	40%	51%	10%	17%	58%	25%	9%	76%	15%	6%	91%	3%						
	PEAK HR FACTOR		0.960			0.902			0.875			0.947		0.913					
	APP/DEPART	630	/	502	285	/	454	1,704	/	1,403	648	/	908	0					

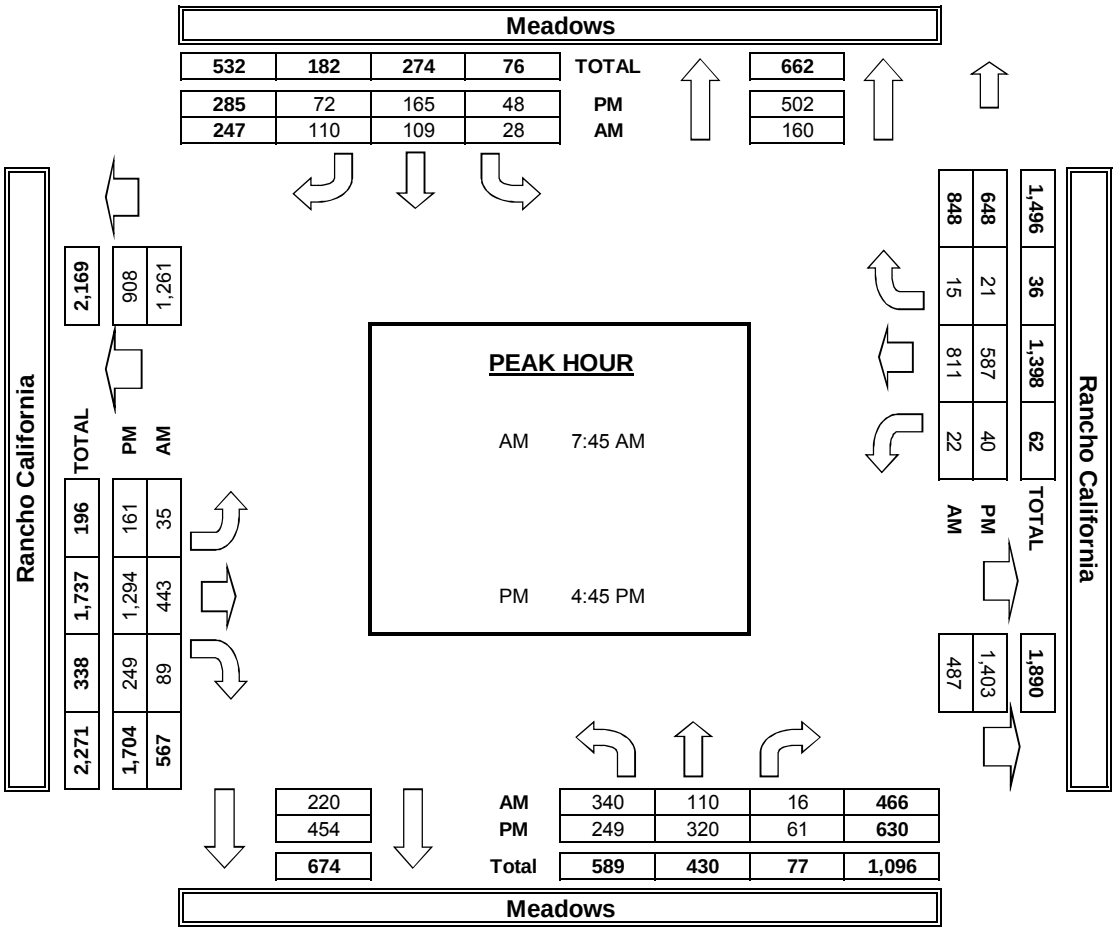


		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	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
	8:30 AM	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	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	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	0	0	0	0	0	0
	4:45 PM	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
	5:15 PM	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	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PACIFIC TRAFFIC DATA SERVICES

TURNING MOVEMENT COUNTS





Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6065-001 **Day:** Wednesday

City: Temecula **Date:** 4/16/2014

AM

NS/EW Streets:	Butterfield Stage Rd			Butterfield Stage Rd			Rancho California Rd			Rancho California Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL .5	NT .5	NR 1	SL .5	ST .5	SR 1	EL 1	ET 1	ER 1	WL 1	WT 1	WR 0	TOTAL
7:00 AM	43	45	6	4	42	6	3	39	25	17	95	6	331
7:15 AM	36	55	10	13	53	5	8	53	15	21	50	5	324
7:30 AM	59	56	11	2	59	4	6	46	26	19	87	13	388
7:45 AM	27	33	18	3	50	5	8	54	26	16	88	8	336
8:00 AM	40	65	10	4	40	3	6	56	28	15	94	5	366
8:15 AM	34	37	18	9	56	3	7	54	36	13	90	6	363
8:30 AM	76	47	18	9	62	6	3	62	39	13	76	9	420
8:45 AM	50	60	20	15	45	8	4	78	38	11	69	9	407
TOTAL VOLUMES :	NL 365	NT 398	NR 111	SL 59	ST 407	SR 40	EL 45	ET 442	ER 233	WL 125	WT 649	WR 61	TOTAL 2935
APPROACH %'s :	41.76%	45.54%	12.70%	11.66%	80.43%	7.91%	6.25%	61.39%	32.36%	14.97%	77.72%	7.31%	
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	200	209	66	37	203	20	20	250	141	52	329	29	1556
PEAK HR FACTOR :		0.842			0.844			0.856			0.899		0.926

UTURNS	NB	SB	EB	WB
	0	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6065-001 **Day:** Wednesday

City: Temecula **Date:** 4/16/2014

PM

NS/EW Streets:	Butterfield Stage Rd			Butterfield Stage Rd			Rancho California Rd			Rancho California Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL .5	NT .5	NR 1	SL .5	ST .5	SR 1	EL 1	ET 1	ER 1	WL 1	WT 1	WR 0	TOTAL
4:00 PM	35	55	22	15	49	14	5	97	68	15	92	6	473
4:15 PM	42	73	17	11	69	7	10	82	68	26	83	13	501
4:30 PM	43	82	15	7	52	4	11	105	66	26	110	12	533
4:45 PM	43	70	19	10	63	5	17	96	53	26	96	15	513
5:00 PM	37	88	28	13	63	9	19	86	63	23	88	12	529
5:15 PM	37	79	24	10	60	3	14	112	77	22	107	9	554
5:30 PM	48	86	31	7	73	5	15	100	77	29	93	11	575
5:45 PM	51	85	30	9	59	11	11	91	70	20	102	10	549
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	336	618	186	82	488	58	102	769	542	187	771	88	4227
APPROACH %'s :	29.47%	54.21%	16.32%	13.06%	77.71%	9.24%	7.22%	54.42%	38.36%	17.88%	73.71%	8.41%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	173	338	113	39	255	28	59	389	287	94	390	42	2207
PEAK HR FACTOR :		0.940			0.947			0.905			0.953		0.960

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6065-001 **Day:** Saturday

City: Temecula **Date:** 4/26/2014

PM

NS/EW Streets:	Butterfield Stage Rd			Butterfield Stage Rd			Rancho California Rd			Rancho California Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL .5	NT .5	NR 1	SL .5	ST .5	SR 1	EL 1	ET 1	ER 1	WL 1	WT 1	WR 0	TOTAL
2:00 PM	49	52	40	19	52	2	3	160	74	11	124	2	588
2:15 PM	44	39	44	8	28	5	6	169	71	15	98	10	537
2:30 PM	54	38	39	11	49	5	7	156	64	23	131	10	587
2:45 PM	49	52	31	21	48	4	3	159	78	22	137	17	621
3:00 PM	42	47	42	16	32	6	3	156	52	28	155	14	593
3:15 PM	30	45	47	19	52	3	3	165	66	46	148	12	636
3:30 PM	37	40	33	12	32	1	10	166	46	33	158	9	577
3:45 PM	50	44	33	13	54	3	8	165	57	23	158	7	615
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	355	357	309	119	347	29	43	1296	508	201	1109	81	4754
APPROACH %'s :	34.77%	34.97%	30.26%	24.04%	70.10%	5.86%	2.33%	70.17%	27.50%	14.45%	79.73%	5.82%	
PEAK HR START TIME :	230 PM												TOTAL
PEAK HR VOL :	175	182	159	67	181	18	16	636	260	119	571	53	2437
PEAK HR FACTOR :		0.977			0.899			0.950			0.902		0.958

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6065-002 **Day:** Wednesday

City: Temecula **Date:** 4/16/2014

AM

NS/EW Streets:	La Serena Way			La Serena Way			Rancho California Rd			Rancho California Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	1	0	1	1	1	0	0	1	0	
7:00 AM	0	0	0	0	0	1	0	39	0	0	119	0	159
7:15 AM	0	0	0	0	0	0	1	62	0	0	90	1	154
7:30 AM	0	0	0	1	0	2	0	63	0	0	96	1	163
7:45 AM	0	0	0	0	0	1	1	72	0	0	111	0	185
8:00 AM	0	0	0	0	0	0	9	64	0	0	113	0	186
8:15 AM	0	0	0	0	0	1	0	65	0	0	101	1	168
8:30 AM	0	0	0	1	0	2	1	82	0	0	104	0	190
8:45 AM	0	0	0	0	0	2	1	108	0	0	93	0	204
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	2	0	9	13	555	0	0	827	3	1409
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	18.18%	0.00%	81.82%	2.29%	97.71%	0.00%	0.00%	99.64%	0.36%	
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	0	0	0	1	0	5	11	319	0	0	411	1	748
PEAK HR FACTOR :	0.000			0.500			0.757			0.912			0.917

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : 1-Way Stop (SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6065-002 **Day:** Wednesday

City: Temecula **Date:** 4/16/2014

PM

NS/EW Streets:	La Serena Way			La Serena Way			Rancho California Rd			Rancho California Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	1	0	1	1	1	0	0	1	0	
4:00 PM	0	0	0	2	0	4	5	136	0	0	97	4	248
4:15 PM	0	0	0	1	0	3	4	98	0	0	113	0	219
4:30 PM	0	0	0	1	0	1	1	121	0	0	128	2	254
4:45 PM	0	0	0	2	0	9	1	132	0	0	138	0	282
5:00 PM	0	0	0	1	0	2	1	120	0	0	105	0	229
5:15 PM	0	0	0	0	0	2	0	139	0	0	116	0	257
5:30 PM	0	0	0	0	0	6	0	136	0	0	123	0	265
5:45 PM	0	0	0	0	0	8	2	145	0	0	116	0	271
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	7	0	35	14	1027	0	0	936	6	2025
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	16.67%	0.00%	83.33%	1.34%	98.66%	0.00%	0.00%	99.36%	0.64%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	0	0	0	3	0	19	2	527	0	0	482	0	1033
PEAK HR FACTOR :		0.000			0.500			0.951			0.873		0.916

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : 1-Way Stop (SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6065-002 **Day:** Saturday

City: Temecula **Date:** 4/26/2014

PM

NS/EW Streets:	La Serena Way			La Serena Way			Rancho California Rd			Rancho California Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 0	NR 0	SL 1	ST 0	SR 1	EL 1	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL
2:00 PM	0	0	0	6	0	8	4	222	0	0	129	7	376
2:15 PM	0	0	0	6	0	5	11	197	0	0	141	7	367
2:30 PM	0	0	0	9	0	15	15	191	0	0	141	4	375
2:45 PM	0	0	0	7	0	7	11	202	0	0	178	6	411
3:00 PM	0	0	0	11	0	6	6	208	0	0	196	6	433
3:15 PM	0	0	0	7	0	6	12	207	0	0	211	9	452
3:30 PM	0	0	0	6	0	6	6	200	0	0	188	6	412
3:45 PM	0	0	0	9	0	11	10	197	0	0	191	7	425
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	61	0	64	75	1624	0	0	1375	52	3251
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	48.80%	0.00%	51.20%	4.41%	95.59%	0.00%	0.00%	96.36%	3.64%	
PEAK HR START TIME :	300 PM												TOTAL
PEAK HR VOL :	0	0	0	33	0	29	34	812	0	0	786	28	1722
PEAK HR FACTOR :	0.000			0.775			0.966			0.925			0.952

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : 1-Way Stop (SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6065-003 **Day:** Wednesday

City: Temecula **Date:** 4/16/2014

AM

NS/EW Streets:	Calle Contento			Calle Contento			Rancho California Rd			Rancho California Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 1	ER 1	WL 1	WT 1	WR 1	TOTAL
7:00 AM	3	0	2	1	1	14	0	41	1	1	100	4	168
7:15 AM	2	1	4	1	0	5	2	54	2	6	78	0	155
7:30 AM	4	1	1	2	2	8	7	45	2	6	116	2	196
7:45 AM	2	0	3	0	0	6	5	57	7	5	87	1	173
8:00 AM	4	1	1	0	0	11	3	57	3	2	99	0	181
8:15 AM	2	1	2	1	1	4	1	56	2	7	105	0	182
8:30 AM	2	2	2	1	4	9	5	73	3	10	91	1	203
8:45 AM	2	1	2	0	2	7	10	83	9	4	76	2	198
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	21	7	17	6	10	64	33	466	29	41	752	10	1456
APPROACH %'s :	46.67%	15.56%	37.78%	7.50%	12.50%	80.00%	6.25%	88.26%	5.49%	5.11%	93.65%	1.25%	
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	10	5	7	2	7	31	19	269	17	23	371	3	764
PEAK HR FACTOR :	0.917			0.714			0.748			0.886			0.941

UTURNS

NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
NB	SB	EB	WB
0	0	0	0

CONTROL : 2-Way Stop (NB/SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6065-003 **Day:** Wednesday

City: Temecula **Date:** 4/16/2014

PM

NS/EW Streets:	Calle Contento			Calle Contento			Rancho California Rd			Rancho California Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 1	ER 1	WL 1	WT 1	WR 1	TOTAL
4:00 PM	3	2	0	5	0	6	9	104	4	2	93	2	230
4:15 PM	3	0	2	3	0	12	5	96	0	1	92	4	218
4:30 PM	4	0	1	3	0	6	5	109	4	6	118	0	256
4:45 PM	5	0	3	2	0	8	4	118	7	2	106	2	257
5:00 PM	4	1	4	0	2	6	7	117	6	1	103	1	252
5:15 PM	3	0	0	1	0	7	7	131	6	3	101	1	260
5:30 PM	3	0	5	0	0	5	13	109	5	2	103	1	246
5:45 PM	1	0	1	0	1	3	5	129	5	3	97	0	245
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	26	3	16	14	3	53	55	913	37	20	813	11	1964
APPROACH %'s :	57.78%	6.67%	35.56%	20.00%	4.29%	75.71%	5.47%	90.85%	3.68%	2.37%	96.33%	1.30%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	16	1	8	6	2	27	23	475	23	12	428	4	1025
PEAK HR FACTOR :		0.694			0.875			0.905			0.895		0.986

UTURNS

NB	SB	EB	WB
0	0	0	0
1	0	0	0
0	0	0	1
0	0	0	0
0	0	0	0
0	0	1	0
0	0	2	0
0	0	0	0
NB	SB	EB	WB
1	0	3	1

CONTROL : 2-Way Stop (NB/SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6065-003 **Day:** Wednesday

City: Temecula **Date:** 4/16/2014

AM

NS/EW Streets:	Calle Contento			Calle Contento			Rancho California Rd			Rancho California Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 1	ER 1	WL 1	WT 1	WR 1	TOTAL
7:00 AM	3	0	2	1	1	14	0	41	1	1	100	4	168
7:15 AM	2	1	4	1	0	5	2	54	2	6	78	0	155
7:30 AM	4	1	1	2	2	8	7	45	2	6	116	2	196
7:45 AM	2	0	3	0	0	6	5	57	7	5	87	1	173
8:00 AM	4	1	1	0	0	11	3	57	3	2	99	0	181
8:15 AM	2	1	2	1	1	4	1	56	2	7	105	0	182
8:30 AM	2	2	2	1	4	9	5	73	3	10	91	1	203
8:45 AM	2	1	2	0	2	7	10	83	9	4	76	2	198
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	21	7	17	6	10	64	33	466	29	41	752	10	1456
APPROACH %'s :	46.67%	15.56%	37.78%	7.50%	12.50%	80.00%	6.25%	88.26%	5.49%	5.11%	93.65%	1.25%	
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	10	5	7	2	7	31	19	269	17	23	371	3	764
PEAK HR FACTOR :	0.917			0.714			0.748			0.886			0.941

UTURNS

NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
NB	SB	EB	WB
0	0	0	0

CONTROL : 2-Way Stop (NB/SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6065-003 **Day:** Wednesday

City: Temecula **Date:** 4/16/2014

PM

NS/EW Streets:	Calle Contento			Calle Contento			Rancho California Rd			Rancho California Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 1	ER 1	WL 1	WT 1	WR 1	TOTAL
4:00 PM	3	2	0	5	0	6	9	104	4	2	93	2	230
4:15 PM	3	0	2	3	0	12	5	96	0	1	92	4	218
4:30 PM	4	0	1	3	0	6	5	109	4	6	118	0	256
4:45 PM	5	0	3	2	0	8	4	118	7	2	106	2	257
5:00 PM	4	1	4	0	2	6	7	117	6	1	103	1	252
5:15 PM	3	0	0	1	0	7	7	131	6	3	101	1	260
5:30 PM	3	0	5	0	0	5	13	109	5	2	103	1	246
5:45 PM	1	0	1	0	1	3	5	129	5	3	97	0	245
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	26	3	16	14	3	53	55	913	37	20	813	11	1964
APPROACH %'s :	57.78%	6.67%	35.56%	20.00%	4.29%	75.71%	5.47%	90.85%	3.68%	2.37%	96.33%	1.30%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	16	1	8	6	2	27	23	475	23	12	428	4	1025
PEAK HR FACTOR :		0.694			0.875			0.905			0.895		0.986

UTURNS

NB	SB	EB	WB
0	0	0	0
1	0	0	0
0	0	0	1
0	0	0	0
0	0	0	0
0	0	1	0
0	0	2	0
0	0	0	0
NB	SB	EB	WB
1	0	3	1

CONTROL : 2-Way Stop (NB/SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6065-003 **Day:** Saturday

City: Temecula **Date:** 4/26/2014

PM

NS/EW Streets:	Calle Contento			Calle Contento			Rancho California Rd			Rancho California Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 1	ER 1	WL 1	WT 1	WR 1	TOTAL
2:00 PM	2	1	4	9	0	15	17	197	8	6	118	5	382
2:15 PM	3	0	4	3	1	10	18	191	5	4	124	8	371
2:30 PM	3	3	2	4	3	19	20	176	5	2	117	9	363
2:45 PM	4	2	3	7	1	12	26	164	7	2	165	4	397
3:00 PM	6	5	1	10	1	7	22	173	3	1	187	8	424
3:15 PM	3	1	4	8	1	18	22	185	2	2	188	19	453
3:30 PM	1	0	8	4	2	15	33	167	7	3	171	9	420
3:45 PM	5	0	4	9	1	28	13	171	7	5	161	11	415
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	27	12	30	54	10	124	171	1424	44	25	1231	73	3225
APPROACH %'s :	39.13%	17.39%	43.48%	28.72%	5.32%	65.96%	10.43%	86.88%	2.68%	1.88%	92.63%	5.49%	
PEAK HR START TIME :	300 PM												TOTAL
PEAK HR VOL :	15	6	17	31	5	68	90	696	19	11	707	47	1712
PEAK HR FACTOR :		0.792			0.684			0.963			0.915		0.945

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : 2-Way Stop (NB/SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6065-004 **Day:** Wednesday

City: Temecula **Date:** 4/16/2014

AM

NS/EW Streets:	Anza Rd (Roundabout)			Anza Rd (Roundabout)			Rancho California Rd			Rancho California Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 0	NR 1	SL 0	ST 0	SR 1	EL 0	ET 0	ER 1	WL 0	WT 0	WR 1	TOTAL
7:00 AM	11	1	34	2	1	8	1	35	6	14	91	2	206
7:15 AM	5	1	15	1	1	5	2	44	3	38	71	0	186
7:30 AM	18	2	21	0	1	1	0	47	11	38	94	0	233
7:45 AM	11	2	16	0	1	0	2	44	4	30	86	0	196
8:00 AM	11	3	11	1	4	2	0	52	8	20	95	1	208
8:15 AM	7	0	21	1	2	1	2	52	8	23	92	0	209
8:30 AM	16	1	14	1	2	2	5	46	7	24	85	1	204
8:45 AM	13	5	20	2	1	0	6	55	12	24	76	0	214
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	92	15	152	8	13	19	18	375	59	211	690	4	1656
APPROACH %'s :	35.52%	5.79%	58.69%	20.00%	32.50%	47.50%	3.98%	82.96%	13.05%	23.31%	76.24%	0.44%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	47	7	69	2	8	4	4	195	31	111	367	1	846
PEAK HR FACTOR :	0.750			0.500			0.927			0.907			0.908

UTURNS

NB	SB	EB	WB
0	0	0	2
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	1
0	0	0	0
0	0	0	0
0	0	0	0
NB	SB	EB	WB
0	0	0	3

CONTROL : 4-Way Yield

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6065-004 **Day:** Wednesday

City: Temecula **Date:** 4/16/2014

PM

NS/EW Streets:	Anza Rd (Roundabout)			Anza Rd (Roundabout)			Rancho California Rd			Rancho California Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 0	NR 1	SL 0	ST 0	SR 1	EL 0	ET 0	ER 1	WL 0	WT 0	WR 1	TOTAL
4:00 PM	13	2	28	3	1	4	5	110	16	21	74	1	278
4:15 PM	13	4	37	3	4	5	4	79	13	24	72	2	260
4:30 PM	13	4	35	3	3	5	3	102	6	27	98	5	304
4:45 PM	16	4	40	2	3	3	7	92	20	25	86	1	299
5:00 PM	20	3	38	2	3	1	9	86	12	16	81	2	273
5:15 PM	12	1	34	3	1	4	5	111	15	25	79	0	290
5:30 PM	10	0	40	3	1	4	6	101	10	16	92	3	286
5:45 PM	13	1	34	4	2	6	8	101	12	15	83	0	279
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	110	19	286	23	18	32	47	782	104	169	665	14	2269
APPROACH %'s :	26.51%	4.58%	68.92%	31.51%	24.66%	43.84%	5.04%	83.82%	11.15%	19.93%	78.42%	1.65%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	61	12	147	10	10	13	24	391	53	93	344	8	1166
PEAK HR FACTOR :		0.902			0.750			0.893			0.856		0.959

UTURNS

NB	SB	EB	WB
0	0	1	1
0	0	2	2
0	0	0	1
0	0	1	2
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

NB	SB	EB	WB
0	0	4	6

CONTROL : 4-Way Yield

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6065-004 **Day:** Saturday

City: Temecula **Date:** 4/26/2014

PM

NS/EW Streets:	Anza Rd (Roundabout)			Anza Rd (Roundabout)			Rancho California Rd			Rancho California Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 0	NR 1	SL 0	ST 0	SR 1	EL 0	ET 0	ER 1	WL 0	WT 0	WR 1	TOTAL
2:00 PM	12	5	37	9	2	5	12	172	20	30	108	8	420
2:15 PM	24	5	32	2	7	5	7	166	19	22	104	4	397
2:30 PM	18	6	35	6	5	6	12	140	18	31	95	4	376
2:45 PM	18	2	33	3	7	7	8	145	20	17	127	4	391
3:00 PM	23	9	44	9	2	10	9	156	19	26	162	6	475
3:15 PM	35	2	31	2	3	6	5	166	24	14	161	11	460
3:30 PM	24	1	27	2	3	5	6	152	10	34	151	6	421
3:45 PM	25	3	31	2	0	8	7	157	23	22	143	8	429
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	179	33	270	35	29	52	66	1254	153	196	1051	51	3369
APPROACH %'s :	37.14%	6.85%	56.02%	30.17%	25.00%	44.83%	4.48%	85.13%	10.39%	15.10%	80.97%	3.93%	
PEAK HR START TIME :	300 PM												TOTAL
PEAK HR VOL :	107	15	133	15	8	29	27	631	76	96	617	31	1785
PEAK HR FACTOR :		0.839			0.619			0.941			0.959		0.939

UTURNS

	NB	SB	EB	WB
			2	0
			1	2
			5	3
			2	0
			1	0
			0	0
			0	0
			0	0
TOTAL VOLUMES :	NB 0	SB 0	EB 11	WB 5

CONTROL : 4-Way Yield

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6065-005 **Day:** Wednesday

City: Temecula **Date:** 4/16/2014

AM

NS/EW Streets:	Monte De Oro			Monte De Oro			Rancho California Rd			Rancho California Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 1	ER 0	WL 1	WT 1	WR 1	TOTAL
7:00 AM	8	0	3	0	0	0	0	69	0	3	98	0	181
7:15 AM	8	0	1	0	0	3	5	48	6	2	103	0	176
7:30 AM	12	0	0	0	0	0	0	53	5	1	125	0	196
7:45 AM	7	0	0	0	0	0	0	48	6	1	104	4	170
8:00 AM	7	0	0	0	0	8	1	48	5	1	106	2	178
8:15 AM	4	0	0	1	0	10	3	42	3	0	106	2	171
8:30 AM	10	0	0	0	0	3	0	53	4	1	94	2	167
8:45 AM	8	0	1	1	0	3	2	47	8	0	87	0	157
TOTAL VOLUMES :	NL 64	NT 0	NR 5	SL 2	ST 0	SR 27	EL 11	ET 408	ER 37	WL 9	WT 823	WR 10	TOTAL 1396
APPROACH %'s :	92.75%	0.00%	7.25%	6.90%	0.00%	93.10%	2.41%	89.47%	8.11%	1.07%	97.74%	1.19%	
PEAK HR START TIME :	700 AM												TOTAL
PEAK HR VOL :	35	0	4	0	0	3	5	218	17	7	430	4	723
PEAK HR FACTOR :	0.813			0.250			0.870			0.875			0.922

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : 4-Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6065-005 **Day:** Wednesday

City: Temecula **Date:** 4/16/2014

PM

NS/EW Streets:	Monte De Oro			Monte De Oro			Rancho California Rd			Rancho California Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 1	ER 0	WL 1	WT 1	WR 1	TOTAL
4:00 PM	8	0	2	4	0	2	3	111	15	2	66	6	219
4:15 PM	4	0	1	1	0	6	5	107	5	2	78	2	211
4:30 PM	8	0	2	0	0	5	5	120	7	1	105	1	254
4:45 PM	4	0	0	1	0	6	0	111	5	1	76	1	205
5:00 PM	3	0	1	1	0	7	1	116	7	0	74	1	211
5:15 PM	11	0	0	2	0	2	1	128	13	0	77	1	235
5:30 PM	10	0	3	0	0	2	0	127	15	2	77	0	236
5:45 PM	8	0	5	0	0	7	0	110	11	1	63	1	206
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	56	0	14	9	0	37	15	930	78	9	616	13	1777
APPROACH %'s :	80.00%	0.00%	20.00%	19.57%	0.00%	80.43%	1.47%	90.91%	7.62%	1.41%	96.55%	2.04%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	26	0	3	4	0	20	7	475	32	2	332	4	905
PEAK HR FACTOR :		0.659			0.750			0.905			0.790		0.891

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : 4-Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6065-005 **Day:** Saturday

City: Temecula **Date:** 4/26/2014

PM

NS/EW Streets:	Monte De Oro			Monte De Oro			Rancho California Rd			Rancho California Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 1	ER 0	WL 1	WT 1	WR 1	TOTAL
2:00 PM	10	1	4	3	0	6	9	128	10	3	91	1	266
2:15 PM	3	1	0	2	0	7	8	129	12	7	105	10	284
2:30 PM	10	1	5	4	0	5	14	129	14	4	94	4	284
2:45 PM	9	0	4	1	0	8	14	110	16	4	99	7	272
3:00 PM	11	0	8	1	0	6	14	139	14	4	120	6	323
3:15 PM	8	1	6	7	2	11	12	130	15	3	122	4	321
3:30 PM	12	0	1	6	0	17	13	134	15	6	120	5	329
3:45 PM	8	0	5	4	0	15	14	121	12	0	124	3	306
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	71	4	33	28	2	75	98	1020	108	31	875	40	2385
APPROACH %'s :	65.74%	3.70%	30.56%	26.67%	1.90%	71.43%	7.99%	83.20%	8.81%	3.28%	92.49%	4.23%	
PEAK HR START TIME :	300 PM												TOTAL
PEAK HR VOL :	39	1	20	18	2	49	53	524	56	13	486	18	1279
PEAK HR FACTOR :		0.789			0.750			0.948			0.987		0.972

UTURNS

NB	SB	EB	WB
		1	
		1	
		0	
		2	
		1	
		0	
		0	
		2	

NB	SB	EB	WB
0	0	7	0

CONTROL : 4-Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6065-006 **Day:** Wednesday

City: Temecula **Date:** 4/16/2014

AM

NS/EW Streets:	Glen Oaks Rd			Glen Oaks Rd			Rancho California Rd			Rancho California Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 0	NR 1	SL 0	ST 0	SR 0	EL 0	ET 1	ER 1	WL 1	WT 1	WR 0	TOTAL
7:00 AM	48	0	13	0	0	0	0	63	11	8	50	0	193
7:15 AM	35	0	9	0	0	0	0	30	12	11	64	0	161
7:30 AM	55	0	5	0	0	0	0	45	11	4	63	0	183
7:45 AM	55	0	10	0	0	0	0	29	14	7	60	0	175
8:00 AM	49	0	4	0	0	0	0	30	14	6	52	0	155
8:15 AM	51	0	3	0	0	0	0	25	14	14	50	0	157
8:30 AM	44	0	7	0	0	0	0	37	8	4	44	0	144
8:45 AM	40	0	3	0	0	0	0	30	11	5	42	0	131
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	377	0	54	0	0	0	0	289	95	59	425	0	1299
APPROACH %'s :	87.47%	0.00%	12.53%	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	75.26%	24.74%	12.19%	87.81%	0.00%	
PEAK HR START TIME :	700 AM												TOTAL
PEAK HR VOL :	193	0	37	0	0	0	0	167	48	30	237	0	712
PEAK HR FACTOR :	0.885			0.000			0.726			0.890			0.922

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : 3-Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6065-006 **Day:** Wednesday

City: Temecula **Date:** 4/16/2014

PM

NS/EW Streets:	Glen Oaks Rd			Glen Oaks Rd			Rancho California Rd			Rancho California Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 0	NR 1	SL 0	ST 0	SR 0	EL 0	ET 1	ER 1	WL 1	WT 1	WR 0	TOTAL
4:00 PM	22	0	3	0	0	0	0	75	34	8	41	0	183
4:15 PM	29	0	7	0	0	0	0	68	32	7	32	0	175
4:30 PM	33	0	11	0	0	0	0	75	43	3	56	0	221
4:45 PM	20	0	5	0	0	0	0	71	42	7	49	0	194
5:00 PM	23	0	15	0	0	0	0	75	40	12	45	0	210
5:15 PM	32	0	7	0	0	0	0	84	42	3	38	0	206
5:30 PM	23	0	5	0	0	0	0	83	44	10	41	0	206
5:45 PM	22	0	5	0	0	0	0	78	40	7	33	0	185
TOTAL VOLUMES :	204	0	58	0	0	0	0	609	317	57	335	0	1580
APPROACH %'s :	77.86%	0.00%	22.14%	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	65.77%	34.23%	14.54%	85.46%	0.00%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	108	0	38	0	0	0	0	305	167	25	188	0	831
PEAK HR FACTOR :	0.830			0.000			0.937			0.903			0.940

UTURNS

NB	SB	EB	WB
0	0	0	0

CONTROL : 3-Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6065-006 **Day:** Saturday

City: Temecula **Date:** 4/26/2014

PM

NS/EW Streets:	Glen Oaks Rd			Glen Oaks Rd			Rancho California Rd			Rancho California Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 0	NR 1	SL 0	ST 0	SR 0	EL 0	ET 1	ER 1	WL 1	WT 1	WR 0	TOTAL
2:00 PM	35	0	9	0	0	0	0	48	45	15	50	0	202
2:15 PM	36	0	9	0	0	0	0	52	54	14	47	0	212
2:30 PM	32	0	12	0	0	0	0	53	50	10	58	0	215
2:45 PM	35	0	10	0	0	0	1	51	46	9	42	0	194
3:00 PM	44	0	11	0	0	0	0	63	53	9	54	0	234
3:15 PM	38	0	9	0	0	0	0	55	62	12	42	0	218
3:30 PM	39	0	9	0	0	0	0	62	51	7	62	0	230
3:45 PM	43	0	12	0	0	0	0	41	56	9	51	0	212
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	302	0	81	0	0	0	1	425	417	85	406	0	1717
APPROACH %'s :	78.85%	0.00%	21.15%	#DIV/0!	#DIV/0!	#DIV/0!	0.12%	50.42%	49.47%	17.31%	82.69%	0.00%	
PEAK HR START TIME :	300 PM												TOTAL
PEAK HR VOL :	164	0	41	0	0	0	0	221	222	37	209	0	894
PEAK HR FACTOR :		0.932			0.000			0.947			0.891		0.955

UTURNS			
NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : 3-Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6202-012 **Day:** Thursday

City: Temecula **Date:** 11/6/2014

AM

NS/EW Streets:	Rancho California Rd			Rancho California Rd			Buck Rd			Buck Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	0	0	
7:00 AM	0	69	0	0	54	0	0	0	0	0	0	0	123
7:15 AM	0	53	0	0	80	0	0	0	0	0	0	0	133
7:30 AM	1	48	0	0	97	0	0	0	1	0	0	0	147
7:45 AM	0	55	0	0	73	1	0	0	0	0	0	0	129
8:00 AM	1	25	0	0	48	0	0	0	0	0	0	0	74
8:15 AM	0	39	0	0	53	0	0	0	2	0	0	0	94
8:30 AM	0	42	0	0	43	0	0	0	0	0	0	0	85
8:45 AM	0	33	0	0	52	0	0	0	0	0	0	0	85
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	2	364	0	0	500	1	0	0	3	0	0	0	870
APPROACH %'s :	0.55%	99.45%	0.00%	0.00%	99.80%	0.20%	0.00%	0.00%	100.00%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	700 AM												TOTAL
PEAK HR VOL :	1	225	0	0	304	1	0	0	1	0	0	0	532
PEAK HR FACTOR :		0.819			0.786			0.250			0.000		0.905

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : 1-Way Stop (EB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6202-012 **Day:** Thursday

City: Temecula **Date:** 11/6/2014

PM

NS/EW Streets:	Rancho California Rd			Rancho California Rd			Buck Rd			Buck Rd				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	0	1	0	0	1	0	0	1	0	0	0	0					
4:00 PM	0	98	0	0	58	0	0	0	0	0	0	0	156				
4:15 PM	1	83	0	0	58	0	0	0	2	0	0	0	144				
4:30 PM	0	89	0	0	45	0	0	0	0	0	0	0	134				
4:45 PM	0	85	0	0	45	0	0	0	0	0	0	0	130				
5:00 PM	0	87	0	0	54	0	0	0	0	0	0	0	141				
5:15 PM	0	93	0	0	43	0	1	0	0	0	0	0	137				
5:30 PM	1	78	0	0	41	1	0	0	0	0	0	0	121				
5:45 PM	0	63	0	0	37	0	0	0	1	0	0	0	101				
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	2	676	0	0	381	1	1	0	3	0	0	0	1064	0	0	0	0
APPROACH %'s :	0.29%	99.71%	0.00%	0.00%	99.74%	0.26%	25.00%	0.00%	75.00%	#DIV/0!	#DIV/0!	#DIV/0!					
PEAK HR START TIME :	400 PM												TOTAL				
PEAK HR VOL :	1	355	0	0	206	0	0	0	2	0	0	0	564				
PEAK HR FACTOR :		0.908			0.888			0.250			0.000		0.904				

CONTROL : 1-Way Stop (EB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6202-012 **Day:** Thursday

City: Temecula **Date:** 11/6/2014

NOON

NS/EW Streets:	Rancho California Rd			Rancho California Rd			Buck Rd			Buck Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	0	0	
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	0 AM												TOTAL
PEAK HR VOL :	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

UTURNS			
NB	SB	EB	WB
0	0	0	0

CONTROL : 1-Way Stop (EB)

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Rancho California Rd and Buck Rd , Temecula

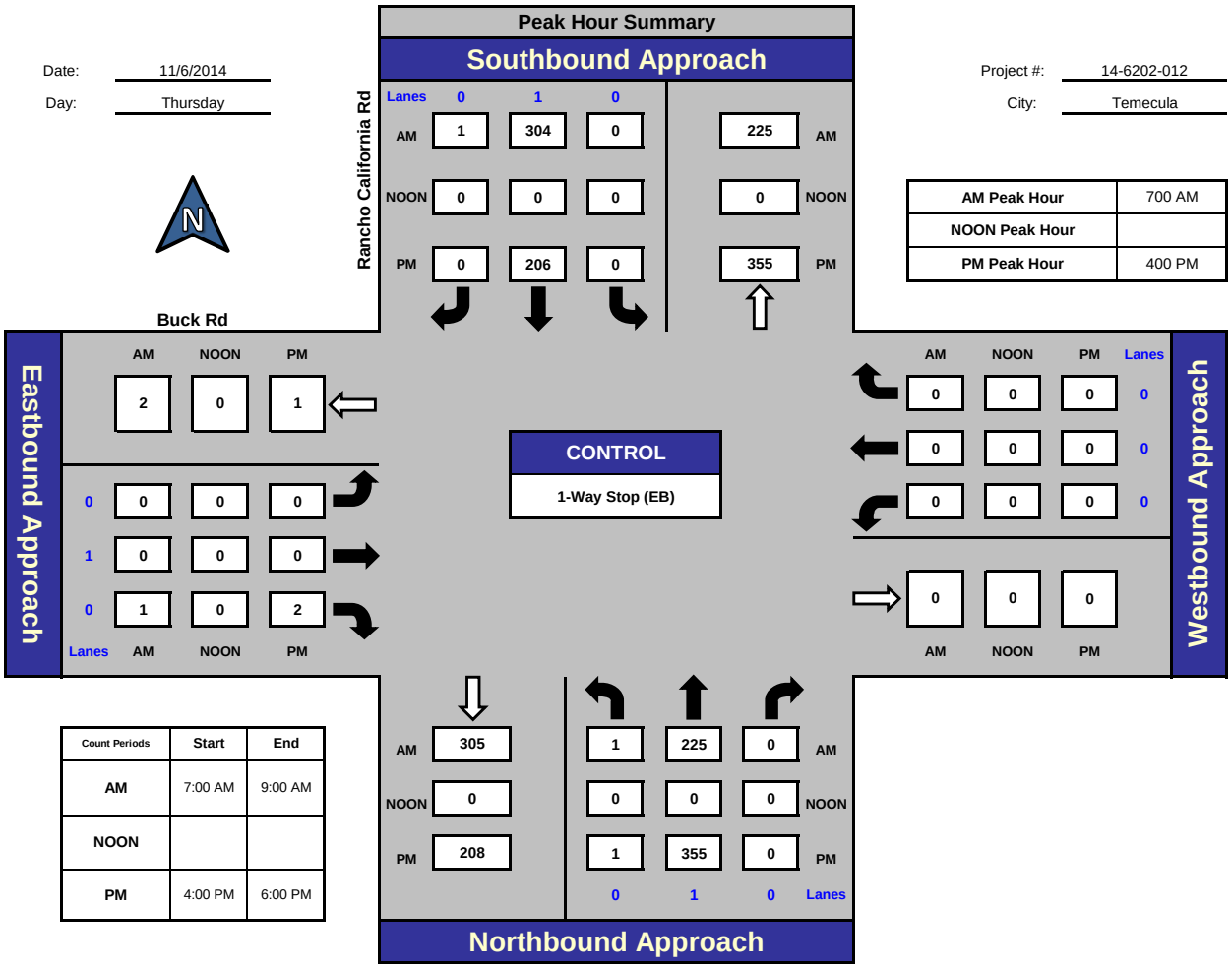
Date: 11/6/2014

Day: Thursday

Project #: 14-6202-012

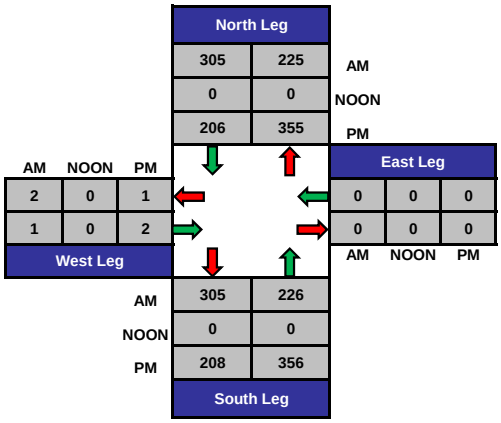
City: Temecula

AM Peak Hour	700 AM
NOON Peak Hour	
PM Peak Hour	400 PM

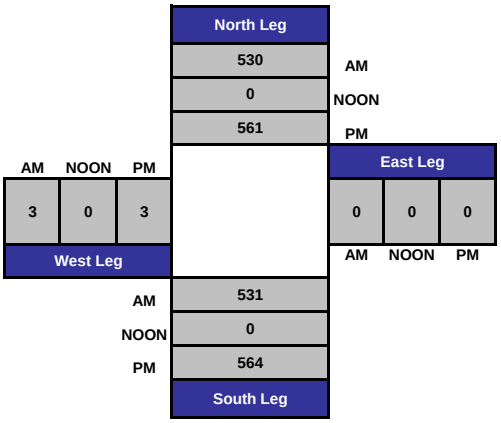


Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6202-012 **Day:** Saturday

City: Temecula **Date:** 11/8/2014

AM

NS/EW Streets:	Rancho California Rd			Rancho California Rd			Buck Rd			Buck Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	0	0	
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	0 AM												TOTAL
PEAK HR VOL :	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

UTURNS			
NB	SB	EB	WB
0	0	0	0

CONTROL : 1-Way Stop (EB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6202-012 **Day:** Saturday

City: Temecula **Date:** 11/8/2014

PM

NS/EW Streets:	Rancho California Rd			Rancho California Rd			Buck Rd			Buck Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	0	0	
2:00 PM	3	42	0	0	48	7	6	0	6	0	0	0	112
2:15 PM	6	43	0	0	40	4	8	0	4	0	0	0	105
2:30 PM	3	44	0	0	46	6	5	0	5	0	0	0	109
2:45 PM	1	39	0	0	41	8	12	0	4	0	0	0	105
3:00 PM	2	50	0	0	47	6	7	0	7	0	0	0	119
3:15 PM	7	49	0	0	50	10	7	0	4	0	0	0	127
3:30 PM	3	54	0	0	50	10	3	0	3	0	0	0	123
3:45 PM	4	32	0	0	36	5	6	0	9	0	0	0	92
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	29	353	0	0	358	56	54	0	42	0	0	0	892
APPROACH %'s :	7.59%	92.41%	0.00%	0.00%	86.47%	13.53%	56.25%	0.00%	43.75%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	245 PM												TOTAL
PEAK HR VOL :	13	192	0	0	188	34	29	0	18	0	0	0	474
PEAK HR FACTOR :		0.899			0.925			0.734			0.000		0.933

UTURNS

NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
1	0	0	0
0	0	0	0
NB	SB	EB	WB
1	0	0	0

CONTROL : 1-Way Stop (EB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6202-012 **Day:** Saturday

City: Temecula **Date:** 11/8/2014

NOON

NS/EW Streets:	Rancho California Rd			Rancho California Rd			Buck Rd			Buck Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	0	0	
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	0 AM												TOTAL
PEAK HR VOL :	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

UTURNS			
NB	SB	EB	WB
0	0	0	0

CONTROL : 1-Way Stop (EB)

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Rancho California Rd and Buck Rd , Temecula

Date: 11/8/2014

Day: Saturday

Project #: 14-6202-012

City: Temecula

AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	245 PM

Peak Hour Summary

Southbound Approach

Rancho California Rd

Lanes	0	1	0		
AM	0	0	0	0	AM
NOON	0	0	0	0	NOON
PM	34	188	0	221	PM

Buck Rd

Eastbound Approach

	AM	NOON	PM	
	0	0	47	
0	0	0	29	
1	0	0	0	
0	0	0	18	
Lanes	AM	NOON	PM	

CONTROL

1-Way Stop (EB)

Westbound Approach

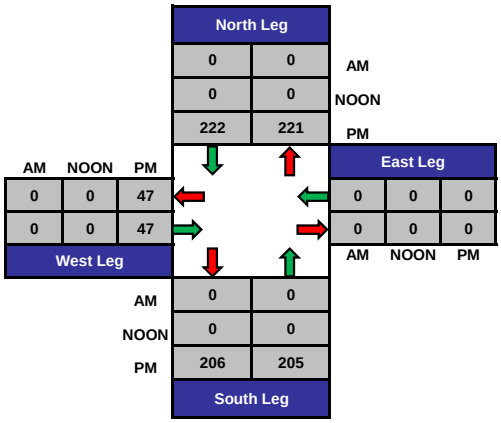
AM	NOON	PM	Lanes
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	
AM	NOON	PM	

Count Periods	Start	End
AM		
NOON		
PM	2:00 PM	4:00 PM

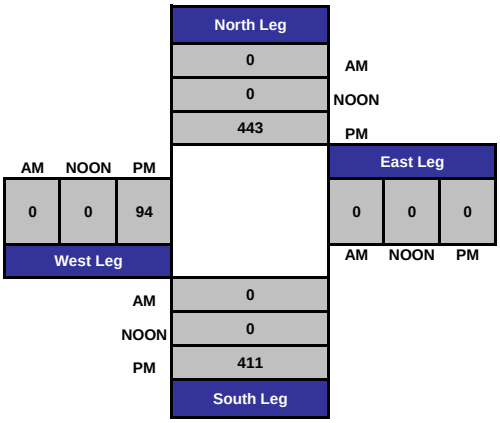
Northbound Approach

AM	0	0	0	0	AM
NOON	0	0	0	0	NOON
PM	206	13	192	0	PM
		0	1	0	Lanes

Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6202-013 **Day:** Thursday

City: Temecula **Date:** 11/6/2014

AM

NS/EW Streets:	Warren Rd			Warren Rd			Benton Rd			Benton Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	0	0	0	1	0	
7:00 AM	0	70	2	2	44	0	0	0	0	12	0	10	140
7:15 AM	0	46	4	1	74	0	0	0	0	16	0	5	146
7:30 AM	0	39	7	4	83	0	0	0	0	10	0	13	156
7:45 AM	0	38	7	4	59	0	0	0	0	12	0	6	126
8:00 AM	0	31	1	3	37	0	0	0	0	10	0	7	89
8:15 AM	0	33	6	4	42	0	0	0	0	9	0	8	102
8:30 AM	0	32	16	3	36	0	0	0	0	12	0	3	102
8:45 AM	0	29	5	2	40	0	0	0	0	7	0	4	87
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	318	48	23	415	0	0	0	0	88	0	56	948
APPROACH %'s :	0.00%	86.89%	13.11%	5.25%	94.75%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	61.11%	0.00%	38.89%	
PEAK HR START TIME :	700 AM												TOTAL
PEAK HR VOL :	0	193	20	11	260	0	0	0	0	50	0	34	568
PEAK HR FACTOR :		0.740			0.779			0.000			0.913		0.910

UTURNS			
NB	SB	EB	WB
NB	SB	EB	WB
0	0	0	0

CONTROL : 1-Way Stop (WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6202-013 **Day:** Thursday

City: Temecula **Date:** 11/6/2014

PM

NS/EW Streets:	Warren Rd			Warren Rd			Benton Rd			Benton Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	0	0	0	1	0	
4:00 PM	0	86	8	5	52	0	0	0	0	7	0	5	163
4:15 PM	0	77	6	4	51	0	0	0	0	11	0	7	156
4:30 PM	0	79	15	8	35	0	0	0	0	5	0	6	148
4:45 PM	0	72	12	4	43	0	0	0	0	3	0	3	137
5:00 PM	0	86	4	3	46	0	0	0	0	6	0	3	148
5:15 PM	0	86	17	7	45	0	0	0	0	6	0	4	165
5:30 PM	0	65	4	4	41	0	0	0	0	3	0	1	118
5:45 PM	0	59	6	3	29	0	0	0	0	1	0	1	99
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	610	72	38	342	0	0	0	0	42	0	30	1134
APPROACH %'s :	0.00%	89.44%	10.56%	10.00%	90.00%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	58.33%	0.00%	41.67%	
PEAK HR START TIME :	400 PM												TOTAL
PEAK HR VOL :	0	314	41	21	181	0	0	0	0	26	0	21	604
PEAK HR FACTOR :		0.944			0.886			0.000			0.653		0.926

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : 1-Way Stop (WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6202-013 **Day:** Thursday

City: Temecula **Date:** 11/6/2014

NOON

NS/EW Streets:	Warren Rd			Warren Rd			Benton Rd			Benton Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	0	0	0	1	0	
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	0 AM												TOTAL
PEAK HR VOL :	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

UTURNS			
NB	SB	EB	WB
0	0	0	0

CONTROL : 1-Way Stop (WB)

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Warren Rd and Benton Rd , Temecula

Date: 11/6/2014

Day: Thursday

Project #: 14-6202-013

City: Temecula

AM Peak Hour	700 AM
NOON Peak Hour	
PM Peak Hour	400 PM

Peak Hour Summary

Southbound Approach

Lanes	0	1	0		
AM	0	260	11	227	AM
NOON	0	0	0	0	NOON
PM	0	181	21	335	PM

Warren Rd

Benton Rd

Eastbound Approach

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

Westbound Approach

	AM	NOON	PM	Lanes
	34	0	21	0
	0	0	0	1
	50	0	26	0
	31	0	62	
	AM	NOON	PM	

CONTROL

1-Way Stop (WB)

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Northbound Approach

AM	310	0	193	20	AM
NOON	0	0	0	0	NOON
PM	207	0	314	41	PM
		0	1	0	Lanes

Total Ins & Outs

	AM	NOON	PM
North Leg	271	0	202
	227	0	335
West Leg	0	0	0
	0	0	0
East Leg	84	0	47
	31	0	62
South Leg	310	0	207
	213	0	355

Total Volume Per Leg

	AM	NOON	PM
North Leg	498	0	537
West Leg	0	0	0
East Leg	115	0	109
South Leg	523	0	562

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6202-013 **Day:** Saturday

City: Temecula **Date:** 11/8/2014

AM

NS/EW Streets:	Warren Rd			Warren Rd			Benton Rd			Benton Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	0	0	0	1	0	

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	

PEAK HR START TIME :	0 AM												TOTAL
PEAK HR VOL :	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

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : 1-Way Stop (WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6202-013 **Day:** Saturday

City: Temecula **Date:** 11/8/2014

PM

NS/EW Streets:	Warren Rd			Warren Rd			Benton Rd			Benton Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 0	ER 0	WL 0	WT 1	WR 0	TOTAL
2:00 PM	0	48	7	3	42	0	0	0	0	6	0	6	112
2:15 PM	0	40	4	6	43	0	0	0	0	8	0	4	105
2:30 PM	0	41	6	3	44	0	0	0	0	6	0	5	105
2:45 PM	0	41	8	1	41	0	0	0	0	12	0	4	107
3:00 PM	0	53	6	2	50	0	0	0	0	7	0	5	123
3:15 PM	0	45	10	7	49	0	0	0	0	7	0	4	122
3:30 PM	0	45	10	3	54	0	0	0	0	3	0	3	118
3:45 PM	1	33	5	4	32	0	0	0	0	6	0	9	90
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	1	346	56	29	355	0	0	0	0	55	0	40	882
APPROACH %'s :	0.25%	85.86%	13.90%	7.55%	92.45%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	57.89%	0.00%	42.11%	
PEAK HR START TIME :	245 PM												TOTAL
PEAK HR VOL :	0	184	34	13	194	0	0	0	0	29	0	16	470
PEAK HR FACTOR :		0.924			0.908			0.000			0.703		0.955

UTURNS	NB	SB	EB	WB
	0	0	0	0
	0	0	0	0
	0	0	0	1
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	1	0	0	0
	NB	SB	EB	WB
	1	0	0	1

CONTROL : 1-Way Stop (WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6202-013 **Day:** Saturday

City: Temecula **Date:** 11/8/2014

NOON

NS/EW Streets:	Warren Rd			Warren Rd			Benton Rd			Benton Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	0	0	0	1	0	
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	0 AM												TOTAL
PEAK HR VOL :	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

UTURNS			
NB	SB	EB	WB
0	0	0	0

CONTROL : 1-Way Stop (WB)

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Warren Rd and Benton Rd , Temecula

Date: 11/8/2014

Day: Saturday

Project #: 14-6202-013

City: Temecula

AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	245 PM

Peak Hour Summary

Southbound Approach

Lanes	0	1	0		
AM	0	0	0	0	AM
NOON	0	0	0	0	NOON
PM	0	194	13	200	PM

Warren Rd

Benton Rd

Eastbound Approach

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

CONTROL

1-Way Stop (WB)

Westbound Approach

	AM	NOON	PM	Lanes
	0	0	16	0
	0	0	0	1
	0	0	29	0
	0	0	47	
	AM	NOON	PM	

Count Periods	Start	End
AM		
NOON		
PM	2:00 PM	4:00 PM

Northbound Approach

AM	0	0	0	AM
NOON	0	0	0	NOON
PM	223	0	184	34	PM
		0	1	0	Lanes

Total Ins & Outs

	North Leg		
	0	0	AM
	0	0	NOON
	207	200	PM

West Leg			East Leg		
AM	NOON	PM			
0	0	0	0	0	45
0	0	0	0	0	47
			AM	NOON	PM

	South Leg	
AM	0	0
NOON	0	0
PM	223	218

Total Volume Per Leg

	North Leg	
	0	AM
	0	NOON
	407	PM

West Leg			East Leg		
AM	NOON	PM			
0	0	0	0	0	92
			AM	NOON	PM

	South Leg
AM	0
NOON	0
PM	441

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6202-014 **Day:** Thursday

City: Temecula **Date:** 11/6/2014

AM

NS/EW Streets:	Washington St			Washington St			Benton Rd			Benton Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
7:00 AM	5	102	0	0	96	25	56	0	4	0	0	0	288
7:15 AM	3	85	0	0	125	60	21	0	12	0	0	0	306
7:30 AM	10	47	0	0	92	31	10	0	5	0	0	0	195
7:45 AM	9	55	0	1	59	15	27	0	10	1	0	0	177
8:00 AM	2	67	1	0	66	73	24	0	7	0	0	1	241
8:15 AM	8	25	0	0	48	31	7	0	7	0	0	0	126
8:30 AM	5	31	0	0	47	26	14	0	4	0	0	0	127
8:45 AM	5	30	0	0	39	17	21	0	10	0	0	0	122
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	47	442	1	1	572	278	180	0	59	1	0	1	1582
APPROACH %'s :	9.59%	90.20%	0.20%	0.12%	67.22%	32.67%	75.31%	0.00%	24.69%	50.00%	0.00%	50.00%	
PEAK HR START TIME :	700 AM												TOTAL
PEAK HR VOL :	27	289	0	1	372	131	114	0	31	1	0	0	966
PEAK HR FACTOR :		0.738			0.681			0.604			0.250		0.789

UTURNS			
NB	SB	EB	WB
NB	SB	EB	WB
0	0	0	0

CONTROL : 4-Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6202-014 **Day:** Thursday

City: Temecula **Date:** 11/6/2014

PM

NS/EW Streets:	Washington St			Washington St			Benton Rd			Benton Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL
4:00 PM	10	76	0	0	71	17	15	0	10	0	0	0	199
4:15 PM	8	76	0	0	50	22	12	0	11	0	0	0	179
4:30 PM	10	78	0	0	43	18	12	0	6	0	0	0	167
4:45 PM	12	79	0	0	59	12	18	0	7	0	0	0	187
5:00 PM	11	72	0	0	43	16	9	0	6	0	0	0	157
5:15 PM	7	67	0	0	52	11	14	1	10	0	1	0	163
5:30 PM	14	68	0	0	43	9	17	0	12	0	0	0	163
5:45 PM	7	68	0	0	42	15	14	1	7	0	1	0	155
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	79	584	0	0	403	120	111	2	69	0	2	0	1370
APPROACH %'s :	11.92%	88.08%	0.00%	0.00%	77.06%	22.94%	60.99%	1.10%	37.91%	0.00%	100.00%	0.00%	
PEAK HR START TIME :	400 PM												TOTAL
PEAK HR VOL :	40	309	0	0	223	69	57	0	34	0	0	0	732
PEAK HR FACTOR :		0.959			0.830			0.910			0.000		0.920

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : 4-Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6202-014 **Day:** Thursday

City: Temecula **Date:** 11/6/2014

NOON

NS/EW Streets:	Washington St			Washington St			Benton Rd			Benton Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	0 AM												TOTAL
PEAK HR VOL :	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

UTURNS			
NB	SB	EB	WB
0	0	0	0

CONTROL : 4-Way Stop

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

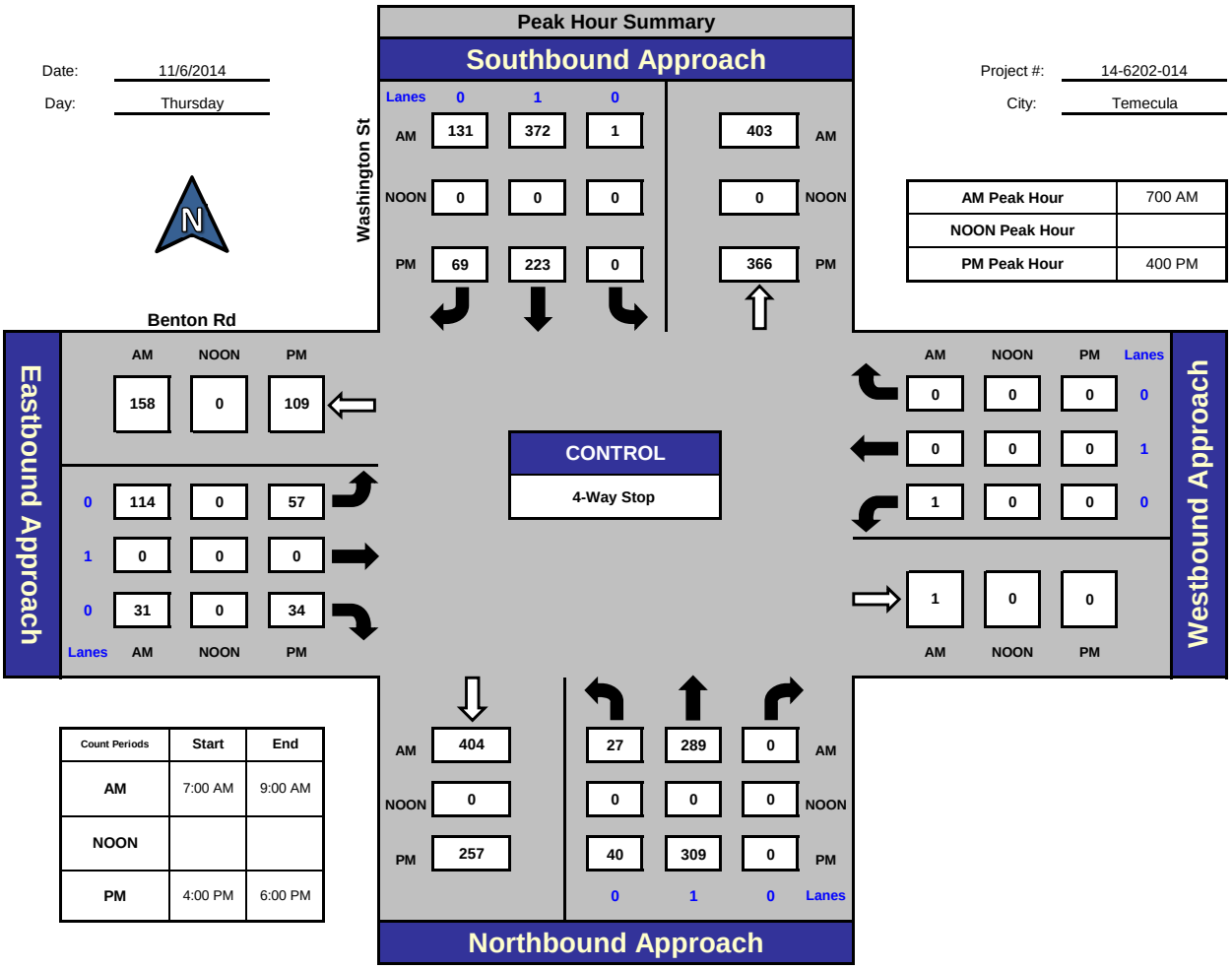
Washington St and Benton Rd , Temecula

Date: 11/6/2014

Day: Thursday

Project #: 14-6202-014

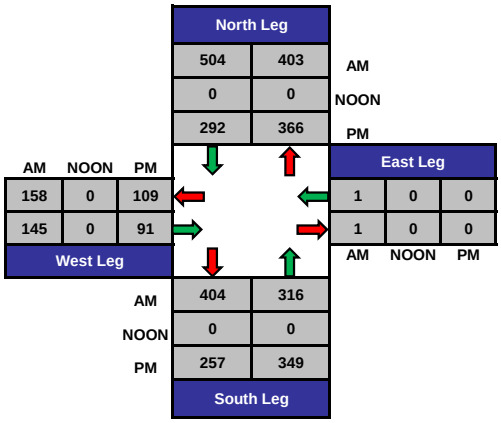
City: Temecula



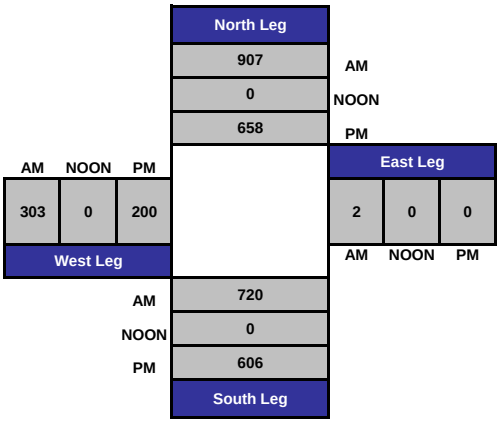
AM Peak Hour	700 AM
NOON Peak Hour	
PM Peak Hour	400 PM

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6202-014 **Day:** Saturday

City: Temecula **Date:** 11/8/2014

AM

NS/EW Streets:	Washington St			Washington St			Benton Rd			Benton Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	0 AM												TOTAL
PEAK HR VOL :	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

UTURNS			
NB	SB	EB	WB
0	0	0	0

CONTROL : 4-Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6202-014 **Day:** Saturday

City: Temecula **Date:** 11/8/2014

PM

NS/EW Streets:	Washington St			Washington St			Benton Rd			Benton Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
2:00 PM	7	37	0	0	27	14	6	0	7	0	0	0	98
2:15 PM	4	27	0	0	29	12	11	1	10	0	1	0	95
2:30 PM	7	39	0	0	22	10	7	0	12	0	0	0	97
2:45 PM	8	34	0	0	39	8	10	0	8	0	0	0	107
3:00 PM	8	28	0	0	31	14	8	0	9	0	0	0	98
3:15 PM	6	33	0	0	32	7	9	0	12	0	0	0	99
3:30 PM	4	35	0	0	29	12	11	0	4	0	0	0	95
3:45 PM	7	34	0	0	21	11	8	1	5	1	0	0	88
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	51	267	0	0	230	88	70	2	67	1	1	0	777
APPROACH %'s :	16.04%	83.96%	0.00%	0.00%	72.33%	27.67%	50.36%	1.44%	48.20%	50.00%	50.00%	0.00%	
PEAK HR START TIME :	230 PM												TOTAL
PEAK HR VOL :	29	134	0	0	124	39	34	0	41	0	0	0	401
PEAK HR FACTOR :		0.886			0.867			0.893			0.000		0.937

UTURNS				
NB	SB	EB	WB	
0	0	0	0	
0	0	0	0	
0	0	0	0	
0	0	0	0	
0	0	0	0	
0	0	0	0	
0	0	0	0	
0	0	0	0	
NB	SB	EB	WB	
0	0	0	0	

CONTROL : 4-Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6202-014 **Day:** Saturday

City: Temecula **Date:** 11/8/2014

NOON

NS/EW Streets:	Washington St			Washington St			Benton Rd			Benton Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	0 AM												TOTAL
PEAK HR VOL :	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

UTURNS

NB	SB	EB	WB
0	0	0	0

CONTROL : 4-Way Stop

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Washington St and Benton Rd , Temecula

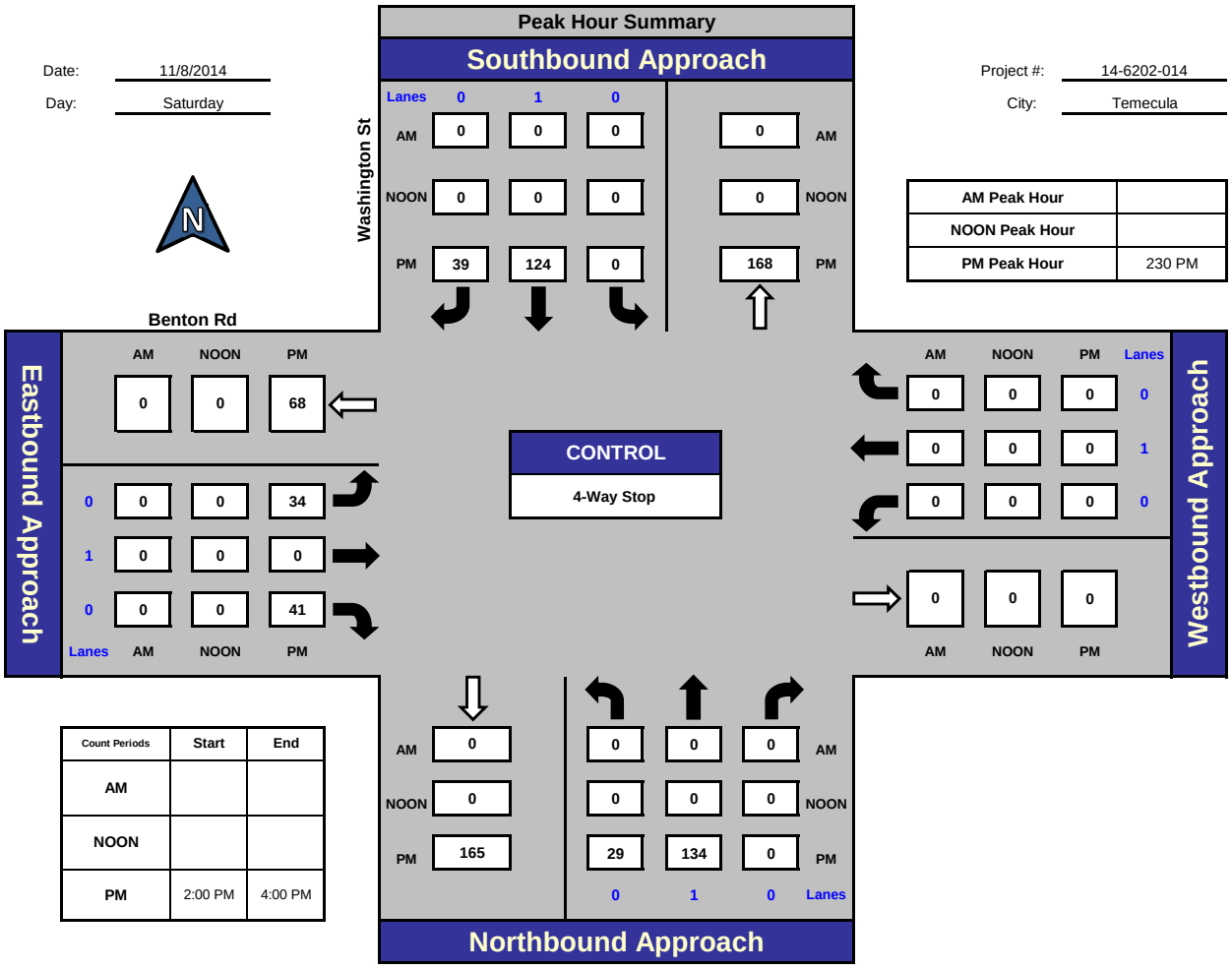
Date: 11/8/2014

Day: Saturday

Project #: 14-6202-014

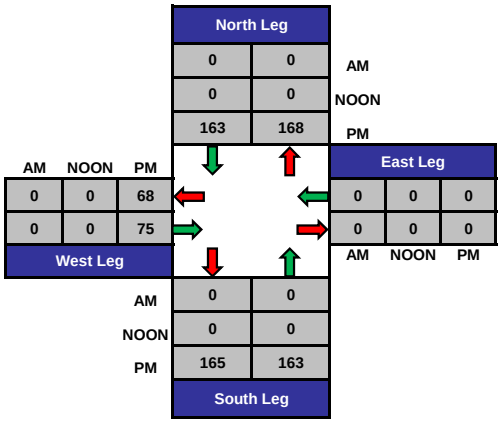
City: Temecula

AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	230 PM

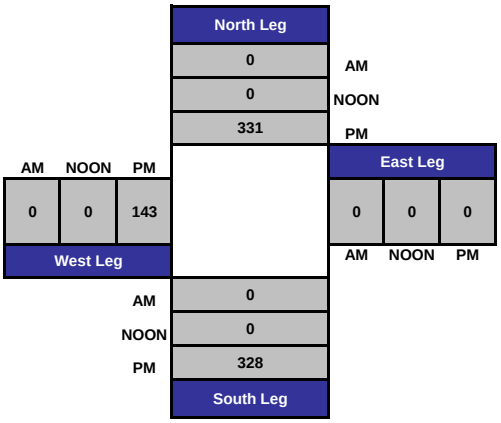


Count Periods	Start	End
AM		
NOON		
PM	2:00 PM	4:00 PM

Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6202-015 **Day:** Thursday

City: Temecula **Date:** 11/6/2014

AM

NS/EW Streets:	Borel Rd			Borel Rd			Auld Rd			Auld Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 0	WR 0	TOTAL
7:00 AM	15	62	0	0	50	43	60	0	3	0	0	0	233
7:15 AM	12	48	0	0	72	70	30	0	7	0	0	0	239
7:30 AM	11	42	0	0	72	32	14	0	5	0	0	0	176
7:45 AM	12	35	0	0	50	20	29	0	6	0	0	0	152
8:00 AM	10	28	0	0	39	36	39	0	6	0	0	0	158
8:15 AM	9	31	0	0	34	21	7	0	11	0	0	0	113
8:30 AM	11	34	0	0	38	15	8	0	4	0	0	0	110
8:45 AM	9	19	0	0	39	10	8	0	3	0	0	0	88
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	89	299	0	0	394	247	195	0	45	0	0	0	1269
APPROACH %'s :	22.94%	77.06%	0.00%	0.00%	61.47%	38.53%	81.25%	0.00%	18.75%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	700 AM												TOTAL
PEAK HR VOL :	50	187	0	0	244	165	133	0	21	0	0	0	800
PEAK HR FACTOR :		0.769			0.720			0.611			0.000		0.837

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : 1-Way Stop (EB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6202-015 **Day:** Thursday

City: Temecula **Date:** 11/6/2014

PM

NS/EW Streets:	Borel Rd			Borel Rd			Auld Rd			Auld Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 0	WR 0	TOTAL
4:00 PM	10	75	0	0	54	24	13	0	10	0	0	0	186
4:15 PM	12	76	0	0	48	19	10	0	7	0	0	0	172
4:30 PM	17	67	0	0	31	16	21	0	8	0	0	0	160
4:45 PM	12	68	0	0	41	22	21	0	9	0	0	0	173
5:00 PM	11	62	0	0	35	17	20	0	14	0	0	0	159
5:15 PM	15	65	0	0	42	19	15	0	15	0	0	0	171
5:30 PM	15	67	0	0	33	22	11	0	11	0	0	0	159
5:45 PM	6	59	0	0	32	14	17	0	6	0	0	0	134
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	98	539	0	0	316	153	128	0	80	0	0	0	1314
APPROACH %'s :	15.38%	84.62%	0.00%	0.00%	67.38%	32.62%	61.54%	0.00%	38.46%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	400 PM												TOTAL
PEAK HR VOL :	51	286	0	0	174	81	65	0	34	0	0	0	691
PEAK HR FACTOR :		0.957			0.817			0.825			0.000		0.929

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : 1-Way Stop (EB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6202-015 **Day:** Thursday

City: Temecula **Date:** 11/6/2014

NOON

NS/EW Streets:	Borel Rd			Borel Rd			Auld Rd			Auld Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 0	WR 0	TOTAL

UTURNS			
NB	SB	EB	WB

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	

NB	SB	EB	WB
0	0	0	0

PEAK HR START TIME :	0 AM												TOTAL
PEAK HR VOL :	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

CONTROL : 1-Way Stop (EB)

ITM Peak Hour Summary

Prepared by:

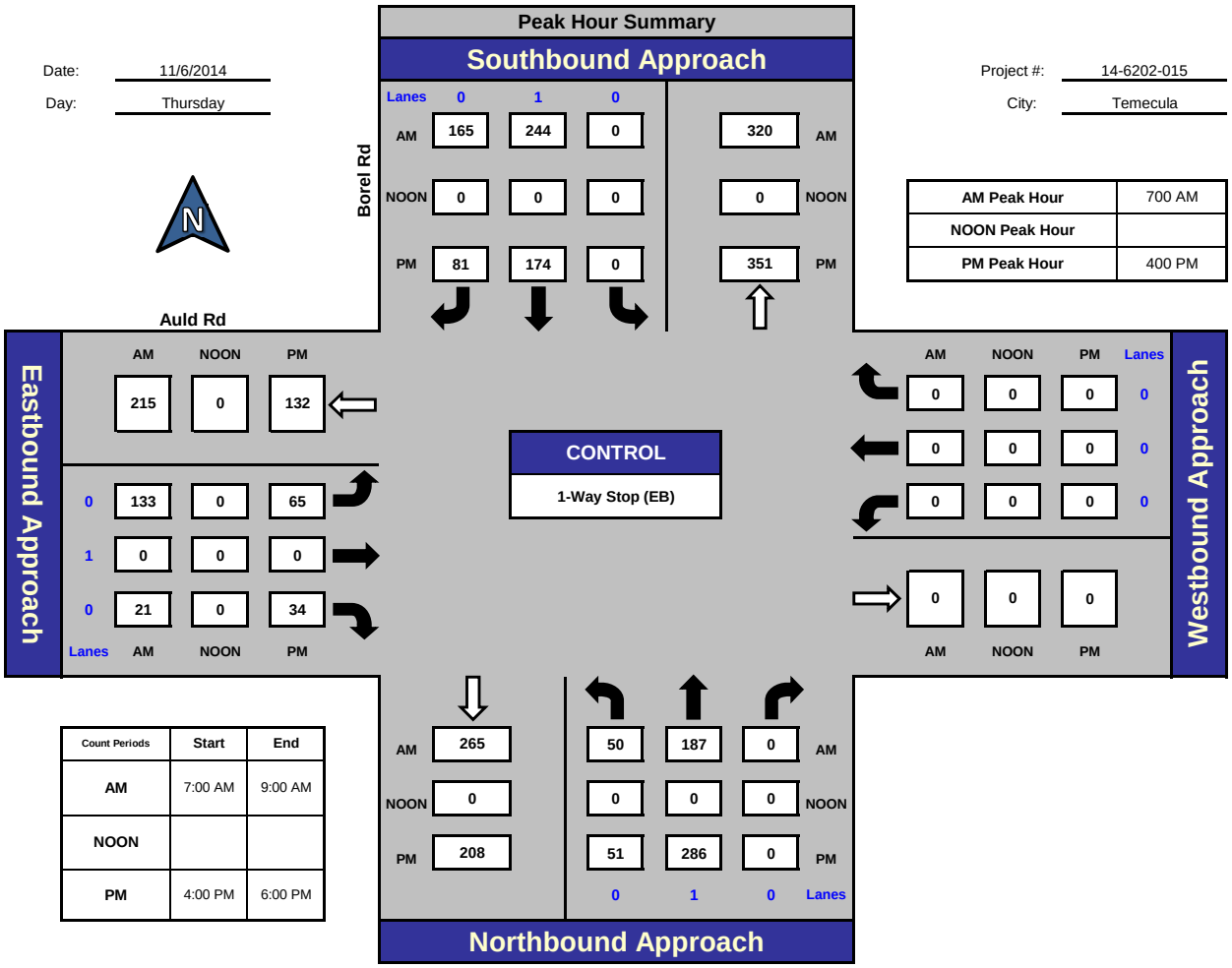
National Data & Surveying Services

Borel Rd and Auld Rd , Temecula

Date: 11/6/2014
Day: Thursday

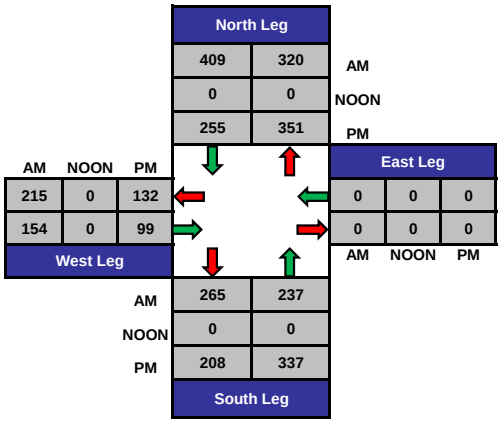
Project #: 14-6202-015
City: Temecula

AM Peak Hour	700 AM
NOON Peak Hour	
PM Peak Hour	400 PM

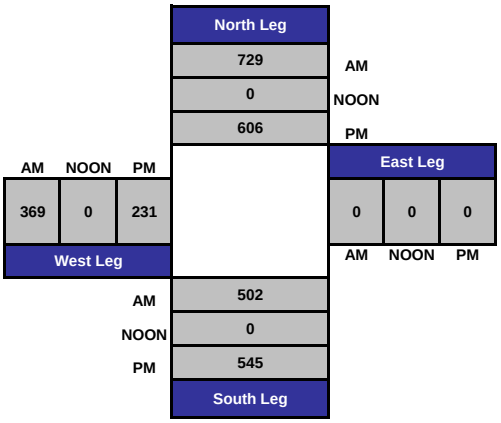


Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON		
PM	4:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6202-015 **Day:** Saturday

City: Temecula **Date:** 11/8/2014

AM

NS/EW Streets:	Borel Rd			Borel Rd			Auld Rd			Auld Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	0	0	

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	

PEAK HR START TIME :	0 AM												TOTAL
PEAK HR VOL :	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

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : 1-Way Stop (EB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6202-015 **Day:** Saturday

City: Temecula **Date:** 11/8/2014

PM

NS/EW Streets:	Borel Rd			Borel Rd			Auld Rd			Auld Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 0	WR 0	TOTAL
2:00 PM	10	37	0	0	28	5	6	0	15	0	0	0	101
2:15 PM	5	26	0	0	32	8	9	0	13	0	0	0	93
2:30 PM	7	36	0	0	32	3	10	0	4	0	0	0	92
2:45 PM	10	34	0	0	33	11	7	0	9	0	0	0	104
3:00 PM	8	31	0	0	34	8	3	0	8	0	0	0	92
3:15 PM	6	42	0	0	37	7	2	0	10	0	0	0	104
3:30 PM	8	31	0	0	25	8	3	0	12	0	0	0	87
3:45 PM	8	31	0	0	21	8	10	0	8	0	0	0	86
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	62	268	0	0	242	58	50	0	79	0	0	0	759
APPROACH %'s :	18.79%	81.21%	0.00%	0.00%	80.67%	19.33%	38.76%	0.00%	61.24%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	230 PM												TOTAL
PEAK HR VOL :	31	143	0	0	136	29	22	0	31	0	0	0	392
PEAK HR FACTOR :		0.906			0.938			0.828			0.000		0.942

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : 1-Way Stop (EB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-6202-015 **Day:** Saturday

City: Temecula **Date:** 11/8/2014

NOON

NS/EW Streets:	Borel Rd			Borel Rd			Auld Rd			Auld Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 0	WR 0	TOTAL

UTURNS			
NB	SB	EB	WB

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	

NB	SB	EB	WB
0	0	0	0

PEAK HR START TIME :	0 AM												TOTAL
PEAK HR VOL :	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

CONTROL : 1-Way Stop (EB)

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Borel Rd and Auld Rd , Temecula

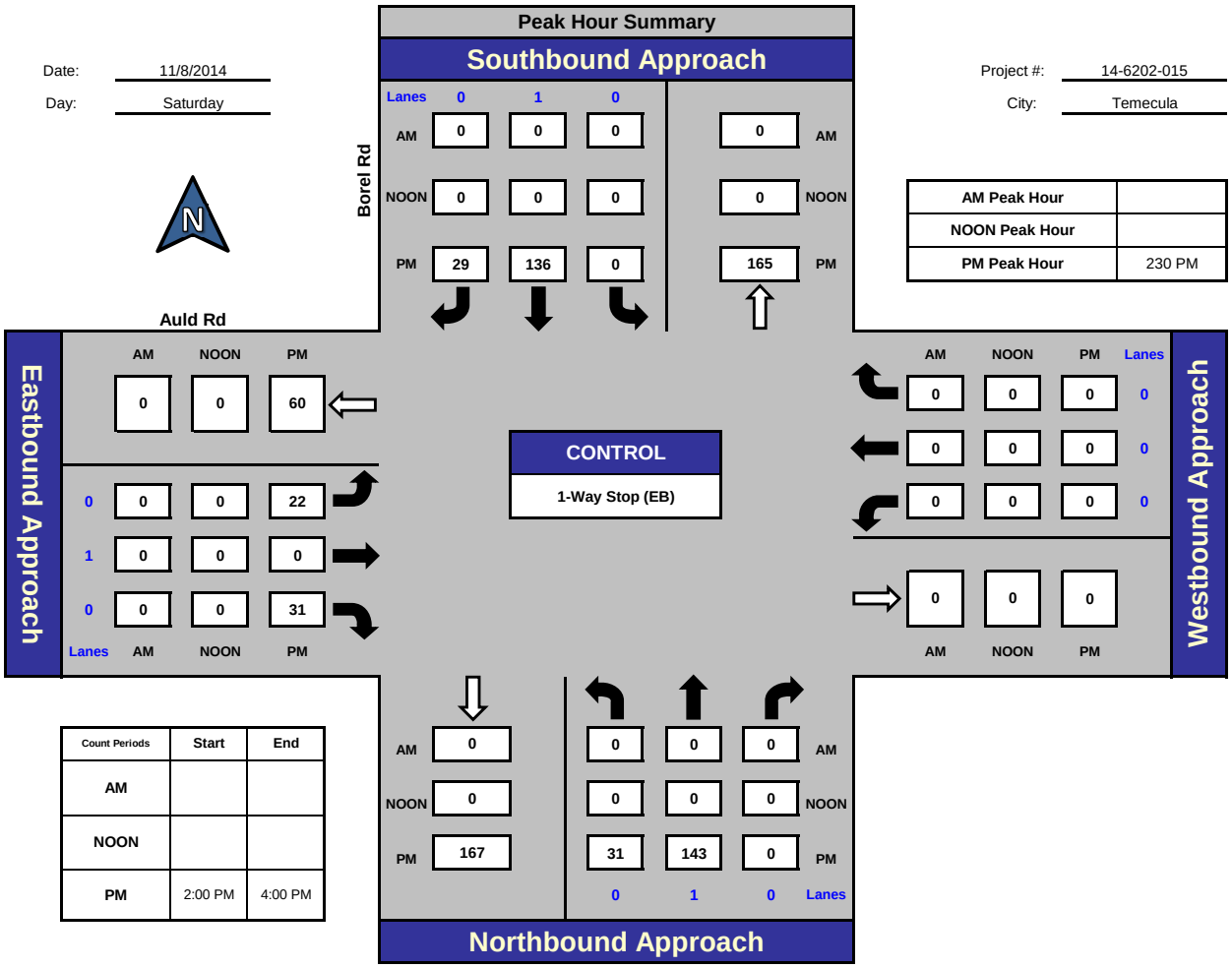
Date: 11/8/2014

Day: Saturday

Project #: 14-6202-015

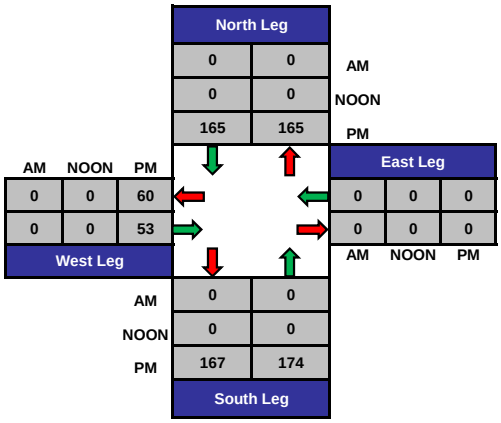
City: Temecula

AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	230 PM

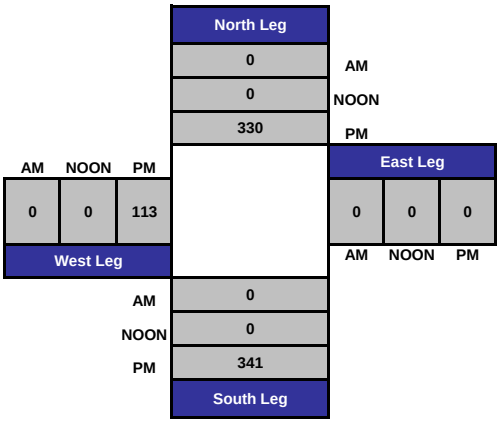


Count Periods	Start	End
AM		
NOON		
PM	2:00 PM	4:00 PM

Total Ins & Outs



Total Volume Per Leg



APPENDIX C: EXISTING YEAR (2014) TRAFFIC CONDITIONS LOS RESULTS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	437	180	530	1102	0	0	0	0	861	0	650
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	529	172	589	1224	0				1182	0	481
Adj No. of Lanes	0	3	1	2	3	0				2	0	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1633	447	679	2642	0				1492	0	665
Arrive On Green	0.00	0.29	0.28	0.07	0.17	0.00				0.42	0.00	0.42
Sat Flow, veh/h	0	5588	1583	3442	5253	0				3548	0	1582
Grp Volume(v), veh/h	0	529	172	589	1224	0				1182	0	481
Grp Sat Flow(s),veh/h/ln	0	1863	1583	1721	1695	0				1774	0	1582
Q Serve(g_s), s	0.0	7.4	8.7	17.0	21.7	0.0				29.0	0.0	25.3
Cycle Q Clear(g_c), s	0.0	7.4	8.7	17.0	21.7	0.0				29.0	0.0	25.3
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1633	447	679	2642	0				1492	0	665
V/C Ratio(X)	0.00	0.32	0.38	0.87	0.46	0.00				0.79	0.00	0.72
Avail Cap(c_a), veh/h	0	1633	447	723	2642	0				1810	0	807
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.88	0.88	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	27.7	28.9	45.5	28.9	0.0				25.2	0.0	24.1
Incr Delay (d2), s/veh	0.0	0.5	2.5	8.8	0.5	0.0				2.1	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.0	3.9	4.1	8.9	10.3	0.0				14.5	0.0	11.4
LnGrp Delay(d),s/veh	0.0	28.2	31.4	54.2	29.4	0.0				27.2	0.0	26.7
LnGrp LOS		C	C	D	C					C		C
Approach Vol, veh/h		701			1813						1663	
Approach Delay, s/veh		29.0			37.5						27.1	
Approach LOS		C			D						C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	22.7	32.2		45.0		55.0		
Change Period (Y+Rc), s	3.5	5.0		5.0		5.0		
Max Green Setting (Gmax), s	20.5	17.0		49.0		41.0		
Max Q Clear Time (g_c+I1), s	19.0	10.7		31.0		23.7		
Green Ext Time (p_c), s	0.3	5.1		9.1		11.9		

Intersection Summary	
HCM 2010 Ctrl Delay	31.9
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1130	0	0	1265	788	382	0	317	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	0	1863	0	0	1863	1863	1863	1863	1863			
Adj Flow Rate, veh/h	0	1242	0	0	1390	866	528	0	232			
Adj No. of Lanes	0	3	0	0	3	2	2	0	1			
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91			
Percent Heavy Veh, %	0	2	0	0	2	2	2	2	2			
Cap, veh/h	0	3621	0	0	3979	2255	809	0	361			
Arrive On Green	0.00	0.71	0.00	0.00	1.00	1.00	0.23	0.00	0.23			
Sat Flow, veh/h	0	5421	0	0	5588	3167	3548	0	1583			
Grp Volume(v), veh/h	0	1242	0	0	1390	866	528	0	232			
Grp Sat Flow(s),veh/h/ln	0	1695	0	0	1863	1583	1774	0	1583			
Q Serve(g_s), s	0.0	9.3	0.0	0.0	0.0	0.0	13.5	0.0	13.3			
Cycle Q Clear(g_c), s	0.0	9.3	0.0	0.0	0.0	0.0	13.5	0.0	13.3			
Prop In Lane	0.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	3621	0	0	3979	2255	809	0	361			
V/C Ratio(X)	0.00	0.34	0.00	0.00	0.35	0.38	0.65	0.00	0.64			
Avail Cap(c_a), veh/h	0	3621	0	0	3979	2255	1277	0	570			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.76	0.00	0.00	0.53	0.53	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	5.5	0.0	0.0	0.0	0.0	35.0	0.0	34.9			
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.1	0.3	1.3	0.0	2.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(-26165%),veh/ln	0.0	4.3	0.0	0.0	0.0	0.1	6.7	0.0	6.1			
LnGrp Delay(d),s/veh	0.0	5.7	0.0	0.0	0.1	0.3	36.3	0.0	37.6			
LnGrp LOS		A			A	A	D		D			
Approach Vol, veh/h		1242			2256			760				
Approach Delay, s/veh		5.7			0.2			36.7				
Approach LOS		A			A			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		74.2				74.2		25.8
Change Period (Y+Rc), s		5.0				5.0		5.0
Max Green Setting (Gmax), s		56.0				56.0		34.0
Max Q Clear Time (g_c+I1), s		11.3				2.0		15.5
Green Ext Time (p_c), s		39.6				46.7		5.3

Intersection Summary	
HCM 2010 Ctrl Delay	8.3
HCM 2010 LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	448	731	381	113	1220	151	593	488	93	86	291	255
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	509	831	433	128	1386	172	674	555	106	98	331	290
Adj No. of Lanes	2	3	1	1	3	1	2	2	1	2	2	2
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	733	1198	692	492	1526	475	746	1026	458	213	532	964
Arrive On Green	0.36	0.39	0.37	0.28	0.30	0.30	0.22	0.29	0.29	0.06	0.15	0.14
Sat Flow, veh/h	3442	5085	1583	1774	5085	1582	3442	3539	1580	3442	3539	2737
Grp Volume(v), veh/h	509	831	433	128	1386	172	674	555	106	98	331	290
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1774	1695	1582	1721	1770	1580	1721	1770	1369
Q Serve(g_s), s	12.7	13.6	7.2	5.6	26.2	8.5	19.1	13.2	5.1	2.7	8.8	2.9
Cycle Q Clear(g_c), s	12.7	13.6	7.2	5.6	26.2	8.5	19.1	13.2	5.1	2.7	8.8	2.9
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	733	1198	692	492	1526	475	746	1026	458	213	532	964
V/C Ratio(X)	0.69	0.69	0.63	0.26	0.91	0.36	0.90	0.54	0.23	0.46	0.62	0.30
Avail Cap(c_a), veh/h	733	1831	889	492	1526	475	757	1026	458	379	637	1045
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.93	0.93	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.4	27.3	6.5	28.1	33.7	27.5	38.2	29.9	27.0	45.3	39.8	9.2
Incr Delay (d2), s/veh	2.2	3.1	3.9	0.1	9.5	2.1	13.7	2.0	1.2	0.6	1.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	6.2	6.6	4.4	2.8	13.5	4.0	10.5	6.8	2.4	1.3	4.4	1.4
LnGrp Delay(d),s/veh	31.7	30.4	10.4	28.2	43.2	29.6	51.9	31.9	28.2	45.8	40.9	9.3
LnGrp LOS	C	C	B	C	D	C	D	C	C	D	D	A
Approach Vol, veh/h		1773			1686			1335			719	
Approach Delay, s/veh		25.9			40.7			41.7			28.8	
Approach LOS		C			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	30.7	26.6	24.7	18.0	24.3	33.0	10.7	32.0
Change Period (Y+Rc), s	3.5	5.0	3.5	5.0	3.5	5.0	5.0	* 5
Max Green Setting (Gmax), s	11.5	34.0	21.5	16.0	17.5	28.0	10.5	* 27
Max Q Clear Time (g_c+I1), s	17.6	15.6	21.1	10.8	14.7	28.2	4.7	15.2
Green Ext Time (p_c), s	0.6	5.9	0.1	1.3	0.4	0.0	1.4	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	34.6
HCM 2010 LOS	C

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	40	387	113	81	891	144	210	243	37	129	339	61
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1881	1881	1881	1881	1881	1881	1900
Adj Flow Rate, veh/h	51	490	143	103	1128	182	266	308	47	163	429	77
Adj No. of Lanes	1	2	0	1	2	1	2	2	1	2	2	0
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	74	1391	404	138	1946	870	349	802	343	246	591	105
Arrive On Green	0.04	0.51	0.49	0.08	0.54	0.54	0.10	0.22	0.21	0.07	0.19	0.19
Sat Flow, veh/h	1792	2734	793	1792	3574	1597	3476	3574	1599	3476	3032	541
Grp Volume(v), veh/h	51	319	314	103	1128	182	266	308	47	163	252	254
Grp Sat Flow(s),veh/h/ln	1792	1787	1741	1792	1787	1597	1738	1787	1599	1738	1787	1786
Q Serve(g_s), s	2.8	10.8	11.1	5.7	21.2	5.9	7.5	7.4	2.4	4.6	13.3	13.5
Cycle Q Clear(g_c), s	2.8	10.8	11.1	5.7	21.2	5.9	7.5	7.4	2.4	4.6	13.3	13.5
Prop In Lane	1.00		0.46	1.00		1.00	1.00		1.00	1.00		0.30
Lane Grp Cap(c), veh/h	74	909	886	138	1946	870	349	802	343	246	348	348
V/C Ratio(X)	0.69	0.35	0.35	0.75	0.58	0.21	0.76	0.38	0.14	0.66	0.72	0.73
Avail Cap(c_a), veh/h	213	909	886	213	1946	870	413	1026	443	413	513	513
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.78	0.78	0.78	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.8	14.8	15.2	45.6	15.3	11.8	44.3	33.2	32.1	45.7	38.1	38.3
Incr Delay (d2), s/veh	4.1	1.1	1.1	2.3	1.0	0.4	5.5	0.2	0.1	1.1	2.1	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(-26165%),veh/ln	1.5	5.6	5.6	2.9	10.6	2.7	3.9	3.7	1.1	2.3	6.8	6.9
LnGrp Delay(d),s/veh	51.9	15.9	16.3	48.0	16.3	12.3	49.7	33.5	32.2	46.9	40.2	40.5
LnGrp LOS	D	B	B	D	B	B	D	C	C	D	D	D
Approach Vol, veh/h		684			1413			621			669	
Approach Delay, s/veh		18.8			18.1			40.3			42.0	
Approach LOS		B			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.8	54.4	13.1	22.7	7.2	58.0	10.2	25.7
Change Period (Y+Rc), s	3.5	6.0	3.5	5.0	3.5	6.0	3.5	5.0
Max Green Setting (Gmax), s	11.5	33.0	11.5	27.0	11.5	33.0	11.5	27.0
Max Q Clear Time (g_c+I1), s	7.7	13.1	9.5	15.5	4.8	23.2	6.6	9.4
Green Ext Time (p_c), s	0.0	12.6	0.1	2.2	0.0	7.4	0.1	2.5

Intersection Summary	
HCM 2010 Ctrl Delay	27.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	35	443	89	22	811	15	340	110	16	28	109	110
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	43	540	109	27	989	18	415	134	20	34	133	134
Adj No. of Lanes	1	2	0	1	2	0	2	2	0	1	2	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	53	1691	340	38	2016	37	482	680	99	55	197	173
Arrive On Green	0.03	0.57	0.55	0.02	0.56	0.54	0.14	0.22	0.22	0.03	0.11	0.11
Sat Flow, veh/h	1792	2966	596	1792	3591	65	3476	3118	456	1792	1787	1573
Grp Volume(v), veh/h	43	325	324	27	492	515	415	76	78	34	133	134
Grp Sat Flow(s),veh/h/ln	1792	1787	1776	1792	1787	1869	1738	1787	1787	1792	1787	1573
Q Serve(g_s), s	2.4	9.5	9.7	1.5	16.7	16.7	11.7	3.5	3.6	1.9	7.2	8.3
Cycle Q Clear(g_c), s	2.4	9.5	9.7	1.5	16.7	16.7	11.7	3.5	3.6	1.9	7.2	8.3
Prop In Lane	1.00		0.34	1.00		0.03	1.00		0.26	1.00		1.00
Lane Grp Cap(c), veh/h	53	1019	1012	38	1003	1050	482	390	390	55	197	173
V/C Ratio(X)	0.80	0.32	0.32	0.70	0.49	0.49	0.86	0.19	0.20	0.62	0.68	0.77
Avail Cap(c_a), veh/h	179	1019	1012	215	1003	1050	521	500	500	179	411	362
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)	0.93	0.93	0.93	0.77	0.77	0.77	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.2	11.3	11.5	48.6	13.3	13.3	42.1	31.9	32.0	47.9	42.8	43.3
Incr Delay (d2), s/veh	9.3	0.8	0.8	6.6	1.3	1.3	12.1	0.1	0.1	4.2	1.5	2.8
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(-26165%),veh/ln	1.3	4.9	5.0	0.8	8.6	9.0	6.4	1.7	1.8	1.0	3.6	3.7
LnGrp Delay(d),s/veh	57.5	12.1	12.3	55.2	14.6	14.6	54.3	32.0	32.1	52.1	44.3	46.1
LnGrp LOS	E	B	B	E	B	B	D	C	C	D	D	D
Approach Vol, veh/h		692			1034			569			301	
Approach Delay, s/veh		15.0			15.6			48.3			46.0	
Approach LOS		B			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.1	61.0	17.9	15.0	7.0	60.1	7.1	25.8
Change Period (Y+Rc), s	3.5	6.0	4.0	4.0	3.5	6.0	4.0	4.0
Max Green Setting (Gmax), s	12.5	32.0	15.0	23.0	10.5	34.0	10.0	28.0
Max Q Clear Time (g_c+I1), s	3.5	11.7	13.7	10.3	4.4	18.7	3.9	5.6
Green Ext Time (p_c), s	0.0	17.4	0.2	0.7	0.0	13.5	0.0	0.8

Intersection Summary		
HCM 2010 Ctrl Delay		26.1
HCM 2010 LOS		C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	20	250	141	52	329	29	200	209	66	37	203	20
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1900	1900	1881	1881	1900	1881	1881
Adj Flow Rate, veh/h	22	269	152	56	354	31	215	225	71	40	218	22
Adj No. of Lanes	1	1	1	1	1	0	0	1	1	0	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	32	806	685	64	761	67	179	188	320	51	278	282
Arrive On Green	0.02	0.43	0.43	0.04	0.45	0.43	0.20	0.20	0.20	0.18	0.18	0.18
Sat Flow, veh/h	1792	1881	1599	1792	1705	149	897	939	1599	289	1577	1599
Grp Volume(v), veh/h	22	269	152	56	0	385	440	0	71	258	0	22
Grp Sat Flow(s),veh/h/ln	1792	1881	1599	1792	0	1855	1836	0	1599	1867	0	1599
Q Serve(g_s), s	1.2	9.5	6.0	3.1	0.0	14.5	20.0	0.0	3.7	13.2	0.0	1.1
Cycle Q Clear(g_c), s	1.2	9.5	6.0	3.1	0.0	14.5	20.0	0.0	3.7	13.2	0.0	1.1
Prop In Lane	1.00		1.00	1.00		0.08	0.49		1.00	0.16		1.00
Lane Grp Cap(c), veh/h	32	806	685	64	0	827	367	0	320	329	0	282
V/C Ratio(X)	0.69	0.33	0.22	0.88	0.00	0.47	1.20	0.00	0.22	0.78	0.00	0.08
Avail Cap(c_a), veh/h	143	806	685	143	0	827	367	0	320	560	0	480
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)	0.96	0.96	0.96	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	48.8	19.1	18.0	48.0	0.0	19.4	40.0	0.0	33.5	39.4	0.0	34.4
Incr Delay (d2), s/veh	8.9	1.1	0.7	13.5	0.0	1.9	112.6	0.0	0.1	1.6	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(-26165%),veh/ln	0.7	5.2	2.8	1.8	0.0	7.8	21.6	0.0	1.6	7.0	0.0	0.5
LnGrp Delay(d),s/veh	57.8	20.1	18.8	61.5	0.0	21.3	152.6	0.0	33.6	41.0	0.0	34.5
LnGrp LOS	E	C	B	E		C	F		C	D		C
Approach Vol, veh/h		443			441			511			280	
Approach Delay, s/veh		21.5			26.4			136.1			40.5	
Approach LOS		C			C			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.5	46.8		21.6	5.8	48.6		24.0
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0
Max Green Setting (Gmax), s	8.5	24.0		28.0	8.5	24.0		18.0
Max Q Clear Time (g_c+I1), s	5.1	11.5		15.2	3.2	16.5		22.0
Green Ext Time (p_c), s	0.0	6.2		0.4	0.0	4.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	60.9
HCM 2010 LOS	E

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	11	319	411	1	1	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	12	347	447	1	1	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	448	0	-	0	818	447
Stage 1	-	-	-	-	447	-
Stage 2	-	-	-	-	371	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1118	-	-	-	347	614
Stage 1	-	-	-	-	646	-
Stage 2	-	-	-	-	700	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1118	-	-	-	343	614
Mov Cap-2 Maneuver	-	-	-	-	461	-
Stage 1	-	-	-	-	646	-
Stage 2	-	-	-	-	692	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	11.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1118	-	-	-	461	614
HCM Lane V/C Ratio	0.011	-	-	-	0.002	0.009
HCM Control Delay (s)	8.3	-	-	-	12.8	10.9
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	-	0	0

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	19	269	17	23	371	3	10	5	7	2	7	31
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	150	-	150	150	-	150	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	20	286	18	24	395	3	11	5	7	2	7	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	395	0	0	286	0	0	791	771	286	777	771	395
Stage 1	-	-	-	-	-	-	327	327	-	444	444	-
Stage 2	-	-	-	-	-	-	464	444	-	333	327	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	1169	-	-	1282	-	-	309	332	755	315	332	656
Stage 1	-	-	-	-	-	-	688	650	-	595	577	-
Stage 2	-	-	-	-	-	-	580	577	-	683	650	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1169	-	-	1282	-	-	280	320	755	300	320	656
Mov Cap-2 Maneuver	-	-	-	-	-	-	280	320	-	300	320	-
Stage 1	-	-	-	-	-	-	676	639	-	585	566	-
Stage 2	-	-	-	-	-	-	533	566	-	659	639	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.5	15.6	12.4
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	363	1169	-	-	1282	-	-	528
HCM Lane V/C Ratio	0.064	0.017	-	-	0.019	-	-	0.081
HCM Control Delay (s)	15.6	8.1	-	-	7.9	-	-	12.4
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0.1	-	-	0.3

Intersection	
Intersection Delay, s/veh	13.8
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	0	0	5	0	35	0	4	0	5	218	17	0	7	430	4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	0	0	5	0	38	0	4	0	5	234	18	0	8	462	4
Number of Lanes	0	0	1	0	0	0	1	0	0	1	1	0	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	1	1
HCM Control Delay	8.4	10	11.7	15.4
HCM LOS	A	A	B	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	90%	100%	0%	0%
Vol Thru, %	0%	93%	0%	0%	0%	100%	0%
Vol Right, %	0%	7%	100%	10%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	5	235	5	39	7	430	4
LT Vol	5	0	0	35	7	0	0
Through Vol	0	218	0	0	0	430	0
RT Vol	0	17	5	4	0	0	4
Lane Flow Rate	5	253	5	42	8	462	4
Geometry Grp	8	8	7	7	7	7	7
Degree of Util (X)	0.009	0.39	0.008	0.077	0.011	0.628	0.005
Departure Headway (Hd)	6.11	5.558	5.618	6.618	5.39	4.888	4.185
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	585	647	631	538	664	740	854
Service Time	3.86	3.307	3.404	4.394	3.124	2.621	1.918
HCM Lane V/C Ratio	0.009	0.391	0.008	0.078	0.012	0.624	0.005
HCM Control Delay	8.9	11.8	8.4	10	8.2	15.6	6.9
HCM Lane LOS	A	B	A	A	A	C	A
HCM 95th-tile Q	0	1.8	0	0.2	0	4.5	0

Intersection	
Intersection Delay, s/veh	11.3
Intersection LOS	B

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Vol, veh/h	0	167	48	0	30	237	0	193	37
Peak Hour Factor	0.93	0.92	0.92	0.93	0.92	0.92	0.93	0.92	0.92
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	182	52	0	33	258	0	210	40
Number of Lanes	0	1	1	0	1	1	0	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay	10.1	11.7	12.1
HCM LOS	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2
Vol Left, %	100%	0%	0%	0%	100%	0%
Vol Thru, %	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	193	37	167	48	30	237
LT Vol	193	0	0	0	30	0
Through Vol	0	0	167	0	0	237
RT Vol	0	37	0	48	0	0
Lane Flow Rate	210	40	182	52	33	258
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.374	0.058	0.283	0.071	0.055	0.396
Departure Headway (Hd)	6.416	5.207	5.715	5.007	6.141	5.635
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	564	692	634	720	587	641
Service Time	4.116	2.907	3.415	2.707	3.841	3.335
HCM Lane V/C Ratio	0.372	0.058	0.287	0.072	0.056	0.402
HCM Control Delay	12.9	8.2	10.7	8.1	9.2	12
HCM Lane LOS	B	A	B	A	A	B
HCM 95th-tile Q	1.7	0.2	1.2	0.2	0.2	1.9

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	0	2	304	0	1	225
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	2	334	0	1	247

Major/Minor	Minor2		Major2		Major1	
Conflicting Flow All	917	0	247	0	0	0
Stage 1	668	-	-	-	-	-
Stage 2	249	-	-	-	-	-
Critical Hdwy	6.51	6.21	-	-	4.11	-
Critical Hdwy Stg 1	5.51	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	4.009	3.309	-	-	2.209	-
Pot Cap-1 Maneuver	273	-	-	-	-	-
Stage 1	458	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %				-		-
Mov Cap-1 Maneuver	0	-	-	-	-	-
Mov Cap-2 Maneuver	0	-	-	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s			
HCM LOS	-		

Minor Lane/Major Mvmt	NBL	NBR	EBLn1	WBL	WBT
Capacity (veh/h)	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	-	-	-
HCM Lane LOS	-	-	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	193	20	50	34	11	260
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	212	22	55	37	12	286

Major/Minor	Major1		Minor1		Major2	
Conflicting Flow All	286	0	756	22	22	-
Stage 1	-	-	446	-	-	-
Stage 2	-	-	310	-	-	-
Critical Hdwy	-	-	6.51	6.21	4.11	-
Critical Hdwy Stg 1	-	-	5.51	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	4.009	3.309	2.209	-
Pot Cap-1 Maneuver	-	-	339	1058	1600	-
Stage 1	-	-	576	-	-	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %		-				-
Mov Cap-1 Maneuver	-	-	0	1058	1600	-
Mov Cap-2 Maneuver	-	-	0	-	-	-
Stage 1	-	-	0	-	-	-
Stage 2	-	-	0	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s		8.7	0.3
HCM LOS		A	

Minor Lane/Major Mvmt	EBL	EBT	WBLn1	SBL	SBR
Capacity (veh/h)	-	-	1058	1600	-
HCM Lane V/C Ratio	-	-	0.087	0.008	-
HCM Control Delay (s)	-	-	8.7	7.3	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0	-

Intersection	
Intersection Delay, s/veh	11.8
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	57	0	34	0	1	0	0	0	27	289	0
Peak Hour Factor	0.93	0.79	0.79	0.79	0.93	0.79	0.79	0.79	0.93	0.79	0.79	0.79
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	72	0	43	0	1	0	0	0	34	366	0
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	9.8	9.2	12.6
HCM LOS	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	9%	63%	100%	0%
Vol Thru, %	91%	0%	0%	76%
Vol Right, %	0%	37%	0%	24%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	316	91	1	292
LT Vol	27	57	1	0
Through Vol	289	0	0	223
RT Vol	0	34	0	69
Lane Flow Rate	400	115	1	370
Geometry Grp	1	1	1	1
Degree of Util (X)	0.517	0.176	0.002	0.466
Departure Headway (Hd)	4.656	5.497	6.144	4.543
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	772	647	586	791
Service Time	2.707	3.58	4.144	2.594
HCM Lane V/C Ratio	0.518	0.178	0.002	0.468
HCM Control Delay	12.6	9.8	9.2	11.5
HCM Lane LOS	B	A	A	B
HCM 95th-tile Q	3	0.6	0	2.5

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	0	223	69
Peak Hour Factor	0.93	0.79	0.79	0.79
Heavy Vehicles, %	1	1	1	1
Mvmt Flow	0	0	282	87
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	11.5
HCM LOS	B

Lane

Intersection	
Intersection Delay, s/veh	9.9
Intersection LOS	A

Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Vol, veh/h	0	65	34	0	50	187	0	174	81
Peak Hour Factor	0.93	0.84	0.84	0.93	0.84	0.84	0.93	0.84	0.84
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	77	40	0	60	223	0	207	96
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	9.2	10.2	9.9
HCM LOS	A	B	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	21%	66%	0%
Vol Thru, %	79%	0%	68%
Vol Right, %	0%	34%	32%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	237	99	255
LT Vol	50	65	0
Through Vol	187	0	174
RT Vol	0	34	81
Lane Flow Rate	282	118	304
Geometry Grp	1	1	1
Degree of Util (X)	0.359	0.167	0.367
Departure Headway (Hd)	4.586	5.116	4.347
Convergence, Y/N	Yes	Yes	Yes
Cap	784	698	826
Service Time	2.621	3.169	2.379
HCM Lane V/C Ratio	0.36	0.169	0.368
HCM Control Delay	10.2	9.2	9.9
HCM Lane LOS	B	A	A
HCM 95th-tile Q	1.6	0.6	1.7

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	26	16	16	0	9	55	18	0	26	75	9	0	10	106	41
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	28	17	17	0	10	59	19	0	28	81	10	0	11	114	44
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8	8.1	8.2	8.3
HCM LOS	A	A	A	A

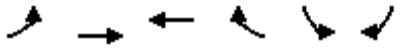
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	24%	45%	11%	6%
Vol Thru, %	68%	28%	67%	68%
Vol Right, %	8%	28%	22%	26%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	110	58	82	157
LT Vol	26	26	9	10
Through Vol	75	16	55	106
RT Vol	9	16	18	41
Lane Flow Rate	118	62	88	169
Geometry Grp	1	1	1	1
Degree of Util (X)	0.146	0.079	0.111	0.199
Departure Headway (Hd)	4.444	4.585	4.521	4.254
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	808	782	794	844
Service Time	2.465	2.609	2.543	2.274
HCM Lane V/C Ratio	0.146	0.079	0.111	0.2
HCM Control Delay	8.2	8	8.1	8.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.3	0.4	0.7

Intersection	
Intersection Delay, s/veh	9.5
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	2	1	5	0	197	2	11	0	4	91	132	0	14	106	4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	2	1	5	0	212	2	12	0	4	98	142	0	15	114	4
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.9	10.2	9.2	8.9
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	25%	94%	11%
Vol Thru, %	40%	12%	1%	85%
Vol Right, %	58%	62%	5%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	227	8	210	124
LT Vol	4	2	197	14
Through Vol	91	1	2	106
RT Vol	132	5	11	4
Lane Flow Rate	244	9	226	133
Geometry Grp	1	1	1	1
Degree of Util (X)	0.294	0.011	0.309	0.177
Departure Headway (Hd)	4.332	4.746	4.926	4.788
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	827	748	727	747
Service Time	2.367	2.812	2.974	2.832
HCM Lane V/C Ratio	0.295	0.012	0.311	0.178
HCM Control Delay	9.2	7.9	10.2	8.9
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	1.2	0	1.3	0.6



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	184	200	327	9	10	328
Number	5	2	6	16	7	14
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
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	198	215	352	10	11	353
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	254	936	473	402	468	417
Arrive On Green	0.14	0.50	0.25	0.25	0.26	0.26
Sat Flow, veh/h	1792	1881	1881	1599	1792	1599
Grp Volume(v), veh/h	198	215	352	10	11	353
Grp Sat Flow(s),veh/h/ln	1792	1881	1881	1599	1792	1599
Q Serve(g_s), s	5.0	3.0	8.1	0.2	0.2	9.8
Cycle Q Clear(g_c), s	5.0	3.0	8.1	0.2	0.2	9.8
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	254	936	473	402	468	417
V/C Ratio(X)	0.78	0.23	0.74	0.02	0.02	0.85
Avail Cap(c_a), veh/h	769	1567	1567	1332	1071	956
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	19.4	6.7	16.1	13.2	12.9	16.4
Incr Delay (d2), s/veh	2.0	0.0	0.9	0.0	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	2.6	1.6	4.2	0.1	0.1	8.1
LnGrp Delay(d),s/veh	21.4	6.7	17.0	13.2	12.9	18.3
LnGrp LOS	C	A	B	B	B	B
Approach Vol, veh/h		413	362		364	
Approach Delay, s/veh		13.7	16.9		18.1	
Approach LOS		B	B		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		29.3		17.5	11.5	17.8		
Change Period (Y+Rc), s		6.0		5.3	4.9	6.0		
Max Green Setting (Gmax), s		39.0		28.0	20.1	39.0		
Max Q Clear Time (g_c+I1), s		5.0		11.8	7.0	10.1		
Green Ext Time (p_c), s		1.7		0.5	0.2	1.7		

Intersection Summary	
HCM 2010 Ctrl Delay	16.1
HCM 2010 LOS	B

MOVEMENT SUMMARY

Site: Ex AM - #9 Rancho California Rd & Anza Rd

Ex AM - #9 Rancho California Rd & Anza Rd
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
SouthEast: Anza Rd											
5	L2	52	1.0	0.141	11.3	LOS B	0.8	18.9	0.44	0.60	36.1
2	T1	8	1.0	0.141	5.0	LOS A	0.8	18.9	0.44	0.60	36.0
12	R2	76	1.0	0.141	5.2	LOS A	0.8	18.9	0.44	0.60	34.8
Approach		135	1.0	0.141	7.5	LOS A	0.8	18.9	0.44	0.60	35.4
NorthEast: Rancho California Rd											
3	L2	122	1.0	0.467	10.5	LOS B	3.8	95.2	0.34	0.47	36.7
8	T1	403	1.0	0.467	4.3	LOS A	3.8	95.2	0.34	0.47	36.6
18	R2	1	1.0	0.467	4.4	LOS A	3.8	95.2	0.34	0.47	35.4
Approach		526	1.0	0.467	5.7	LOS A	3.8	95.2	0.34	0.47	36.6
NorthWest: Anza Rd											
1	L2	2	1.0	0.022	13.5	LOS B	0.1	2.9	0.62	0.60	35.9
6	T1	9	1.0	0.022	7.2	LOS A	0.1	2.9	0.62	0.60	35.7
16	R2	4	1.0	0.022	7.4	LOS A	0.1	2.9	0.62	0.60	34.6
Approach		15	1.0	0.022	8.2	LOS A	0.1	2.9	0.62	0.60	35.4
SouthWest: Rancho California Rd											
7	L2	4	1.0	0.241	10.8	LOS B	1.4	35.4	0.37	0.45	37.3
4	T1	214	1.0	0.241	4.6	LOS A	1.4	35.4	0.37	0.45	37.1
14	R2	34	1.0	0.241	4.7	LOS A	1.4	35.4	0.37	0.45	35.9
Approach		253	1.0	0.241	4.7	LOS A	1.4	35.4	0.37	0.45	36.9
All Vehicles		930	1.0	0.467	5.7	LOS A	3.8	95.2	0.37	0.48	36.5

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1505	274	404	814	0	0	0	0	954	0	336
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	1584	288	425	857	0				1114	0	236
Adj No. of Lanes	0	3	1	2	3	0				2	0	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	2534	703	505	3190	0				1129	0	503
Arrive On Green	0.00	0.45	0.44	0.19	0.83	0.00				0.32	0.00	0.32
Sat Flow, veh/h	0	5588	1583	3442	5253	0				3548	0	1582
Grp Volume(v), veh/h	0	1584	288	425	857	0				1114	0	236
Grp Sat Flow(s),veh/h/ln	0	1863	1583	1721	1695	0				1774	0	1582
Q Serve(g_s), s	0.0	23.8	13.6	13.1	4.0	0.0				34.3	0.0	13.2
Cycle Q Clear(g_c), s	0.0	23.8	13.6	13.1	4.0	0.0				34.3	0.0	13.2
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2534	703	505	3190	0				1129	0	503
V/C Ratio(X)	0.00	0.63	0.41	0.84	0.27	0.00				0.99	0.00	0.47
Avail Cap(c_a), veh/h	0	2534	703	720	3190	0				1129	0	503
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.89	0.89	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	22.9	20.8	43.1	3.7	0.0				37.3	0.0	30.1
Incr Delay (d2), s/veh	0.0	1.2	1.8	4.0	0.2	0.0				23.5	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.0	12.4	6.3	6.5	1.8	0.0				20.4	0.0	5.8
LnGrp Delay(d),s/veh	0.0	24.1	22.5	47.0	3.9	0.0				60.8	0.0	30.7
LnGrp LOS		C	C	D	A					E		C
Approach Vol, veh/h		1872			1282						1350	
Approach Delay, s/veh		23.9			18.2						55.5	
Approach LOS		C			B						E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	19.1	52.9		38.0		72.0		
Change Period (Y+Rc), s	3.5	5.0		5.0		5.0		
Max Green Setting (Gmax), s	22.5	41.0		33.0		67.0		
Max Q Clear Time (g_c+I1), s	15.1	25.8		36.3		6.0		
Green Ext Time (p_c), s	0.5	13.4		0.0		40.3		

Intersection Summary	
HCM 2010 Ctrl Delay	31.7
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	701	1479	697	192	904	217	459	583	121	166	664	575
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	723	1525	719	198	932	224	473	601	125	171	685	593
Adj No. of Lanes	2	3	1	1	3	1	2	2	1	2	2	2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	964	1763	778	298	1193	371	544	965	431	357	772	1344
Arrive On Green	0.56	0.69	0.67	0.17	0.23	0.23	0.16	0.27	0.27	0.10	0.22	0.20
Sat Flow, veh/h	3442	5085	1583	1774	5085	1581	3442	3539	1580	3442	3539	2754
Grp Volume(v), veh/h	723	1525	719	198	932	224	473	601	125	171	685	593
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1774	1695	1581	1721	1770	1580	1721	1770	1377
Q Serve(g_s), s	17.5	25.3	0.0	11.5	18.9	13.9	14.8	16.4	6.9	5.2	20.6	0.0
Cycle Q Clear(g_c), s	17.5	25.3	0.0	11.5	18.9	13.9	14.8	16.4	6.9	5.2	20.6	0.0
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	964	1763	778	298	1193	371	544	965	431	357	772	1344
V/C Ratio(X)	0.75	0.87	0.92	0.66	0.78	0.60	0.87	0.62	0.29	0.48	0.89	0.44
Avail Cap(c_a), veh/h	964	1942	833	298	1341	417	563	965	431	375	772	1344
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)	0.56	0.56	0.56	0.78	0.78	0.78	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.3	14.9	9.2	42.9	39.5	37.5	45.2	35.0	31.6	46.5	41.7	18.6
Incr Delay (d2), s/veh	1.7	3.5	11.8	3.5	4.0	5.6	12.7	3.0	1.7	0.4	12.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	8.5	11.9	9.6	5.9	9.2	6.6	8.0	8.4	3.2	2.5	11.4	5.9
LnGrp Delay(d),s/veh	23.0	18.4	21.0	46.4	43.5	43.1	57.9	38.1	33.3	46.9	53.7	18.7
LnGrp LOS	C	B	C	D	D	D	E	D	C	D	D	B
Approach Vol, veh/h		2967			1354			1199			1449	
Approach Delay, s/veh		20.1			43.8			45.4			38.6	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.5	41.1	20.4	27.0	33.8	28.8	14.4	33.0
Change Period (Y+Rc), s	3.5	5.0	3.5	5.0	3.5	5.0	3.5	5.0
Max Green Setting (Gmax), s	13.5	40.0	17.5	22.0	26.5	27.0	11.5	28.0
Max Q Clear Time (g_c+I1), s	13.5	27.3	16.8	22.6	19.5	20.9	7.2	18.4
Green Ext Time (p_c), s	0.0	8.9	0.1	0.0	1.2	2.9	0.6	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	32.9
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	163	1210	223	76	723	224	279	654	117	468	624	43
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1881	1881	1881	1881	1881	1881	1900
Adj Flow Rate, veh/h	170	1260	232	79	753	233	291	681	122	488	650	45
Adj No. of Lanes	1	2	0	1	2	1	2	2	1	2	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	222	1303	238	109	1235	551	364	824	354	537	997	69
Arrive On Green	0.12	0.43	0.41	0.06	0.35	0.35	0.10	0.23	0.22	0.15	0.29	0.28
Sat Flow, veh/h	1792	3019	551	1792	3574	1596	3476	3574	1599	3476	3392	235
Grp Volume(v), veh/h	170	741	751	79	753	233	291	681	122	488	342	353
Grp Sat Flow(s),veh/h/ln	1792	1787	1783	1792	1787	1596	1738	1787	1599	1738	1787	1840
Q Serve(g_s), s	10.1	44.3	45.5	4.8	19.2	12.3	9.0	19.9	5.8	15.2	18.4	18.4
Cycle Q Clear(g_c), s	10.1	44.3	45.5	4.8	19.2	12.3	9.0	19.9	5.8	15.2	18.4	18.4
Prop In Lane	1.00		0.31	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	222	771	770	109	1235	551	364	824	354	537	525	541
V/C Ratio(X)	0.76	0.96	0.98	0.73	0.61	0.42	0.80	0.83	0.34	0.91	0.65	0.65
Avail Cap(c_a), veh/h	228	771	770	195	1235	551	379	942	407	537	552	569
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)	0.76	0.76	0.76	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.6	30.4	31.0	50.8	29.9	27.6	48.1	40.2	24.1	45.7	33.9	34.0
Incr Delay (d2), s/veh	9.7	20.2	22.9	3.0	1.9	2.0	10.1	5.2	0.4	18.9	2.3	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(-26165%),veh/ln	5.6	26.2	27.2	2.5	9.7	5.8	4.8	10.4	2.6	8.7	9.4	9.7
LnGrp Delay(d),s/veh	56.3	50.6	53.9	53.7	31.8	29.6	58.2	45.5	24.5	64.7	36.2	36.2
LnGrp LOS	E	D	D	D	C	C	E	D	C	E	D	D
Approach Vol, veh/h		1662			1065			1094			1183	
Approach Delay, s/veh		52.7			33.0			46.5			48.0	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.7	50.5	14.5	35.3	19.1	41.0	21.5	28.4
Change Period (Y+Rc), s	3.5	6.0	3.5	5.0	6.0	* 6	5.0	* 5
Max Green Setting (Gmax), s	11.5	37.0	11.5	32.0	13.5	* 35	16.5	* 27
Max Q Clear Time (g_c+I1), s	6.8	47.5	11.0	20.4	12.1	21.2	17.2	21.9
Green Ext Time (p_c), s	0.0	0.0	0.0	2.5	0.1	5.3	0.0	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	46.0
HCM 2010 LOS	D

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	161	1294	249	40	587	21	249	320	61	48	165	72
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	177	1422	274	44	645	23	274	352	67	53	181	79
Adj No. of Lanes	1	2	0	1	2	0	2	2	0	1	2	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	201	1800	341	54	1822	65	341	512	96	69	273	114
Arrive On Green	0.11	0.60	0.58	0.03	0.52	0.50	0.10	0.17	0.17	0.04	0.11	0.11
Sat Flow, veh/h	1792	3000	568	1792	3520	125	3476	2986	561	1792	2445	1023
Grp Volume(v), veh/h	177	837	859	44	327	341	274	209	210	53	130	130
Grp Sat Flow(s),veh/h/ln	1792	1787	1781	1792	1787	1859	1738	1787	1760	1792	1787	1681
Q Serve(g_s), s	9.7	35.2	37.5	2.4	10.8	10.9	7.7	11.0	11.2	2.9	7.0	7.4
Cycle Q Clear(g_c), s	9.7	35.2	37.5	2.4	10.8	10.9	7.7	11.0	11.2	2.9	7.0	7.4
Prop In Lane	1.00		0.32	1.00		0.07	1.00		0.32	1.00		0.61
Lane Grp Cap(c), veh/h	201	1072	1068	54	925	962	341	306	302	69	200	188
V/C Ratio(X)	0.88	0.78	0.80	0.81	0.35	0.35	0.80	0.68	0.70	0.77	0.65	0.69
Avail Cap(c_a), veh/h	269	1072	1068	143	925	962	382	483	475	107	393	370
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)	0.24	0.24	0.24	0.52	0.52	0.52	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.7	15.1	15.8	48.2	14.2	14.3	44.2	38.9	39.0	47.6	42.5	42.8
Incr Delay (d2), s/veh	5.3	1.4	1.7	5.6	0.6	0.5	9.3	1.0	1.1	6.5	1.3	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(-26165%),veh/ln	5.1	17.6	18.7	1.3	5.4	5.6	4.1	5.5	5.6	1.6	3.5	3.6
LnGrp Delay(d),s/veh	49.0	16.5	17.4	53.8	14.8	14.8	53.5	39.9	40.1	54.1	43.9	44.5
LnGrp LOS	D	B	B	D	B	B	D	D	D	D	D	D
Approach Vol, veh/h		1873			712			693			313	
Approach Delay, s/veh		20.0			17.2			45.3			45.9	
Approach LOS		B			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.0	64.0	13.8	15.2	15.2	55.8	7.9	21.1
Change Period (Y+Rc), s	3.5	6.0	4.0	4.0	3.5	6.0	4.0	4.0
Max Green Setting (Gmax), s	3.5	41.0	11.0	22.0	15.5	34.0	6.0	27.0
Max Q Clear Time (g_c+I1), s	11.4	39.5	9.7	9.4	11.7	12.9	4.9	13.2
Green Ext Time (p_c), s	0.0	1.5	0.1	1.2	0.1	20.6	0.0	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	26.6
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	59	389	287	94	390	42	173	338	113	39	255	28
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1900	1900	1881	1881	1900	1881	1881
Adj Flow Rate, veh/h	61	405	299	98	406	44	180	352	118	41	266	29
Adj No. of Lanes	1	1	1	1	1	0	0	1	1	0	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	70	704	598	115	666	72	125	245	318	50	326	322
Arrive On Green	0.04	0.37	0.37	0.06	0.40	0.38	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	1792	1881	1599	1792	1668	181	626	1224	1591	250	1619	1599
Grp Volume(v), veh/h	61	405	299	98	0	450	532	0	118	307	0	29
Grp Sat Flow(s),veh/h/ln	1792	1881	1599	1792	0	1849	1850	0	1591	1869	0	1599
Q Serve(g_s), s	3.4	17.2	14.4	5.4	0.0	19.4	20.0	0.0	6.4	15.7	0.0	1.5
Cycle Q Clear(g_c), s	3.4	17.2	14.4	5.4	0.0	19.4	20.0	0.0	6.4	15.7	0.0	1.5
Prop In Lane	1.00		1.00	1.00		0.10	0.34		1.00	0.13		1.00
Lane Grp Cap(c), veh/h	70	704	598	115	0	738	370	0	318	377	0	322
V/C Ratio(X)	0.87	0.58	0.50	0.85	0.00	0.61	1.44	0.00	0.37	0.82	0.00	0.09
Avail Cap(c_a), veh/h	143	704	598	143	0	738	370	0	318	561	0	480
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)	0.49	0.49	0.49	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	47.8	25.0	24.1	46.3	0.0	23.9	40.0	0.0	34.6	38.1	0.0	32.5
Incr Delay (d2), s/veh	6.1	1.7	1.5	26.5	0.0	3.7	211.9	0.0	0.3	3.4	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(-26165%),veh/ln	1.8	9.2	6.6	3.5	0.0	10.7	32.0	0.0	2.8	8.5	0.0	0.7
LnGrp Delay(d),s/veh	53.9	26.6	25.6	72.8	0.0	27.7	251.9	0.0	34.8	41.5	0.0	32.5
LnGrp LOS	D	C	C	E		C	F		C	D		C
Approach Vol, veh/h		765			548			650			336	
Approach Delay, s/veh		28.4			35.7			212.5			40.8	
Approach LOS		C			D			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.4	41.4		24.2	7.9	43.9		24.0
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0
Max Green Setting (Gmax), s	8.5	24.0		28.0	8.5	24.0		18.0
Max Q Clear Time (g_c+I1), s	7.4	19.2		17.7	5.4	21.4		22.0
Green Ext Time (p_c), s	0.0	3.7		0.5	0.0	2.1		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	84.0
HCM 2010 LOS	F

Notes

User approved changes to right turn type.

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	2	527	482	0	3	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	2	573	524	0	3	21

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	524	0	-	0	1101	524
Stage 1	-	-	-	-	524	-
Stage 2	-	-	-	-	577	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1048	-	-	-	236	555
Stage 1	-	-	-	-	596	-
Stage 2	-	-	-	-	564	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1048	-	-	-	236	555
Mov Cap-2 Maneuver	-	-	-	-	372	-
Stage 1	-	-	-	-	596	-
Stage 2	-	-	-	-	563	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1048	-	-	-	372	555
HCM Lane V/C Ratio	0.002	-	-	-	0.009	0.037
HCM Control Delay (s)	8.4	-	-	-	14.8	11.7
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	-	0	0.1

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	23	475	23	12	428	4	16	1	8	6	2	27
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	150	-	150	150	-	150	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	23	480	23	12	432	4	16	1	8	6	2	27

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	432	0	0	480	0	0	997	983	480	988	983	432
Stage 1	-	-	-	-	-	-	526	526	-	457	457	-
Stage 2	-	-	-	-	-	-	471	457	-	531	526	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	1133	-	-	1088	-	-	224	250	588	227	250	626
Stage 1	-	-	-	-	-	-	537	530	-	585	569	-
Stage 2	-	-	-	-	-	-	575	569	-	534	530	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1133	-	-	1088	-	-	208	242	588	218	242	626
Mov Cap-2 Maneuver	-	-	-	-	-	-	208	242	-	218	242	-
Stage 1	-	-	-	-	-	-	526	519	-	573	563	-
Stage 2	-	-	-	-	-	-	542	563	-	515	519	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.2	20.1	13.8
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	264	1133	-	-	1088	-	-	443
HCM Lane V/C Ratio	0.096	0.021	-	-	0.011	-	-	0.08
HCM Control Delay (s)	20.1	8.2	-	-	8.3	-	-	13.8
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	0.3

Intersection	
Intersection Delay, s/veh	42.6
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	0	0	20	0	26	0	3	0	7	475	96	0	2	332	4
Peak Hour Factor	0.93	0.90	0.90	0.90	0.93	0.90	0.90	0.90	0.93	0.90	0.90	0.90	0.93	0.90	0.90	0.90
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	0	0	22	0	29	0	3	0	8	528	320	0	2	369	4
Number of Lanes	0	0	1	0	0	0	1	0	0	1	1	0	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	1	1
HCM Control Delay	9.4	10.7	57.3	13.9
HCM LOS	A	B	F	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	90%	100%	0%	0%
Vol Thru, %	0%	83%	0%	0%	0%	100%	0%
Vol Right, %	0%	17%	100%	10%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	7	571	20	29	2	332	4
LT Vol	7	0	0	26	2	0	0
Through Vol	0	475	0	0	0	332	0
RT Vol	0	96	20	3	0	0	4
Lane Flow Rate	8	848	22	32	2	369	4
Geometry Grp	8	8	7	7	7	7	7
Degree of Util (X)	0.013	1	0.04	0.067	0.004	0.54	0.006
Departure Headway (Hd)	6.011	5.392	6.417	7.445	5.765	5.266	4.568
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	593	670	558	482	621	686	783
Service Time	3.773	3.153	4.158	5.183	3.495	2.996	2.297
HCM Lane V/C Ratio	0.013	1.266	0.039	0.066	0.003	0.538	0.005
HCM Control Delay	8.9	57.7	9.4	10.7	8.5	14	7.3
HCM Lane LOS	A	F	A	B	A	B	A
HCM 95th-tile Q	0	15.7	0.1	0.2	0	3.3	0

Intersection	
Intersection Delay, s/veh	10.9
Intersection LOS	B

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Vol, veh/h	0	305	167	0	25	188	0	108	38
Peak Hour Factor	0.93	0.94	0.94	0.93	0.94	0.94	0.93	0.94	0.94
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	324	178	0	27	200	0	115	40
Number of Lanes	0	1	1	0	1	1	0	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay	11.2	10.5	10.5
HCM LOS	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2
Vol Left, %	100%	0%	0%	0%	100%	0%
Vol Thru, %	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	108	38	305	167	25	188
LT Vol	108	0	0	0	25	0
Through Vol	0	0	305	0	0	188
RT Vol	0	38	0	167	0	0
Lane Flow Rate	115	40	324	178	27	200
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.212	0.061	0.471	0.223	0.044	0.305
Departure Headway (Hd)	6.642	5.431	5.229	4.524	5.985	5.481
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	535	652	685	787	594	650
Service Time	4.44	3.228	2.993	2.287	3.766	3.261
HCM Lane V/C Ratio	0.215	0.061	0.473	0.226	0.045	0.308
HCM Control Delay	11.2	8.6	12.6	8.6	9	10.7
HCM Lane LOS	B	A	B	A	A	B
HCM 95th-tile Q	0.8	0.2	2.5	0.9	0.1	1.3

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	0	1	206	0	1	355
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	1	229	0	1	394

Major/Minor	Minor2		Major2		Major1	
Conflicting Flow All	855	0	394	0	0	0
Stage 1	458	-	-	-	-	-
Stage 2	397	-	-	-	-	-
Critical Hdwy	6.51	6.21	-	-	4.11	-
Critical Hdwy Stg 1	5.51	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	4.009	3.309	-	-	2.209	-
Pot Cap-1 Maneuver	297	-	-	-	-	-
Stage 1	569	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %				-		-
Mov Cap-1 Maneuver	0	-	-	-	-	-
Mov Cap-2 Maneuver	0	-	-	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s			
HCM LOS	-		

Minor Lane/Major Mvmt	NBL	NBR	EBLn1	WBL	WBT
Capacity (veh/h)	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	-	-	-
HCM Lane LOS	-	-	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	314	41	26	21	21	181
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	338	44	28	23	23	195

Major/Minor	Major1		Minor1		Major2	
Conflicting Flow All	195	0	959	44	44	-
Stage 1	-	-	719	-	-	-
Stage 2	-	-	240	-	-	-
Critical Hdwy	-	-	6.51	6.21	4.11	-
Critical Hdwy Stg 1	-	-	5.51	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	4.009	3.309	2.209	-
Pot Cap-1 Maneuver	-	-	258	1029	1571	-
Stage 1	-	-	434	-	-	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %		-				-
Mov Cap-1 Maneuver	-	-	0	1029	1571	-
Mov Cap-2 Maneuver	-	-	0	-	-	-
Stage 1	-	-	0	-	-	-
Stage 2	-	-	0	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s		8.7	0.8
HCM LOS		A	

Minor Lane/Major Mvmt	EBL	EBT	WBLn1	SBL	SBR
Capacity (veh/h)	-	-	1029	1571	-
HCM Lane V/C Ratio	-	-	0.049	0.014	-
HCM Control Delay (s)	-	-	8.7	7.3	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Intersection Delay, s/veh	16
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	114	0	31	0	0	0	0	0	40	309	0
Peak Hour Factor	0.93	0.92	0.92	0.92	0.93	0.92	0.92	0.92	0.93	0.92	0.92	0.92
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	124	0	34	0	0	0	0	0	43	336	0
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	11.4	0	14
HCM LOS	B	-	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	79%	0%	0%
Vol Thru, %	89%	0%	100%	74%
Vol Right, %	0%	21%	0%	26%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	349	145	0	503
LT Vol	40	114	0	0
Through Vol	309	0	0	372
RT Vol	0	31	0	131
Lane Flow Rate	379	158	0	547
Geometry Grp	1	1	1	1
Degree of Util (X)	0.54	0.268	0	0.712
Departure Headway (Hd)	5.127	6.115	6.544	4.799
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	706	589	0	760
Service Time	3.143	4.129	4.574	2.799
HCM Lane V/C Ratio	0.537	0.268	0	0.72
HCM Control Delay	14	11.4	9.6	18.7
HCM Lane LOS	B	B	N	C
HCM 95th-tile Q	3.3	1.1	0	6.1

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	0	372	131
Peak Hour Factor	0.93	0.92	0.92	0.92
Heavy Vehicles, %	1	1	1	1
Mvmt Flow	0	0	404	142
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	18.7
HCM LOS	C

Lane

Intersection	
Intersection Delay, s/veh	12.5
Intersection LOS	B

Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Vol, veh/h	0	133	21	0	51	286	0	244	165
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	1.00	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	143	23	0	55	286	0	262	177
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	10.9	12.3	13.3
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	15%	86%	0%
Vol Thru, %	85%	0%	60%
Vol Right, %	0%	14%	40%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	337	154	409
LT Vol	51	133	0
Through Vol	286	0	244
RT Vol	0	21	165
Lane Flow Rate	341	166	440
Geometry Grp	1	1	1
Degree of Util (X)	0.465	0.268	0.557
Departure Headway (Hd)	4.911	5.829	4.558
Convergence, Y/N	Yes	Yes	Yes
Cap	726	619	783
Service Time	3.004	3.829	2.642
HCM Lane V/C Ratio	0.47	0.268	0.562
HCM Control Delay	12.3	10.9	13.3
HCM Lane LOS	B	B	B
HCM 95th-tile Q	2.5	1.1	3.5

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	23	46	20	0	7	47	9	0	29	174	5	0	18	102	15
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	25	49	22	0	8	51	10	0	31	187	5	0	19	110	16
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.5	8.3	9.3	8.6
HCM LOS	A	A	A	A

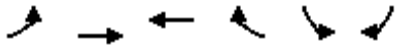
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	26%	11%	13%
Vol Thru, %	84%	52%	75%	76%
Vol Right, %	2%	22%	14%	11%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	208	89	63	135
LT Vol	29	23	7	18
Through Vol	174	46	47	102
RT Vol	5	20	9	15
Lane Flow Rate	224	96	68	145
Geometry Grp	1	1	1	1
Degree of Util (X)	0.279	0.127	0.091	0.182
Departure Headway (Hd)	4.49	4.763	4.819	4.524
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	801	751	742	793
Service Time	2.521	2.8	2.859	2.558
HCM Lane V/C Ratio	0.28	0.128	0.092	0.183
HCM Control Delay	9.3	8.5	8.3	8.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.1	0.4	0.3	0.7

Intersection	
Intersection Delay, s/veh	10.6
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	8	0	10	0	132	1	31	0	4	179	202	0	9	122	4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	9	0	11	0	142	1	33	0	4	192	217	0	10	131	4
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.4	10.1	11.5	9.1
HCM LOS	A	B	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	44%	80%	7%
Vol Thru, %	46%	0%	1%	90%
Vol Right, %	52%	56%	19%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	385	18	164	135
LT Vol	4	8	132	9
Through Vol	179	0	1	122
RT Vol	202	10	31	4
Lane Flow Rate	414	19	176	145
Geometry Grp	1	1	1	1
Degree of Util (X)	0.494	0.028	0.255	0.197
Departure Headway (Hd)	4.298	5.177	5.215	4.878
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	836	684	684	732
Service Time	2.342	3.269	3.287	2.938
HCM Lane V/C Ratio	0.495	0.028	0.257	0.198
HCM Control Delay	11.5	8.4	10.1	9.1
HCM Lane LOS	B	A	B	A
HCM 95th-tile Q	2.8	0.1	1	0.7



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	364	426	254	17	12	257
Number	5	2	6	16	7	14
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
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	391	458	273	18	13	276
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	455	1069	410	348	374	334
Arrive On Green	0.25	0.57	0.22	0.22	0.21	0.21
Sat Flow, veh/h	1792	1881	1881	1599	1792	1599
Grp Volume(v), veh/h	391	458	273	18	13	276
Grp Sat Flow(s),veh/h/ln	1792	1881	1881	1599	1792	1599
Q Serve(g_s), s	10.6	7.0	6.7	0.5	0.3	8.4
Cycle Q Clear(g_c), s	10.6	7.0	6.7	0.5	0.3	8.4
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	455	1069	410	348	374	334
V/C Ratio(X)	0.86	0.43	0.67	0.05	0.03	0.83
Avail Cap(c_a), veh/h	710	1447	1447	1230	989	883
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	18.1	6.2	18.1	15.7	16.0	19.2
Incr Delay (d2), s/veh	4.0	0.1	0.7	0.0	0.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	5.7	3.6	3.6	0.2	0.1	7.1
LnGrp Delay(d),s/veh	22.0	6.3	18.8	15.7	16.0	21.2
LnGrp LOS	C	A	B	B	B	C
Approach Vol, veh/h		849	291		289	
Approach Delay, s/veh		13.6	18.7		21.0	
Approach LOS		B	B		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		34.8		15.9	17.8	17.0		
Change Period (Y+Rc), s		6.0		5.3	4.9	6.0		
Max Green Setting (Gmax), s		39.0		28.0	20.1	39.0		
Max Q Clear Time (g_c+I1), s		9.0		10.4	12.6	8.7		
Green Ext Time (p_c), s		2.3		0.4	0.4	2.3		

Intersection Summary	
HCM 2010 Ctrl Delay	16.1
HCM 2010 LOS	B

MOVEMENT SUMMARY

Site: Ex PM - #9 Rancho California Rd & Anza Rd

Ex PM - #9 Rancho California Rd & Anza Rd
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
SouthEast: Anza Rd											
5	L2	64	1.0	0.295	13.3	LOS B	1.8	44.7	0.66	0.74	35.6
2	T1	13	1.0	0.295	7.0	LOS A	1.8	44.7	0.66	0.74	35.4
12	R2	153	1.0	0.295	7.1	LOS A	1.8	44.7	0.66	0.74	34.3
Approach		229	1.0	0.295	8.8	LOS A	1.8	44.7	0.66	0.74	34.7
NorthEast: Rancho California Rd											
3	L2	97	1.0	0.429	10.8	LOS B	3.3	82.1	0.41	0.50	36.6
8	T1	358	1.0	0.429	4.6	LOS A	3.3	82.1	0.41	0.50	36.4
18	R2	8	1.0	0.429	4.7	LOS A	3.3	82.1	0.41	0.50	35.2
Approach		464	1.0	0.429	5.9	LOS A	3.3	82.1	0.41	0.50	36.4
NorthWest: Anza Rd											
1	L2	10	1.0	0.047	13.1	LOS B	0.2	6.2	0.60	0.65	35.5
6	T1	10	1.0	0.047	6.9	LOS A	0.2	6.2	0.60	0.65	35.4
16	R2	14	1.0	0.047	7.0	LOS A	0.2	6.2	0.60	0.65	34.3
Approach		34	1.0	0.047	8.8	LOS A	0.2	6.2	0.60	0.65	35.0
SouthWest: Rancho California Rd											
7	L2	25	1.0	0.457	11.0	LOS B	3.4	86.7	0.44	0.48	36.9
4	T1	407	1.0	0.457	4.8	LOS A	3.4	86.7	0.44	0.48	36.7
14	R2	55	1.0	0.457	4.9	LOS A	3.4	86.7	0.44	0.48	35.5
Approach		487	1.0	0.457	5.1	LOS A	3.4	86.7	0.44	0.48	36.6
All Vehicles		1215	1.0	0.457	6.2	LOS A	3.4	86.7	0.48	0.54	36.1

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	902	284	473	675	0	0	0	0	996	0	384
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	930	293	488	696	0				1150	0	264
Adj No. of Lanes	0	3	1	2	3	0				2	0	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	2449	680	557	3190	0				1129	0	503
Arrive On Green	0.00	0.44	0.43	0.32	1.00	0.00				0.32	0.00	0.32
Sat Flow, veh/h	0	5588	1583	3442	5253	0				3548	0	1582
Grp Volume(v), veh/h	0	930	293	488	696	0				1150	0	264
Grp Sat Flow(s),veh/h/ln	0	1863	1583	1721	1695	0				1774	0	1582
Q Serve(g_s), s	0.0	12.3	14.3	14.7	0.0	0.0				35.0	0.0	15.0
Cycle Q Clear(g_c), s	0.0	12.3	14.3	14.7	0.0	0.0				35.0	0.0	15.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2449	680	557	3190	0				1129	0	503
V/C Ratio(X)	0.00	0.38	0.43	0.88	0.22	0.00				1.02	0.00	0.52
Avail Cap(c_a), veh/h	0	2449	680	720	3190	0				1129	0	503
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.94	0.94	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	20.8	22.0	36.2	0.0	0.0				37.5	0.0	30.7
Incr Delay (d2), s/veh	0.0	0.4	2.0	7.7	0.1	0.0				31.6	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.0	6.4	6.6	7.5	0.0	0.0				22.0	0.0	6.7
LnGrp Delay(d),s/veh	0.0	21.3	24.0	43.9	0.1	0.0				69.1	0.0	31.7
LnGrp LOS		C	C	D	A					F		C
Approach Vol, veh/h		1223			1184						1414	
Approach Delay, s/veh		21.9			18.2						62.1	
Approach LOS		C			B						E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	20.8	51.2		38.0		72.0		
Change Period (Y+Rc), s	3.5	5.0		5.0		5.0		
Max Green Setting (Gmax), s	22.5	41.0		33.0		67.0		
Max Q Clear Time (g_c+I1), s	16.7	16.3		37.0		2.0		
Green Ext Time (p_c), s	0.6	15.0		0.0		23.4		

Intersection Summary	
HCM 2010 Ctrl Delay	35.6
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	436	1100	617	190	1038	223	323	403	104	161	655	506
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	449	1134	636	196	1070	230	333	415	107	166	675	522
Adj No. of Lanes	2	3	1	1	3	1	2	2	1	2	2	2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1007	1553	665	425	1283	399	440	965	431	252	772	1378
Arrive On Green	0.58	0.61	0.58	0.24	0.25	0.25	0.13	0.27	0.27	0.07	0.22	0.20
Sat Flow, veh/h	3442	5085	1583	1774	5085	1581	3442	3539	1580	3442	3539	2754
Grp Volume(v), veh/h	449	1134	636	196	1070	230	333	415	107	166	675	522
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1774	1695	1581	1721	1770	1580	1721	1770	1377
Q Serve(g_s), s	8.1	17.2	22.0	10.4	21.9	14.0	10.3	10.6	5.8	5.2	20.3	0.0
Cycle Q Clear(g_c), s	8.1	17.2	22.0	10.4	21.9	14.0	10.3	10.6	5.8	5.2	20.3	0.0
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	1007	1553	665	425	1283	399	440	965	431	252	772	1378
V/C Ratio(X)	0.45	0.73	0.96	0.46	0.83	0.58	0.76	0.43	0.25	0.66	0.87	0.38
Avail Cap(c_a), veh/h	1007	1942	785	425	1341	417	563	965	431	375	772	1378
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)	0.84	0.84	0.84	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.8	18.2	15.1	35.8	38.9	36.0	46.3	33.0	31.2	49.6	41.5	17.1
Incr Delay (d2), s/veh	0.1	2.6	23.1	0.0	0.6	0.6	3.1	1.4	1.4	1.1	10.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	4.7	8.1	12.2	5.1	10.3	6.1	5.1	5.4	2.7	2.5	11.1	4.9
LnGrp Delay(d),s/veh	17.9	20.8	38.2	35.8	39.6	36.5	49.4	34.4	32.6	50.7	52.3	17.2
LnGrp LOS	B	C	D	D	D	D	D	C	C	D	D	B
Approach Vol, veh/h		2219			1496			855			1363	
Approach Delay, s/veh		25.2			38.6			40.0			38.7	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.0	36.9	17.1	27.0	35.2	30.8	11.1	33.0
Change Period (Y+Rc), s	3.5	5.0	3.5	5.0	3.5	5.0	3.5	5.0
Max Green Setting (Gmax), s	13.5	40.0	17.5	22.0	26.5	27.0	11.5	28.0
Max Q Clear Time (g_c+I1), s	12.4	24.0	12.3	22.3	10.1	23.9	7.2	12.6
Green Ext Time (p_c), s	0.2	8.2	0.5	0.0	1.0	1.8	0.5	1.5

Intersection Summary	
HCM 2010 Ctrl Delay	33.8
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	81	881	159	65	814	181	186	403	63	282	490	76
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1881	1881	1881	1881	1881	1881	1900
Adj Flow Rate, veh/h	83	899	162	66	831	185	190	411	64	288	500	78
Adj No. of Lanes	1	2	0	1	2	1	2	2	1	2	2	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	424	1674	302	93	1235	551	267	563	237	398	648	101
Arrive On Green	0.24	0.55	0.54	0.05	0.35	0.35	0.08	0.16	0.15	0.11	0.21	0.20
Sat Flow, veh/h	1792	3026	545	1792	3574	1596	3476	3574	1599	3476	3102	482
Grp Volume(v), veh/h	83	531	530	66	831	185	190	411	64	288	287	291
Grp Sat Flow(s),veh/h/ln	1792	1787	1785	1792	1787	1596	1738	1787	1599	1738	1787	1796
Q Serve(g_s), s	4.1	20.8	20.9	4.0	21.8	9.4	5.9	12.0	3.3	8.8	16.7	16.8
Cycle Q Clear(g_c), s	4.1	20.8	20.9	4.0	21.8	9.4	5.9	12.0	3.3	8.8	16.7	16.8
Prop In Lane	1.00		0.31	1.00		1.00	1.00		1.00	1.00		0.27
Lane Grp Cap(c), veh/h	424	989	987	93	1235	551	267	563	237	398	373	375
V/C Ratio(X)	0.20	0.54	0.54	0.71	0.67	0.34	0.71	0.73	0.27	0.72	0.77	0.77
Avail Cap(c_a), veh/h	424	989	987	195	1235	551	379	942	407	537	552	555
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)	0.42	0.42	0.42	0.92	0.92	0.92	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.6	15.6	15.9	51.3	30.7	26.7	49.6	44.1	29.5	47.0	41.0	41.2
Incr Delay (d2), s/veh	0.0	0.9	0.9	3.4	2.7	1.5	1.3	1.4	0.4	1.7	3.0	3.2
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(-26165%),veh/ln	2.0	10.4	10.5	2.1	11.2	4.4	2.9	6.0	1.5	4.3	8.5	8.7
LnGrp Delay(d),s/veh	33.6	16.5	16.7	54.7	33.4	28.2	50.9	45.5	30.0	48.7	44.0	44.4
LnGrp LOS	C	B	B	D	C	C	D	D	C	D	D	D
Approach Vol, veh/h		1144			1082			665			866	
Approach Delay, s/veh		17.9			33.8			45.5			45.7	
Approach LOS		B			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.7	63.9	11.5	26.0	31.6	41.0	17.1	20.3
Change Period (Y+Rc), s	3.5	6.0	3.5	5.0	6.0	* 6	5.0	* 5
Max Green Setting (Gmax), s	11.5	37.0	11.5	32.0	13.5	* 35	16.5	* 27
Max Q Clear Time (g_c+I1), s	6.1	22.9	7.9	18.8	6.1	23.8	10.8	14.0
Green Ext Time (p_c), s	0.0	5.8	0.1	1.9	0.3	4.9	1.3	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	33.8
HCM 2010 LOS	C

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	76	899	151	43	648	23	198	169	35	40	87	88
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.96	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	81	956	161	46	689	24	211	180	37	43	93	94
Adj No. of Lanes	1	2	0	1	2	0	2	2	0	1	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	96	1968	331	56	2186	76	280	386	77	62	153	134
Arrive On Green	0.05	0.64	0.62	0.03	0.62	0.60	0.08	0.13	0.13	0.03	0.09	0.09
Sat Flow, veh/h	1792	3062	515	1792	3524	123	3476	2945	589	1792	1787	1565
Grp Volume(v), veh/h	81	558	559	46	349	364	211	107	110	43	93	94
Grp Sat Flow(s),veh/h/ln	1792	1787	1790	1792	1787	1859	1738	1787	1747	1792	1787	1565
Q Serve(g_s), s	4.5	16.2	16.4	2.6	9.2	9.3	5.9	5.6	5.8	2.4	5.0	5.8
Cycle Q Clear(g_c), s	4.5	16.2	16.4	2.6	9.2	9.3	5.9	5.6	5.8	2.4	5.0	5.8
Prop In Lane	1.00		0.29	1.00		0.07	1.00		0.34	1.00		1.00
Lane Grp Cap(c), veh/h	96	1149	1151	56	1109	1153	280	235	229	62	153	134
V/C Ratio(X)	0.84	0.49	0.49	0.83	0.32	0.32	0.75	0.46	0.48	0.69	0.61	0.70
Avail Cap(c_a), veh/h	269	1149	1151	143	1109	1153	382	483	472	107	393	344
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)	0.79	0.79	0.79	0.24	0.24	0.24	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.9	9.3	9.5	48.2	9.0	9.0	45.0	40.1	40.3	47.7	44.1	44.5
Incr Delay (d2), s/veh	5.9	1.2	1.2	2.9	0.2	0.2	3.3	0.5	0.6	4.9	1.5	2.5
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(-26165%),veh/ln	2.4	8.3	8.4	1.3	4.5	4.8	3.0	2.8	2.8	1.3	2.5	2.6
LnGrp Delay(d),s/veh	52.8	10.4	10.6	51.1	9.1	9.2	48.3	40.7	40.8	52.7	45.6	47.0
LnGrp LOS	D	B	B	D	A	A	D	D	D	D	D	D
Approach Vol, veh/h		1198			759			428			230	
Approach Delay, s/veh		13.4			11.7			44.5			47.5	
Approach LOS		B			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.1	68.3	12.1	12.5	9.4	66.0	7.5	17.1
Change Period (Y+Rc), s	3.5	6.0	4.0	4.0	3.5	6.0	4.0	4.0
Max Green Setting (Gmax), s	3.5	41.0	11.0	22.0	15.5	34.0	6.0	27.0
Max Q Clear Time (g_c+I1), s	11.6	18.4	7.9	7.8	6.5	11.3	4.4	7.8
Green Ext Time (p_c), s	0.0	20.1	0.1	0.7	0.1	20.3	0.0	0.8

Intersection Summary		
HCM 2010 Ctrl Delay		21.0
HCM 2010 LOS		C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	16	636	260	119	571	53	175	182	159	67	181	18
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1900	1900	1881	1881	1900	1881	1881
Adj Flow Rate, veh/h	17	662	271	124	595	55	182	190	166	70	189	19
Adj No. of Lanes	1	1	1	1	1	0	0	1	1	0	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	25	720	612	143	761	70	180	188	318	89	240	284
Arrive On Green	0.01	0.38	0.38	0.08	0.45	0.43	0.20	0.20	0.20	0.18	0.18	0.18
Sat Flow, veh/h	1792	1881	1599	1792	1696	157	898	938	1591	502	1354	1599
Grp Volume(v), veh/h	17	662	271	124	0	650	372	0	166	259	0	19
Grp Sat Flow(s),veh/h/ln	1792	1881	1599	1792	0	1853	1836	0	1591	1856	0	1599
Q Serve(g_s), s	0.9	33.5	12.6	6.8	0.0	29.8	20.0	0.0	9.3	13.3	0.0	1.0
Cycle Q Clear(g_c), s	0.9	33.5	12.6	6.8	0.0	29.8	20.0	0.0	9.3	13.3	0.0	1.0
Prop In Lane	1.00		1.00	1.00		0.08	0.49		1.00	0.27		1.00
Lane Grp Cap(c), veh/h	25	720	612	143	0	832	367	0	318	329	0	284
V/C Ratio(X)	0.69	0.92	0.44	0.87	0.00	0.78	1.01	0.00	0.52	0.79	0.00	0.07
Avail Cap(c_a), veh/h	143	720	612	143	0	832	367	0	318	557	0	480
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)	0.86	0.86	0.86	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	49.1	29.4	22.9	45.5	0.0	23.5	40.0	0.0	35.7	39.3	0.0	34.2
Incr Delay (d2), s/veh	10.2	16.7	2.0	37.5	0.0	7.2	50.3	0.0	0.7	1.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.5	20.6	5.9	4.9	0.0	16.8	15.2	0.0	4.2	7.0	0.0	0.4
LnGrp Delay(d),s/veh	59.3	46.1	24.9	82.9	0.0	30.7	90.3	0.0	36.5	40.9	0.0	34.3
LnGrp LOS	E	D	C	F		C	F		D	D		C
Approach Vol, veh/h		950			774			538			278	
Approach Delay, s/veh		40.3			39.0			73.7			40.5	
Approach LOS		D			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.0	42.3		21.7	5.4	48.9		24.0
Change Period (Y+Rc), s	3.5	6.0		6.0	3.5	6.0		6.0
Max Green Setting (Gmax), s	8.5	24.0		28.0	8.5	24.0		18.0
Max Q Clear Time (g_c+I1), s	11.8	35.5		15.3	2.9	31.8		22.0
Green Ext Time (p_c), s	0.0	0.0		0.4	0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	47.0
HCM 2010 LOS	D

Notes

User approved changes to right turn type.

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	34	812	786	28	33	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	36	855	827	29	35	27

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	857	0	-	0	1768	842
Stage 1	-	-	-	-	842	-
Stage 2	-	-	-	-	926	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	788	-	-	-	92	366
Stage 1	-	-	-	-	424	-
Stage 2	-	-	-	-	387	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	788	-	-	-	88	366
Mov Cap-2 Maneuver	-	-	-	-	220	-
Stage 1	-	-	-	-	424	-
Stage 2	-	-	-	-	369	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	20.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	788	-	-	-	220	366
HCM Lane V/C Ratio	0.045	-	-	-	0.158	0.075
HCM Control Delay (s)	9.8	-	-	-	24.4	15.6
HCM Lane LOS	A	-	-	-	C	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5	0.2

Intersection	
Int Delay, s/veh	7.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	90	696	19	11	707	47	15	6	17	31	5	68
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	150	-	150	150	-	150	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	95	733	20	12	744	49	16	6	18	33	5	72

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	744	0	0	733	0	0	1728	1689	733	1701	1689	744
Stage 1	-	-	-	-	-	-	922	922	-	767	767	-
Stage 2	-	-	-	-	-	-	806	767	-	934	922	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	868	-	-	876	-	-	70	94	422	73	94	416
Stage 1	-	-	-	-	-	-	325	350	-	396	413	-
Stage 2	-	-	-	-	-	-	377	413	-	320	350	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	868	-	-	876	-	-	50	83	422	60	83	416
Mov Cap-2 Maneuver	-	-	-	-	-	-	50	83	-	60	83	-
Stage 1	-	-	-	-	-	-	289	312	-	353	407	-
Stage 2	-	-	-	-	-	-	304	407	-	267	312	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	0.1	71.3	88.7
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	92	868	-	-	876	-	-	140
HCM Lane V/C Ratio	0.435	0.109	-	-	0.013	-	-	0.782
HCM Control Delay (s)	71.3	9.7	-	-	9.2	-	-	88.7
HCM Lane LOS	F	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	1.8	0.4	-	-	0	-	-	4.8

Intersection	
Intersection Delay, s/veh	40.5
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	0	0	49	0	39	0	20	0	53	524	56	0	13	486	18
Peak Hour Factor	0.93	0.97	0.97	0.97	0.93	0.97	0.97	0.97	0.93	0.97	0.97	0.97	0.93	0.97	0.97	0.97
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	0	0	51	0	40	0	21	0	55	540	58	0	13	501	19
Number of Lanes	0	0	1	0	0	0	1	0	0	1	1	0	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	1	1
HCM Control Delay	10.4	11.5	57.4	25.9
HCM LOS	B	B	F	D

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	66%	100%	0%	0%
Vol Thru, %	0%	90%	0%	0%	0%	100%	0%
Vol Right, %	0%	10%	100%	34%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	53	580	49	59	13	486	18
LT Vol	53	0	0	39	13	0	0
Through Vol	0	524	0	0	0	486	0
RT Vol	0	56	49	20	0	0	18
Lane Flow Rate	55	598	51	61	13	501	19
Geometry Grp	8	8	7	7	7	7	7
Degree of Util (X)	0.102	1	0.098	0.131	0.023	0.797	0.026
Departure Headway (Hd)	6.718	6.146	6.995	7.743	6.234	5.728	5.02
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	532	592	519	470	581	641	720
Service Time	4.472	3.9	4.642	5.369	3.897	3.398	2.699
HCM Lane V/C Ratio	0.103	1.01	0.098	0.13	0.022	0.782	0.026
HCM Control Delay	10.2	61.7	10.4	11.5	9	27	7.8
HCM Lane LOS	B	F	B	B	A	D	A
HCM 95th-tile Q	0.3	14.8	0.3	0.4	0.1	7.9	0.1

Intersection	
Intersection Delay, s/veh	11
Intersection LOS	B

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Vol, veh/h	0	221	222	0	37	209	0	164	41
Peak Hour Factor	0.93	0.96	0.96	0.93	0.96	0.96	0.93	0.96	0.96
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	230	231	0	39	218	0	171	43
Number of Lanes	0	1	1	0	1	1	0	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay	10.5	11.2	11.8
HCM LOS	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2
Vol Left, %	100%	0%	0%	0%	100%	0%
Vol Thru, %	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	164	41	221	222	37	209
LT Vol	164	0	0	0	37	0
Through Vol	0	0	221	0	0	209
RT Vol	0	41	0	222	0	0
Lane Flow Rate	171	43	230	231	39	218
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.321	0.066	0.35	0.306	0.067	0.349
Departure Headway (Hd)	6.754	5.542	5.586	4.879	6.271	5.765
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	535	649	647	742	573	625
Service Time	4.466	3.253	3.286	2.579	3.988	3.482
HCM Lane V/C Ratio	0.32	0.066	0.355	0.311	0.068	0.349
HCM Control Delay	12.6	8.6	11.3	9.7	9.4	11.5
HCM Lane LOS	B	A	B	A	A	B
HCM 95th-tile Q	1.4	0.2	1.6	1.3	0.2	1.6

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	29	18	188	34	13	192
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	31	19	202	37	14	206

Major/Minor	Minor2		Major2		Major1	
Conflicting Flow All	675	37	206	0	37	0
Stage 1	441	-	-	-	-	-
Stage 2	234	-	-	-	-	-
Critical Hdwy	6.51	6.21	-	-	4.11	-
Critical Hdwy Stg 1	5.51	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	4.009	3.309	-	-	2.209	-
Pot Cap-1 Maneuver	377	1038	-	-	1580	-
Stage 1	579	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %				-		-
Mov Cap-1 Maneuver	0	1038	-	-	1580	-
Mov Cap-2 Maneuver	0	-	-	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	8.6		0.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBR	EBLn1	WBL	WBT
Capacity (veh/h)	1580	-	1038	-	-
HCM Lane V/C Ratio	0.009	-	0.049	-	-
HCM Control Delay (s)	7.3	-	8.6	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	184	34	29	16	13	194
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	192	35	30	17	14	202

Major/Minor	Major1		Minor1		Major2	
Conflicting Flow All	202	0	648	35	35	-
Stage 1	-	-	419	-	-	-
Stage 2	-	-	229	-	-	-
Critical Hdwy	-	-	6.51	6.21	4.11	-
Critical Hdwy Stg 1	-	-	5.51	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	4.009	3.309	2.209	-
Pot Cap-1 Maneuver	-	-	391	1041	1583	-
Stage 1	-	-	592	-	-	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %		-				-
Mov Cap-1 Maneuver	-	-	0	1041	1583	-
Mov Cap-2 Maneuver	-	-	0	-	-	-
Stage 1	-	-	0	-	-	-
Stage 2	-	-	0	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s		8.6	0.5
HCM LOS		A	

Minor Lane/Major Mvmt	EBL	EBT	WBLn1	SBL	SBR
Capacity (veh/h)	-	-	1041	1583	-
HCM Lane V/C Ratio	-	-	0.045	0.009	-
HCM Control Delay (s)	-	-	8.6	7.3	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	34	0	41	0	0	0	0	0	29	134	0
Peak Hour Factor	0.93	0.94	0.94	0.94	0.93	0.94	0.94	0.94	0.93	0.94	0.94	0.94
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	36	0	44	0	0	0	0	0	31	143	0
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	7.9	0	8.4
HCM LOS	A	-	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	18%	45%	0%	0%
Vol Thru, %	82%	0%	100%	76%
Vol Right, %	0%	55%	0%	24%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	163	75	0	163
LT Vol	29	34	0	0
Through Vol	134	0	0	124
RT Vol	0	41	0	39
Lane Flow Rate	173	80	0	173
Geometry Grp	1	1	1	1
Degree of Util (X)	0.204	0.098	0	0.195
Departure Headway (Hd)	4.226	4.43	4.771	4.046
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	836	814	0	870
Service Time	2.317	2.43	2.774	2.145
HCM Lane V/C Ratio	0.207	0.098	0	0.199
HCM Control Delay	8.4	7.9	7.8	8.1
HCM Lane LOS	A	A	N	A
HCM 95th-tile Q	0.8	0.3	0	0.7

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	0	124	39
Peak Hour Factor	0.93	0.94	0.94	0.94
Heavy Vehicles, %	1	1	1	1
Mvmt Flow	0	0	132	41
Number of Lanes	0	0	1	0

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

Lane

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Vol, veh/h	0	22	31	0	31	143	0	136	29
Peak Hour Factor	0.93	0.94	0.94	0.93	0.94	0.94	0.93	0.94	0.94
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	23	33	0	33	152	0	145	31
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7.8	8.4	8.2
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	18%	42%	0%
Vol Thru, %	82%	0%	82%
Vol Right, %	0%	58%	18%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	174	53	165
LT Vol	31	22	0
Through Vol	143	0	136
RT Vol	0	31	29
Lane Flow Rate	185	56	176
Geometry Grp	1	1	1
Degree of Util (X)	0.215	0.069	0.198
Departure Headway (Hd)	4.185	4.425	4.051
Convergence, Y/N	Yes	Yes	Yes
Cap	848	814	874
Service Time	2.26	2.425	2.133
HCM Lane V/C Ratio	0.218	0.069	0.201
HCM Control Delay	8.4	7.8	8.2
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.8	0.2	0.7

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	39	65	25	0	4	31	18	0	30	165	5	0	19	100	23
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	42	70	27	0	4	33	19	0	32	177	5	0	20	108	25
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.9	8.2	9.3	8.7
HCM LOS	A	A	A	A

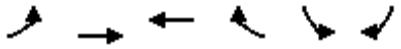
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	15%	30%	8%	13%
Vol Thru, %	82%	50%	58%	70%
Vol Right, %	3%	19%	34%	16%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	200	129	53	142
LT Vol	30	39	4	19
Through Vol	165	65	31	100
RT Vol	5	25	18	23
Lane Flow Rate	215	139	57	153
Geometry Grp	1	1	1	1
Degree of Util (X)	0.274	0.184	0.075	0.194
Departure Headway (Hd)	4.582	4.78	4.757	4.569
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	783	749	750	783
Service Time	2.616	2.823	2.807	2.607
HCM Lane V/C Ratio	0.275	0.186	0.076	0.195
HCM Control Delay	9.3	8.9	8.2	8.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.1	0.7	0.2	0.7

Intersection	
Intersection Delay, s/veh	11.9
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	6	2	17	0	202	7	48	0	12	131	246	0	30	94	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	6	2	18	0	217	8	52	0	13	141	265	0	32	101	1
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.6	12.1	12.6	9.7
HCM LOS	A	B	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	24%	79%	24%
Vol Thru, %	34%	8%	3%	75%
Vol Right, %	63%	68%	19%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	389	25	257	125
LT Vol	12	6	202	30
Through Vol	131	2	7	94
RT Vol	246	17	48	1
Lane Flow Rate	418	27	276	134
Geometry Grp	1	1	1	1
Degree of Util (X)	0.526	0.04	0.411	0.2
Departure Headway (Hd)	4.526	5.397	5.355	5.364
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	786	665	674	671
Service Time	2.622	3.415	3.363	3.384
HCM Lane V/C Ratio	0.532	0.041	0.409	0.2
HCM Control Delay	12.6	8.6	12.1	9.7
HCM Lane LOS	B	A	B	A
HCM 95th-tile Q	3.1	0.1	2	0.7



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	372	370	385	22	16	311
Number	5	2	6	16	7	14
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
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	400	398	414	24	17	334
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	447	1114	506	430	426	380
Arrive On Green	0.25	0.59	0.27	0.27	0.24	0.24
Sat Flow, veh/h	1792	1881	1881	1599	1792	1599
Grp Volume(v), veh/h	400	398	414	24	17	334
Grp Sat Flow(s),veh/h/ln	1792	1881	1881	1599	1792	1599
Q Serve(g_s), s	14.4	7.3	13.7	0.7	0.5	13.4
Cycle Q Clear(g_c), s	14.4	7.3	13.7	0.7	0.5	13.4
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	447	1114	506	430	426	380
V/C Ratio(X)	0.90	0.36	0.82	0.06	0.04	0.88
Avail Cap(c_a), veh/h	541	1114	1103	937	754	673
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	7.0	22.8	18.0	19.5	24.4
Incr Delay (d2), s/veh	13.9	0.1	1.3	0.0	0.0	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	8.8	3.8	7.3	0.3	0.2	11.1
LnGrp Delay(d),s/veh	38.0	7.1	24.0	18.1	19.5	27.0
LnGrp LOS	D	A	C	B	B	C
Approach Vol, veh/h		798	438		351	
Approach Delay, s/veh		22.6	23.7		26.7	
Approach LOS		C	C		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		45.4		21.1	21.5	23.9		
Change Period (Y+Rc), s		6.0		5.3	4.9	6.0		
Max Green Setting (Gmax), s		39.0		28.0	20.1	39.0		
Max Q Clear Time (g_c+I1), s		9.3		15.4	16.4	15.7		
Green Ext Time (p_c), s		2.6		0.5	0.2	2.2		

Intersection Summary	
HCM 2010 Ctrl Delay	23.8
HCM 2010 LOS	C

MOVEMENT SUMMARY

Site: Ex WK - #9 Rancho California Rd & Anza Rd

Ex WK - #9 Rancho California Rd & Anza Rd
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
SouthEast: Anza Rd											
5	L2	114	1.0	0.503	18.5	LOS C	4.0	101.7	0.91	1.02	32.5
2	T1	16	1.0	0.503	12.3	LOS B	4.0	101.7	0.91	1.02	32.4
12	R2	141	1.0	0.503	12.4	LOS B	4.0	101.7	0.91	1.02	31.4
Approach		271	1.0	0.503	15.0	LOS B	4.0	101.7	0.91	1.02	31.9
NorthEast: Rancho California Rd											
3	L2	102	1.0	0.788	14.0	LOS B	12.0	301.9	0.88	0.70	35.1
8	T1	656	1.0	0.788	7.8	LOS A	12.0	301.9	0.88	0.70	34.9
18	R2	33	1.0	0.788	7.9	LOS A	12.0	301.9	0.88	0.70	33.9
Approach		791	1.0	0.788	8.6	LOS A	12.0	301.9	0.88	0.70	34.9
NorthWest: Anza Rd											
1	L2	16	1.0	0.128	17.2	LOS C	0.8	20.4	0.86	0.85	33.5
6	T1	9	1.0	0.128	10.9	LOS B	0.8	20.4	0.86	0.85	33.4
16	R2	31	1.0	0.128	11.0	LOS B	0.8	20.4	0.86	0.85	32.4
Approach		55	1.0	0.128	12.8	LOS B	0.8	20.4	0.86	0.85	32.9
SouthWest: Rancho California Rd											
7	L2	29	1.0	0.750	12.0	LOS B	9.5	240.6	0.77	0.58	35.8
4	T1	671	1.0	0.750	5.7	LOS A	9.5	240.6	0.77	0.58	35.6
14	R2	81	1.0	0.750	5.8	LOS A	9.5	240.6	0.77	0.58	34.5
Approach		781	1.0	0.750	5.9	LOS A	9.5	240.6	0.77	0.58	35.5
All Vehicles		1899	1.0	0.788	8.5	LOS A	12.0	301.9	0.84	0.70	34.6

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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APPENDIX D: EXISTING PLUS AMBIENT GROWTH (2020) PLUS PROJECT TRAFFIC CONDITIONS LOS RESULTS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	489	202	601	1234	0	0	0	0	1018	0	728
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	591	192	668	1371	0				1380	0	533
Adj No. of Lanes	0	3	1	2	3	0				2	0	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.91
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1311	356	723	2414	0				1651	0	736
Arrive On Green	0.00	0.23	0.22	0.07	0.16	0.00				0.47	0.00	0.47
Sat Flow, veh/h	0	5588	1583	3442	5253	0				3548	0	1582
Grp Volume(v), veh/h	0	591	192	668	1371	0				1380	0	533
Grp Sat Flow(s),veh/h/ln	0	1863	1583	1721	1695	0				1774	0	1582
Q Serve(g_s), s	0.0	9.1	10.7	19.3	25.0	0.0				34.0	0.0	27.2
Cycle Q Clear(g_c), s	0.0	9.1	10.7	19.3	25.0	0.0				34.0	0.0	27.2
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1311	356	723	2414	0				1651	0	736
V/C Ratio(X)	0.00	0.45	0.54	0.92	0.57	0.00				0.84	0.00	0.72
Avail Cap(c_a), veh/h	0	1311	356	723	2414	0				1810	0	807
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.82	0.82	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	32.8	34.2	45.7	32.7	0.0				23.4	0.0	21.6
Incr Delay (d2), s/veh	0.0	1.1	5.8	14.9	0.8	0.0				3.3	0.0	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.0	4.8	5.3	10.7	11.9	0.0				17.2	0.0	12.4
LnGrp Delay(d),s/veh	0.0	33.9	40.0	60.6	33.5	0.0				26.7	0.0	24.5
LnGrp LOS		C	D	E	C					C		C
Approach Vol, veh/h		783			2039						1913	
Approach Delay, s/veh		35.4			42.4						26.1	
Approach LOS		D			D						C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	24.0	26.5		49.5		50.5		
Change Period (Y+Rc), s	3.5	5.0		5.0		5.0		
Max Green Setting (Gmax), s	20.5	17.0		49.0		41.0		
Max Q Clear Time (g_c+I1), s	21.3	12.7		36.0		27.0		
Green Ext Time (p_c), s	0.0	3.8		8.5		11.0		

Intersection Summary	
HCM 2010 Ctrl Delay	34.6
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1320	0	0	1424	947	428	0	361	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	0	1863	0	0	1863	1863	1863	1863	1863			
Adj Flow Rate, veh/h	0	1451	0	0	1565	1041	594	0	265			
Adj No. of Lanes	0	3	0	0	3	2	2	0	1			
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91			
Percent Heavy Veh, %	0	2	0	0	2	2	2	2	2			
Cap, veh/h	0	3514	0	0	3861	2188	884	0	394			
Arrive On Green	0.00	0.69	0.00	0.00	1.00	1.00	0.25	0.00	0.25			
Sat Flow, veh/h	0	5421	0	0	5588	3167	3548	0	1583			
Grp Volume(v), veh/h	0	1451	0	0	1565	1041	594	0	265			
Grp Sat Flow(s),veh/h/ln	0	1695	0	0	1863	1583	1774	0	1583			
Q Serve(g_s), s	0.0	12.3	0.0	0.0	0.0	0.0	15.1	0.0	15.1			
Cycle Q Clear(g_c), s	0.0	12.3	0.0	0.0	0.0	0.0	15.1	0.0	15.1			
Prop In Lane	0.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	3514	0	0	3861	2188	884	0	394			
V/C Ratio(X)	0.00	0.41	0.00	0.00	0.41	0.48	0.67	0.00	0.67			
Avail Cap(c_a), veh/h	0	3514	0	0	3861	2188	1277	0	570			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.64	0.00	0.00	0.26	0.26	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	6.7	0.0	0.0	0.0	0.0	33.9	0.0	33.9			
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.1	0.2	1.3	0.0	2.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(-26165%),veh/ln	0.0	5.7	0.0	0.0	0.0	0.1	7.6	0.0	6.9			
LnGrp Delay(d),s/veh	0.0	6.9	0.0	0.0	0.1	0.2	35.1	0.0	36.7			
LnGrp LOS		A			A	A	D		D			
Approach Vol, veh/h		1451			2606			859				
Approach Delay, s/veh		6.9			0.1			35.6				
Approach LOS		A			A			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		72.1				72.1		27.9
Change Period (Y+Rc), s		5.0				5.0		5.0
Max Green Setting (Gmax), s		56.0				56.0		34.0
Max Q Clear Time (g_c+I1), s		14.3				2.0		17.1
Green Ext Time (p_c), s		39.5				50.5		5.8

Intersection Summary	
HCM 2010 Ctrl Delay	8.3
HCM 2010 LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	502	879	427	127	1438	169	664	547	104	96	326	286
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	570	999	485	144	1634	192	755	622	118	109	370	325
Adj No. of Lanes	2	3	1	1	3	1	2	2	1	2	2	2
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	715	1364	749	425	1526	475	757	1026	458	231	538	955
Arrive On Green	0.35	0.45	0.42	0.24	0.30	0.30	0.22	0.29	0.29	0.07	0.15	0.14
Sat Flow, veh/h	3442	5085	1583	1774	5085	1582	3442	3539	1580	3442	3539	2738
Grp Volume(v), veh/h	570	999	485	144	1634	192	755	622	118	109	370	325
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1774	1695	1582	1721	1770	1580	1721	1770	1369
Q Serve(g_s), s	14.9	16.1	8.6	6.7	30.0	9.7	21.9	15.1	5.7	3.1	9.9	3.3
Cycle Q Clear(g_c), s	14.9	16.1	8.6	6.7	30.0	9.7	21.9	15.1	5.7	3.1	9.9	3.3
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	715	1364	749	425	1526	475	757	1026	458	231	538	955
V/C Ratio(X)	0.80	0.73	0.65	0.34	1.07	0.40	1.00	0.61	0.26	0.47	0.69	0.34
Avail Cap(c_a), veh/h	715	1831	895	425	1526	475	757	1026	458	379	637	1031
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.89	0.89	0.89	0.89	0.89	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.7	24.7	5.3	31.5	35.0	27.9	39.0	30.6	27.2	44.9	40.1	9.4
Incr Delay (d2), s/veh	5.2	3.1	3.8	0.2	43.6	2.3	31.9	2.7	1.4	0.6	2.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	7.5	7.8	4.2	3.3	20.1	4.5	13.7	7.7	2.7	1.5	5.0	1.6
LnGrp Delay(d),s/veh	35.9	27.8	9.2	31.6	78.6	30.2	70.9	33.2	28.6	45.5	42.3	9.5
LnGrp LOS	D	C	A	C	F	C	E	C	C	D	D	A
Approach Vol, veh/h		2054			1970			1495			804	
Approach Delay, s/veh		25.6			70.4			51.9			29.5	
Approach LOS		C			E			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.0	29.8	25.0	18.2	23.8	33.0	11.2	32.0
Change Period (Y+Rc), s	3.5	5.0	3.5	5.0	3.5	5.0	5.0	* 5
Max Green Setting (Gmax), s	11.5	34.0	21.5	16.0	17.5	28.0	10.5	* 27
Max Q Clear Time (g_c+I1), s	19.7	18.1	23.9	11.9	16.9	32.0	5.1	17.1
Green Ext Time (p_c), s	0.5	6.7	0.0	1.2	0.1	0.0	1.5	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	46.3
HCM 2010 LOS	D

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	45	493	127	91	1070	161	235	272	41	144	380	68
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1881	1881	1881	1881	1881	1881	1900
Adj Flow Rate, veh/h	57	624	161	115	1354	204	297	344	52	182	481	86
Adj No. of Lanes	1	2	0	1	2	1	2	2	1	2	2	0
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	82	1339	345	152	1839	822	378	873	375	266	643	114
Arrive On Green	0.05	0.48	0.46	0.08	0.51	0.51	0.11	0.24	0.23	0.08	0.21	0.20
Sat Flow, veh/h	1792	2815	725	1792	3574	1597	3476	3574	1599	3476	3034	540
Grp Volume(v), veh/h	57	396	389	115	1354	204	297	344	52	182	282	285
Grp Sat Flow(s),veh/h/ln	1792	1787	1753	1792	1787	1597	1738	1787	1599	1738	1787	1786
Q Serve(g_s), s	3.2	15.1	15.3	6.3	29.9	7.2	8.4	8.1	2.6	5.2	14.9	15.1
Cycle Q Clear(g_c), s	3.2	15.1	15.3	6.3	29.9	7.2	8.4	8.1	2.6	5.2	14.9	15.1
Prop In Lane	1.00		0.41	1.00		1.00	1.00		1.00	1.00		0.30
Lane Grp Cap(c), veh/h	82	850	834	152	1839	822	378	873	375	266	379	379
V/C Ratio(X)	0.69	0.47	0.47	0.76	0.74	0.25	0.79	0.39	0.14	0.68	0.75	0.75
Avail Cap(c_a), veh/h	213	850	834	213	1839	822	413	1026	443	413	513	513
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)	0.98	0.98	0.98	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.5	17.8	18.2	45.2	19.2	13.6	43.9	31.9	30.6	45.5	37.2	37.4
Incr Delay (d2), s/veh	3.8	1.8	1.8	3.7	1.8	0.5	7.8	0.2	0.1	1.2	3.3	3.5
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(-26165%),veh/ln	1.7	7.8	7.8	3.3	15.1	3.3	4.5	4.0	1.2	2.5	7.7	7.8
LnGrp Delay(d),s/veh	51.2	19.6	20.0	48.9	21.0	14.1	51.7	32.1	30.7	46.6	40.5	41.0
LnGrp LOS	D	B	B	D	C	B	D	C	C	D	D	D
Approach Vol, veh/h		842			1673			693			749	
Approach Delay, s/veh		21.9			22.0			40.4			42.2	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.5	51.1	14.0	24.4	7.6	55.0	10.7	27.7
Change Period (Y+Rc), s	3.5	6.0	3.5	5.0	3.5	6.0	3.5	5.0
Max Green Setting (Gmax), s	11.5	33.0	11.5	27.0	11.5	33.0	11.5	27.0
Max Q Clear Time (g_c+I1), s	9.3	17.3	10.4	17.1	5.2	31.9	7.2	10.1
Green Ext Time (p_c), s	0.0	12.4	0.1	2.3	0.0	1.0	0.1	2.8

Intersection Summary	
HCM 2010 Ctrl Delay	29.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	39	556	100	25	980	17	381	123	18	31	122	123
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	48	678	122	30	1195	21	465	150	22	38	149	150
Adj No. of Lanes	1	2	0	1	2	0	2	2	0	1	2	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	57	1654	297	42	1932	34	521	744	107	58	215	190
Arrive On Green	0.03	0.55	0.53	0.02	0.54	0.52	0.15	0.24	0.24	0.03	0.12	0.12
Sat Flow, veh/h	1792	3028	544	1792	3594	63	3476	3127	450	1792	1787	1575
Grp Volume(v), veh/h	48	400	400	30	594	622	465	85	87	38	149	150
Grp Sat Flow(s),veh/h/ln	1792	1787	1785	1792	1787	1870	1738	1787	1789	1792	1787	1575
Q Serve(g_s), s	2.7	13.1	13.2	1.7	23.0	23.1	13.1	3.8	3.9	2.1	8.0	9.3
Cycle Q Clear(g_c), s	2.7	13.1	13.2	1.7	23.0	23.1	13.1	3.8	3.9	2.1	8.0	9.3
Prop In Lane	1.00		0.30	1.00		0.03	1.00		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	57	976	975	42	961	1005	521	425	426	58	215	190
V/C Ratio(X)	0.84	0.41	0.41	0.72	0.62	0.62	0.89	0.20	0.21	0.65	0.69	0.79
Avail Cap(c_a), veh/h	179	976	975	215	961	1005	521	500	501	179	411	362
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)	0.86	0.86	0.86	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.2	13.3	13.5	48.5	16.0	16.0	41.7	30.5	30.5	47.8	42.2	42.7
Incr Delay (d2), s/veh	10.2	1.1	1.1	7.6	2.7	2.6	16.9	0.1	0.1	4.5	1.5	2.8
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(-26165%),veh/ln	1.5	6.7	6.8	0.9	11.9	12.5	7.5	1.9	2.0	1.1	4.0	4.2
LnGrp Delay(d),s/veh	58.3	14.4	14.6	56.1	18.7	18.6	58.6	30.6	30.6	52.3	43.7	45.5
LnGrp LOS	E	B	B	E	B	B	E	C	C	D	D	D
Approach Vol, veh/h		848			1246			637			337	
Approach Delay, s/veh		17.0			19.6			51.1			45.5	
Approach LOS		B			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.3	58.6	19.0	16.1	7.2	57.8	7.3	27.8
Change Period (Y+Rc), s	3.5	6.0	4.0	4.0	3.5	6.0	4.0	4.0
Max Green Setting (Gmax), s	12.5	32.0	15.0	23.0	10.5	34.0	10.0	28.0
Max Q Clear Time (g_c+I1), s	3.7	15.2	15.1	11.3	4.7	25.1	4.1	5.9
Green Ext Time (p_c), s	0.0	15.8	0.0	0.8	0.0	8.6	0.0	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	28.2
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	22	340	158	58	440	32	224	234	74	41	227	22
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1900	1881	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	24	366	170	62	473	34	241	252	80	44	244	24
Adj No. of Lanes	2	1	1	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	67	958	815	71	1793	129	305	539	167	161	396	39
Arrive On Green	0.02	0.51	0.51	0.04	0.53	0.51	0.17	0.20	0.20	0.09	0.12	0.12
Sat Flow, veh/h	3476	1881	1599	1792	3383	243	1792	2687	834	1792	3291	321
Grp Volume(v), veh/h	24	366	170	62	249	258	241	166	166	44	132	136
Grp Sat Flow(s),veh/h/ln	1738	1881	1599	1792	1787	1838	1792	1787	1734	1792	1787	1825
Q Serve(g_s), s	0.7	11.8	5.8	3.4	7.6	7.7	12.9	8.2	8.5	2.3	7.0	7.1
Cycle Q Clear(g_c), s	0.7	11.8	5.8	3.4	7.6	7.7	12.9	8.2	8.5	2.3	7.0	7.1
Prop In Lane	1.00		1.00	1.00		0.13	1.00		0.48	1.00		0.18
Lane Grp Cap(c), veh/h	67	958	815	71	947	974	305	359	348	161	215	220
V/C Ratio(X)	0.36	0.38	0.21	0.87	0.26	0.26	0.79	0.46	0.48	0.27	0.61	0.62
Avail Cap(c_a), veh/h	174	958	815	125	947	974	358	359	348	537	536	547
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)	0.92	0.92	0.92	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.4	14.9	13.5	47.8	12.8	12.9	39.8	35.2	35.3	42.4	41.8	41.8
Incr Delay (d2), s/veh	1.1	1.1	0.5	11.3	0.7	0.7	8.1	0.3	0.4	0.3	1.1	1.1
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(-26165%),veh/ln	0.8	6.4	2.7	1.9	3.9	4.1	7.0	4.1	4.1	1.2	3.5	3.7
LnGrp Delay(d),s/veh	49.5	16.0	14.0	59.1	13.5	13.6	47.9	35.6	35.7	42.8	42.8	42.9
LnGrp LOS	D	B	B	E	B	B	D	D	D	D	D	D
Approach Vol, veh/h		560			569			573			312	
Approach Delay, s/veh		16.8			18.5			40.8			42.8	
Approach LOS		B			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	55.0	21.0	16.0	5.9	57.0	13.0	24.1
Change Period (Y+Rc), s	3.5	6.0	6.0	6.0	3.5	6.0	6.0	6.0
Max Green Setting (Gmax), s	7.5	25.0	18.0	28.0	5.5	27.0	28.0	18.0
Max Q Clear Time (g_c+I1), s	5.4	13.8	14.9	9.1	2.7	9.7	4.3	10.5
Green Ext Time (p_c), s	0.0	7.0	0.1	0.9	0.0	9.6	0.0	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	28.2
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	12	417	532	1	1	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	13	453	578	1	1	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	579	0	-	0	1058	579
Stage 1	-	-	-	-	579	-
Stage 2	-	-	-	-	479	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1000	-	-	-	250	517
Stage 1	-	-	-	-	562	-
Stage 2	-	-	-	-	625	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1000	-	-	-	247	517
Mov Cap-2 Maneuver	-	-	-	-	381	-
Stage 1	-	-	-	-	562	-
Stage 2	-	-	-	-	617	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	12.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1000	-	-	-	381	517
HCM Lane V/C Ratio	0.013	-	-	-	0.003	0.013
HCM Control Delay (s)	8.6	-	-	-	14.5	12.1
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	-	0	0

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	21	361	19	26	488	3	11	6	8	2	8	35
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	150	-	150	150	-	150	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	22	384	20	28	519	3	12	6	9	2	9	37

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	519	0	0	384	0	0	1026	1003	384	1010	1003	519
Stage 1	-	-	-	-	-	-	429	429	-	574	574	-
Stage 2	-	-	-	-	-	-	597	574	-	436	429	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	1052	-	-	1180	-	-	214	243	666	219	243	559
Stage 1	-	-	-	-	-	-	606	586	-	506	505	-
Stage 2	-	-	-	-	-	-	491	505	-	601	586	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1052	-	-	1180	-	-	188	232	666	205	232	559
Mov Cap-2 Maneuver	-	-	-	-	-	-	188	232	-	205	232	-
Stage 1	-	-	-	-	-	-	593	574	-	495	493	-
Stage 2	-	-	-	-	-	-	440	493	-	574	574	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.4	20.5	14.6
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	259	1052	-	-	1180	-	-	421
HCM Lane V/C Ratio	0.103	0.021	-	-	0.023	-	-	0.114
HCM Control Delay (s)	20.5	8.5	-	-	8.1	-	-	14.6
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0.1	-	-	0.4

Intersection	
Intersection Delay, s/veh	25.2
Intersection LOS	D

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	0	0	6	0	39	0	4	0	6	326	19	0	8	575	4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	0	0	6	0	42	0	4	0	6	351	20	0	9	618	4
Number of Lanes	0	0	1	0	0	0	1	0	0	1	1	0	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	1	1
HCM Control Delay	9.2	10.9	17.6	31
HCM LOS	A	B	C	D

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	91%	100%	0%	0%
Vol Thru, %	0%	94%	0%	0%	0%	100%	0%
Vol Right, %	0%	6%	100%	9%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	6	345	6	43	8	575	4
LT Vol	6	0	0	39	8	0	0
Through Vol	0	326	0	0	0	575	0
RT Vol	0	19	6	4	0	0	4
Lane Flow Rate	6	371	6	46	9	618	4
Geometry Grp	8	8	7	7	7	7	7
Degree of Util (X)	0.012	0.611	0.012	0.095	0.013	0.866	0.005
Departure Headway (Hd)	6.47	5.93	6.457	7.417	5.544	5.042	4.338
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	548	605	557	486	642	711	818
Service Time	4.265	3.724	4.161	5.119	3.312	2.808	2.104
HCM Lane V/C Ratio	0.011	0.613	0.011	0.095	0.014	0.869	0.005
HCM Control Delay	9.3	17.7	9.2	10.9	8.4	31.5	7.1
HCM Lane LOS	A	C	A	B	A	D	A
HCM 95th-tile Q	0	4.1	0	0.3	0	10.3	0

Intersection	
Intersection Delay, s/veh	15.6
Intersection LOS	C

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Vol, veh/h	0	269	54	0	34	358	0	216	41
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	289	58	0	37	385	0	232	44
Number of Lanes	0	1	1	0	1	1	0	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay	13.6	18	14.6
HCM LOS	B	C	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2
Vol Left, %	100%	0%	0%	0%	100%	0%
Vol Thru, %	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	216	41	269	54	34	358
LT Vol	216	0	0	0	34	0
Through Vol	0	0	269	0	0	358
RT Vol	0	41	0	54	0	0
Lane Flow Rate	232	44	289	58	37	385
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.457	0.072	0.49	0.087	0.066	0.64
Departure Headway (Hd)	7.09	5.873	6.093	5.381	6.489	5.982
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	509	608	590	664	552	604
Service Time	4.842	3.624	3.841	3.129	4.234	3.726
HCM Lane V/C Ratio	0.456	0.072	0.49	0.087	0.067	0.637
HCM Control Delay	15.7	9.1	14.6	8.6	9.7	18.8
HCM Lane LOS	C	A	B	A	A	C
HCM 95th-tile Q	2.4	0.2	2.7	0.3	0.2	4.6

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	3	73	1	38	3	231	43	12	307	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	0	3	78	1	41	3	248	46	13	330	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	655	657	331	636	635	272	331	0	0	295	0	0
Stage 1	356	356	-	278	278	-	-	-	-	-	-	-
Stage 2	299	301	-	358	357	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	381	386	713	392	397	769	1234	-	-	1272	-	-
Stage 1	664	631	-	731	682	-	-	-	-	-	-	-
Stage 2	712	667	-	662	630	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	356	380	713	385	391	769	1234	-	-	1272	-	-
Mov Cap-2 Maneuver	356	380	-	385	391	-	-	-	-	-	-	-
Stage 1	662	623	-	729	680	-	-	-	-	-	-	-
Stage 2	671	665	-	650	622	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.1	15.5	0.1	0.3
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1234	-	-	713	464	1272	-	-
HCM Lane V/C Ratio	0.003	-	-	0.005	0.26	0.01	-	-
HCM Control Delay (s)	7.9	0	-	10.1	15.5	7.9	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	1	0	-	-

Intersection	
Intersection Delay, s/veh	11.8
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	64	0	38	0	1	0	0	0	30	345	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	69	0	41	0	1	0	0	0	32	371	0
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	9.7	9.2	12.7
HCM LOS	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	8%	63%	100%	0%
Vol Thru, %	92%	0%	0%	78%
Vol Right, %	0%	37%	0%	22%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	375	102	1	345
LT Vol	30	64	1	0
Through Vol	345	0	0	268
RT Vol	0	38	0	77
Lane Flow Rate	403	110	1	371
Geometry Grp	1	1	1	1
Degree of Util (X)	0.52	0.168	0.002	0.467
Departure Headway (Hd)	4.639	5.504	6.139	4.535
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	774	646	586	790
Service Time	2.69	3.588	4.139	2.587
HCM Lane V/C Ratio	0.521	0.17	0.002	0.47
HCM Control Delay	12.7	9.7	9.2	11.5
HCM Lane LOS	B	A	A	B
HCM 95th-tile Q	3	0.6	0	2.5

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	0	268	77
Peak Hour Factor	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1
Mvmt Flow	0	0	288	83
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	11.5
HCM LOS	B

Lane

Intersection	
Intersection Delay, s/veh	10.3
Intersection LOS	B

Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Vol, veh/h	0	73	38	0	56	230	0	213	91
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	78	41	0	60	247	0	229	98
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	9.4	10.7	10.3
HCM LOS	A	B	B

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	20%	66%	0%
Vol Thru, %	80%	0%	70%
Vol Right, %	0%	34%	30%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	286	111	304
LT Vol	56	73	0
Through Vol	230	0	213
RT Vol	0	38	91
Lane Flow Rate	308	119	327
Geometry Grp	1	1	1
Degree of Util (X)	0.395	0.173	0.399
Departure Headway (Hd)	4.619	5.225	4.397
Convergence, Y/N	Yes	Yes	Yes
Cap	778	683	817
Service Time	2.659	3.285	2.435
HCM Lane V/C Ratio	0.396	0.174	0.4
HCM Control Delay	10.7	9.4	10.3
HCM Lane LOS	B	A	B
HCM 95th-tile Q	1.9	0.6	1.9

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	29	18	18	0	10	62	20	0	29	108	10	0	11	148	46
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	31	19	19	0	11	67	22	0	31	116	11	0	12	159	49
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.4	8.5	8.8	9
HCM LOS	A	A	A	A

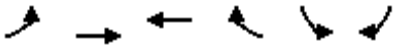
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	20%	45%	11%	5%
Vol Thru, %	73%	28%	67%	72%
Vol Right, %	7%	28%	22%	22%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	147	65	92	205
LT Vol	29	29	10	11
Through Vol	108	18	62	148
RT Vol	10	18	20	46
Lane Flow Rate	158	70	99	220
Geometry Grp	1	1	1	1
Degree of Util (X)	0.201	0.094	0.131	0.268
Departure Headway (Hd)	4.567	4.821	4.751	4.382
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	786	741	753	818
Service Time	2.601	2.864	2.792	2.414
HCM Lane V/C Ratio	0.201	0.094	0.131	0.269
HCM Control Delay	8.8	8.4	8.5	9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.7	0.3	0.4	1.1

Intersection	
Intersection Delay, s/veh	10.4
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	2	1	6	0	221	2	18	0	4	120	148	0	23	140	4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	2	1	6	0	238	2	19	0	4	129	159	0	25	151	4
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.2	11.3	10.2	9.7
HCM LOS	A	B	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	22%	92%	14%
Vol Thru, %	44%	11%	1%	84%
Vol Right, %	54%	67%	7%	2%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	272	9	241	167
LT Vol	4	2	221	23
Through Vol	120	1	2	140
RT Vol	148	6	18	4
Lane Flow Rate	292	10	259	180
Geometry Grp	1	1	1	1
Degree of Util (X)	0.368	0.014	0.37	0.248
Departure Headway (Hd)	4.527	5.141	5.14	4.977
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	790	700	694	715
Service Time	2.589	3.141	3.218	3.05
HCM Lane V/C Ratio	0.37	0.014	0.373	0.252
HCM Control Delay	10.2	8.2	11.3	9.7
HCM Lane LOS	B	A	B	A
HCM 95th-tile Q	1.7	0	1.7	1



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	224	224	366	10	11	388
Number	5	2	6	16	7	14
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
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	241	241	394	11	12	417
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	295	963	494	420	526	469
Arrive On Green	0.16	0.51	0.26	0.26	0.29	0.29
Sat Flow, veh/h	1792	1881	1881	1599	1792	1599
Grp Volume(v), veh/h	241	241	394	11	12	417
Grp Sat Flow(s),veh/h/ln	1792	1881	1881	1599	1792	1599
Q Serve(g_s), s	7.5	4.2	11.3	0.3	0.3	14.5
Cycle Q Clear(g_c), s	7.5	4.2	11.3	0.3	0.3	14.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	295	963	494	420	526	469
V/C Ratio(X)	0.82	0.25	0.80	0.03	0.02	0.89
Avail Cap(c_a), veh/h	620	1263	1263	1074	864	771
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	23.4	7.9	20.0	15.9	14.6	19.6
Incr Delay (d2), s/veh	2.1	0.1	1.1	0.0	0.0	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	2.9	2.2	6.1	0.1	0.1	12.0
LnGrp Delay(d),s/veh	25.5	8.0	21.1	15.9	14.6	24.0
LnGrp LOS	C	A	C	B	B	C
Approach Vol, veh/h		482	405		429	
Approach Delay, s/veh		16.8	20.9		23.7	
Approach LOS		B	C		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		35.7		22.3	14.5	21.3		
Change Period (Y+Rc), s		6.0		5.3	4.9	6.0		
Max Green Setting (Gmax), s		39.0		28.0	20.1	39.0		
Max Q Clear Time (g_c+I1), s		6.2		16.5	9.5	13.3		
Green Ext Time (p_c), s		2.0		0.6	0.2	1.9		

Intersection Summary	
HCM 2010 Ctrl Delay	20.3
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	17	39	55	284	367	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	18	42	60	309	399	25

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	839	411	424	0	-	0
Stage 1	411	-	-	-	-	-
Stage 2	428	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	337	643	1141	-	-	-
Stage 1	671	-	-	-	-	-
Stage 2	660	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	316	643	1141	-	-	-
Mov Cap-2 Maneuver	316	-	-	-	-	-
Stage 1	671	-	-	-	-	-
Stage 2	618	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.4	1.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1141	-	489	-	-
HCM Lane V/C Ratio	0.052	-	0.124	-	-
HCM Control Delay (s)	8.3	0	13.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.4	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	318	4	0	270	7	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	342	4	0	290	8	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	346	0	634	344
Stage 1	-	-	-	-	344	-
Stage 2	-	-	-	-	290	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1219	-	445	701
Stage 1	-	-	-	-	720	-
Stage 2	-	-	-	-	762	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1219	-	445	701
Mov Cap-2 Maneuver	-	-	-	-	445	-
Stage 1	-	-	-	-	720	-
Stage 2	-	-	-	-	762	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	445	-	-	1219	-
HCM Lane V/C Ratio	0.017	-	-	-	-
HCM Control Delay (s)	13.2	-	-	0	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	0	0	7	22	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	0	0	8	24	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	8	0	-	0	4	4
Stage 1	-	-	-	-	4	-
Stage 2	-	-	-	-	0	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1619	-	-	-	1021	1082
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1619	-	-	-	1021	1082
Mov Cap-2 Maneuver	-	-	-	-	1021	-
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1619	-	-	-	1021
HCM Lane V/C Ratio	-	-	-	-	0.023
HCM Control Delay (s)	0	-	-	-	8.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	22	7	7	22	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	24	8	8	24	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	15	0	-	0	35	11
Stage 1	-	-	-	-	11	-
Stage 2	-	-	-	-	24	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1609	-	-	-	980	1073
Stage 1	-	-	-	-	1015	-
Stage 2	-	-	-	-	1001	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1609	-	-	-	980	1073
Mov Cap-2 Maneuver	-	-	-	-	980	-
Stage 1	-	-	-	-	1015	-
Stage 2	-	-	-	-	1001	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1609	-	-	-	980
HCM Lane V/C Ratio	-	-	-	-	0.024
HCM Control Delay (s)	0	-	-	-	8.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	37	12	20	35	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	40	13	22	38	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	34	0	-	0	64	24
Stage 1	-	-	-	-	24	-
Stage 2	-	-	-	-	40	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1584	-	-	-	944	1055
Stage 1	-	-	-	-	1001	-
Stage 2	-	-	-	-	985	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1584	-	-	-	944	1055
Mov Cap-2 Maneuver	-	-	-	-	944	-
Stage 1	-	-	-	-	1001	-
Stage 2	-	-	-	-	985	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1584	-	-	-	944
HCM Lane V/C Ratio	-	-	-	-	0.04
HCM Control Delay (s)	0	-	-	-	9
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

MOVEMENT SUMMARY

Site: Ex+A+P AM 2020 - #9 Rancho California Rd & Anza Rd

Ex+A+P AM - #9 Rancho California Rd & Anza Rd
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
SouthEast: Anza Rd											
5	L2	57	1.0	0.215	12.2	LOS B	1.2	31.2	0.56	0.67	36.0
2	T1	9	1.0	0.215	5.9	LOS A	1.2	31.2	0.56	0.67	35.8
12	R2	118	1.0	0.215	6.1	LOS A	1.2	31.2	0.56	0.67	34.7
Approach		184	1.0	0.215	8.0	LOS A	1.2	31.2	0.56	0.67	35.1
NorthEast: Rancho California Rd											
3	L2	176	1.0	0.661	10.9	LOS B	7.6	192.4	0.51	0.49	36.2
8	T1	561	1.0	0.661	4.7	LOS A	7.6	192.4	0.51	0.49	36.0
18	R2	1	1.0	0.661	4.8	LOS A	7.6	192.4	0.51	0.49	34.9
Approach		739	1.0	0.661	6.2	LOS A	7.6	192.4	0.51	0.49	36.0
NorthWest: Anza Rd											
1	L2	2	1.0	0.030	15.7	LOS C	0.2	4.3	0.75	0.69	34.8
6	T1	10	1.0	0.030	9.4	LOS A	0.2	4.3	0.75	0.69	34.6
16	R2	4	1.0	0.030	9.5	LOS A	0.2	4.3	0.75	0.69	33.6
Approach		16	1.0	0.030	10.3	LOS B	0.2	4.3	0.75	0.69	34.4
SouthWest: Rancho California Rd											
7	L2	4	1.0	0.373	11.5	LOS B	2.5	63.3	0.51	0.53	36.8
4	T1	326	1.0	0.373	5.2	LOS A	2.5	63.3	0.51	0.53	36.6
14	R2	38	1.0	0.373	5.3	LOS A	2.5	63.3	0.51	0.53	35.4
Approach		368	1.0	0.373	5.3	LOS A	2.5	63.3	0.51	0.53	36.5
All Vehicles		1306	1.0	0.661	6.2	LOS A	7.6	192.4	0.52	0.53	36.0

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

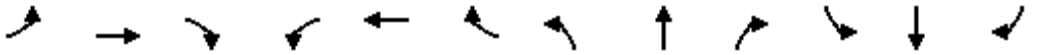
MOVEMENT SUMMARY

Site: 12 [Ex+A+P AM 2020 - #12 Rancho California Rd & Buck Rd]

Ex+A+P AM - #12 Rancho California Rd & Buck Rd
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: Buck Rd											
1a	L1	11	1.0	0.029	10.8	LOS B	0.1	3.5	0.51	0.63	34.6
2	T1	1	1.0	0.029	6.7	LOS A	0.1	3.5	0.51	0.63	35.0
16b	R3	11	1.0	0.029	6.7	LOS A	0.1	3.5	0.51	0.63	33.7
Approach		23	1.0	0.029	8.6	LOS A	0.1	3.5	0.51	0.63	34.2
NorthEast: Rancho California Rd											
1bx	L3	18	1.0	0.394	11.0	LOS B	2.8	69.8	0.23	0.42	37.0
6x	T1	410	1.0	0.394	4.6	LOS A	2.8	69.8	0.23	0.42	36.6
16ax	R1	9	1.0	0.394	4.2	LOS A	2.8	69.8	0.23	0.42	36.3
Approach		437	1.0	0.394	4.9	LOS A	2.8	69.8	0.23	0.42	36.6
West: Buck Rd											
5a	L1	20	1.0	0.107	11.4	LOS B	0.5	13.6	0.57	0.69	34.7
6	T1	1	1.0	0.107	7.3	LOS A	0.5	13.6	0.57	0.69	35.0
12b	R3	58	1.0	0.107	7.4	LOS A	0.5	13.6	0.57	0.69	33.8
Approach		80	1.0	0.107	8.4	LOS A	0.5	13.6	0.57	0.69	34.0
SouthWest: Rancho California Rd											
5bx	L3	27	1.0	0.350	11.0	LOS B	2.4	60.4	0.23	0.43	36.9
2x	T1	333	1.0	0.350	4.6	LOS A	2.4	60.4	0.23	0.43	36.6
12ax	R1	26	1.0	0.350	4.2	LOS A	2.4	60.4	0.23	0.43	36.3
Approach		386	1.0	0.350	5.0	LOS A	2.4	60.4	0.23	0.43	36.6
All Vehicles		925	1.0	0.394	5.3	LOS A	2.8	69.8	0.27	0.46	36.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1686	307	461	912	0	0	0	0	1155	0	376
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	1775	323	485	960	0				1339	0	264
Adj No. of Lanes	0	3	1	2	3	0				2	0	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	2440	677	562	3190	0				1129	0	503
Arrive On Green	0.00	0.44	0.43	0.22	0.83	0.00				0.32	0.00	0.32
Sat Flow, veh/h	0	5588	1583	3442	5253	0				3548	0	1582
Grp Volume(v), veh/h	0	1775	323	485	960	0				1339	0	264
Grp Sat Flow(s),veh/h/ln	0	1863	1583	1721	1695	0				1774	0	1582
Q Serve(g_s), s	0.0	28.8	16.1	14.9	4.6	0.0				35.0	0.0	15.0
Cycle Q Clear(g_c), s	0.0	28.8	16.1	14.9	4.6	0.0				35.0	0.0	15.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2440	677	562	3190	0				1129	0	503
V/C Ratio(X)	0.00	0.73	0.48	0.86	0.30	0.00				1.19	0.00	0.52
Avail Cap(c_a), veh/h	0	2440	677	720	3190	0				1129	0	503
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.82	0.82	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	25.6	22.6	41.9	3.8	0.0				37.5	0.0	30.7
Incr Delay (d2), s/veh	0.0	1.9	2.4	6.0	0.2	0.0				92.9	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.0	15.2	7.5	7.5	2.2	0.0				31.7	0.0	6.7
LnGrp Delay(d),s/veh	0.0	27.5	25.0	47.9	4.0	0.0				130.4	0.0	31.7
LnGrp LOS		C	C	D	A					F		C
Approach Vol, veh/h		2098			1445						1603	
Approach Delay, s/veh		27.1			18.7						114.1	
Approach LOS		C			B						F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	21.0	51.0		38.0		72.0		
Change Period (Y+Rc), s	3.5	5.0		5.0		5.0		
Max Green Setting (Gmax), s	22.5	41.0		33.0		67.0		
Max Q Clear Time (g_c+I1), s	16.9	30.8		37.0		6.6		
Green Ext Time (p_c), s	0.5	9.5		0.0		45.8		

Intersection Summary	
HCM 2010 Ctrl Delay	51.9
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	2260	0	0	1093	1113	228	0	1078	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	0	1863	0	0	1863	1863	1863	1863	1863			
Adj Flow Rate, veh/h	0	2379	0	0	1151	1172	160	0	1221			
Adj No. of Lanes	0	3	0	0	3	2	1	0	2			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	0	2	0	0	2	2	2	2	2			
Cap, veh/h	0	2610	0	0	2868	1625	767	0	1369			
Arrive On Green	0.00	0.51	0.00	0.00	0.86	0.86	0.43	0.00	0.43			
Sat Flow, veh/h	0	5421	0	0	5588	3167	1774	0	3167			
Grp Volume(v), veh/h	0	2379	0	0	1151	1172	160	0	1221			
Grp Sat Flow(s),veh/h/ln	0	1695	0	0	1863	1583	1774	0	1583			
Q Serve(g_s), s	0.0	47.1	0.0	0.0	4.9	15.2	6.2	0.0	39.2			
Cycle Q Clear(g_c), s	0.0	47.1	0.0	0.0	4.9	15.2	6.2	0.0	39.2			
Prop In Lane	0.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2610	0	0	2868	1625	767	0	1369			
V/C Ratio(X)	0.00	0.91	0.00	0.00	0.40	0.72	0.21	0.00	0.89			
Avail Cap(c_a), veh/h	0	2610	0	0	2868	1625	790	0	1411			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.67	1.67	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.17	0.00	0.00	0.45	0.45	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	24.5	0.0	0.0	4.2	4.9	19.5	0.0	28.9			
Incr Delay (d2), s/veh	0.0	1.2	0.0	0.0	0.2	1.3	0.2	0.0	7.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(-26165%),veh/ln	0.0	22.1	0.0	0.0	2.5	6.5	3.1	0.0	18.6			
LnGrp Delay(d),s/veh	0.0	25.7	0.0	0.0	4.4	6.2	19.7	0.0	36.5			
LnGrp LOS		C			A	A	B		D			
Approach Vol, veh/h		2379			2323			1381				
Approach Delay, s/veh		25.7			5.3			34.5				
Approach LOS		C			A			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		59.4				59.4		50.6
Change Period (Y+Rc), s		5.0				5.0		5.0
Max Green Setting (Gmax), s		53.0				53.0		47.0
Max Q Clear Time (g_c+I1), s		49.1				17.2		41.2
Green Ext Time (p_c), s		3.9				35.2		4.4

Intersection Summary	
HCM 2010 Ctrl Delay	19.9
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	785	1753	781	215	1101	243	514	653	136	186	744	644
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	872	1948	868	239	1223	270	571	726	151	207	827	716
Adj No. of Lanes	2	3	1	1	3	1	2	2	1	2	2	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	845	1942	842	226	1341	417	563	965	431	375	772	1247
Arrive On Green	0.49	0.76	0.74	0.13	0.26	0.26	0.16	0.27	0.27	0.11	0.22	0.20
Sat Flow, veh/h	3442	5085	1583	1774	5085	1582	3442	3539	1580	3442	3539	2754
Grp Volume(v), veh/h	872	1948	868	239	1223	270	571	726	151	207	827	716
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1774	1695	1582	1721	1770	1580	1721	1770	1377
Q Serve(g_s), s	27.0	42.0	40.5	14.0	25.6	16.7	18.0	20.6	8.5	6.3	24.0	0.0
Cycle Q Clear(g_c), s	27.0	42.0	40.5	14.0	25.6	16.7	18.0	20.6	8.5	6.3	24.0	0.0
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	845	1942	842	226	1341	417	563	965	431	375	772	1247
V/C Ratio(X)	1.03	1.00	1.03	1.06	0.91	0.65	1.01	0.75	0.35	0.55	1.07	0.57
Avail Cap(c_a), veh/h	845	1942	842	226	1341	417	563	965	431	375	772	1247
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)	0.30	0.30	0.30	0.89	0.89	0.89	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.0	13.0	10.3	48.0	39.3	36.0	46.0	36.6	32.2	46.4	43.0	22.4
Incr Delay (d2), s/veh	25.9	11.9	25.5	72.8	9.9	6.8	41.4	5.4	2.2	1.0	53.1	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(-26165%),veh/ln	15.7	20.5	24.1	11.4	13.2	8.1	11.8	10.8	4.0	3.0	17.4	8.1
LnGrp Delay(d),s/veh	53.9	24.9	35.8	120.8	49.2	42.7	87.4	42.0	34.4	47.5	96.1	22.9
LnGrp LOS	F	F	F	F	D	D	F	D	C	D	F	C
Approach Vol, veh/h		3688			1732			1448			1750	
Approach Delay, s/veh		34.4			58.1			59.1			60.4	
Approach LOS		C			E			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	45.0	21.0	27.0	30.0	32.0	15.0	33.0
Change Period (Y+Rc), s	3.5	5.0	3.5	5.0	3.5	5.0	3.5	5.0
Max Green Setting (Gmax), s	13.5	40.0	17.5	22.0	26.5	27.0	11.5	28.0
Max Q Clear Time (g_c+I1), s	16.0	44.0	20.0	26.0	29.0	27.6	8.3	22.6
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.6

Intersection Summary		
HCM 2010 Ctrl Delay		48.6
HCM 2010 LOS		D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	183	1452	250	85	899	251	312	732	131	524	699	48
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1881	1881	1881	1881	1881	1881	1900
Adj Flow Rate, veh/h	191	1512	260	89	936	261	325	762	136	546	728	50
Adj No. of Lanes	1	2	0	1	2	1	2	2	1	2	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	556	1870	315	121	1235	551	379	889	383	537	1045	72
Arrive On Green	0.31	0.61	0.59	0.07	0.35	0.35	0.11	0.25	0.24	0.15	0.31	0.30
Sat Flow, veh/h	1792	3061	516	1792	3574	1596	3476	3574	1599	3476	3394	233
Grp Volume(v), veh/h	191	871	901	89	936	261	325	762	136	546	383	395
Grp Sat Flow(s),veh/h/ln	1792	1787	1790	1792	1787	1596	1738	1787	1599	1738	1787	1840
Q Serve(g_s), s	9.1	40.6	43.6	5.4	25.5	14.1	10.1	22.4	8.3	17.0	20.8	20.8
Cycle Q Clear(g_c), s	9.1	40.6	43.6	5.4	25.5	14.1	10.1	22.4	8.3	17.0	20.8	20.8
Prop In Lane	1.00		0.29	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	556	1092	1094	121	1235	551	379	889	383	537	550	566
V/C Ratio(X)	0.34	0.80	0.82	0.74	0.76	0.47	0.86	0.86	0.35	1.02	0.70	0.70
Avail Cap(c_a), veh/h	556	1092	1094	195	1235	551	379	942	407	537	552	569
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)	0.98	0.98	0.98	0.77	0.77	0.77	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.3	16.2	17.0	50.3	31.9	28.2	48.2	39.5	40.0	46.5	33.5	33.6
Incr Delay (d2), s/veh	0.1	5.9	6.9	2.5	3.4	2.2	16.7	7.4	0.4	43.0	3.6	3.5
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(-26165%),veh/ln	4.5	21.6	23.4	2.7	13.2	6.5	5.8	11.9	3.7	11.3	10.8	11.1
LnGrp Delay(d),s/veh	29.4	22.2	24.0	52.9	35.3	30.4	64.8	46.9	40.4	89.5	37.1	37.1
LnGrp LOS	C	C	C	D	D	C	E	D	D	F	D	D
Approach Vol, veh/h		1963			1286			1223			1324	
Approach Delay, s/veh		23.7			35.5			50.9			58.7	
Approach LOS		C			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.4	70.3	15.0	36.9	39.7	41.0	21.5	30.4
Change Period (Y+Rc), s	3.5	6.0	3.5	5.0	6.0	* 6	5.0	* 5
Max Green Setting (Gmax), s	11.5	37.0	11.5	32.0	13.5	* 35	16.5	* 27
Max Q Clear Time (g_c+I1), s	7.4	45.6	12.1	22.8	11.1	27.5	19.0	24.4
Green Ext Time (p_c), s	0.0	0.0	0.0	2.6	0.2	4.3	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	40.1
HCM 2010 LOS	D

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	180	1546	279	45	746	24	279	358	68	54	185	81
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	198	1699	307	49	820	26	307	393	75	59	203	89
Adj No. of Lanes	1	2	0	1	2	0	2	2	0	1	2	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	223	1772	311	58	1735	55	371	545	103	76	288	122
Arrive On Green	0.12	0.58	0.56	0.03	0.49	0.47	0.11	0.18	0.18	0.04	0.12	0.12
Sat Flow, veh/h	1792	3041	533	1792	3536	112	3476	2985	564	1792	2439	1029
Grp Volume(v), veh/h	198	977	1029	49	414	432	307	234	234	59	147	145
Grp Sat Flow(s),veh/h/ln	1792	1787	1787	1792	1787	1861	1738	1787	1761	1792	1787	1681
Q Serve(g_s), s	10.9	50.4	56.6	2.7	15.4	15.4	8.7	12.3	12.5	3.3	7.9	8.4
Cycle Q Clear(g_c), s	10.9	50.4	56.6	2.7	15.4	15.4	8.7	12.3	12.5	3.3	7.9	8.4
Prop In Lane	1.00		0.30	1.00		0.06	1.00		0.32	1.00		0.61
Lane Grp Cap(c), veh/h	223	1041	1041	58	877	913	371	326	322	76	211	199
V/C Ratio(X)	0.89	0.94	0.99	0.85	0.47	0.47	0.83	0.72	0.73	0.78	0.69	0.73
Avail Cap(c_a), veh/h	269	1041	1041	143	877	913	382	483	476	107	393	370
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	0.89	0.89	0.89	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.1	19.2	20.8	48.2	16.9	16.9	43.8	38.4	38.5	47.4	42.3	42.6
Incr Delay (d2), s/veh	2.9	2.2	6.0	10.9	1.6	1.6	12.7	1.1	1.2	12.4	1.5	2.0
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(-26165%),veh/ln	5.6	25.3	29.5	1.5	8.0	8.3	4.8	6.1	6.2	1.9	4.0	4.0
LnGrp Delay(d),s/veh	46.0	21.4	26.9	59.1	18.5	18.5	56.4	39.5	39.7	59.8	43.9	44.5
LnGrp LOS	D	C	C	E	B	B	E	D	D	E	D	D
Approach Vol, veh/h		2204			895			775			351	
Approach Delay, s/veh		26.2			20.7			46.3			46.8	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.2	62.3	14.7	15.8	16.4	53.1	8.2	22.3
Change Period (Y+Rc), s	3.5	6.0	4.0	4.0	3.5	6.0	4.0	4.0
Max Green Setting (Gmax), s	3.5	41.0	11.0	22.0	15.5	34.0	6.0	27.0
Max Q Clear Time (g_c+I1), s	4.7	58.6	10.7	10.4	12.9	17.4	5.3	14.5
Green Ext Time (p_c), s	0.0	0.0	0.0	1.3	0.1	16.5	0.0	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	30.4
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	66	533	321	105	526	47	194	379	127	44	286	31
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1900	1881	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	69	555	334	109	548	49	202	395	132	46	298	32
Adj No. of Lanes	2	1	1	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	130	923	785	124	1735	155	266	508	168	160	434	46
Arrive On Green	0.04	0.49	0.49	0.07	0.52	0.50	0.15	0.19	0.19	0.09	0.13	0.13
Sat Flow, veh/h	3476	1881	1599	1792	3320	296	1792	2642	873	1792	3260	347
Grp Volume(v), veh/h	69	555	334	109	294	303	202	266	261	46	162	168
Grp Sat Flow(s),veh/h/ln	1738	1881	1599	1792	1787	1829	1792	1787	1727	1792	1787	1820
Q Serve(g_s), s	2.0	21.5	13.6	6.1	9.5	9.6	10.9	14.2	14.5	2.4	8.7	8.9
Cycle Q Clear(g_c), s	2.0	21.5	13.6	6.1	9.5	9.6	10.9	14.2	14.5	2.4	8.7	8.9
Prop In Lane	1.00		1.00	1.00		0.16	1.00		0.51	1.00		0.19
Lane Grp Cap(c), veh/h	130	923	785	124	934	956	266	344	332	160	238	242
V/C Ratio(X)	0.53	0.60	0.43	0.88	0.32	0.32	0.76	0.77	0.79	0.29	0.68	0.69
Avail Cap(c_a), veh/h	172	923	785	124	934	956	284	344	332	532	531	541
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.7	18.6	16.6	46.6	13.8	13.9	41.3	38.7	38.8	43.0	41.7	41.8
Incr Delay (d2), s/veh	0.1	0.3	0.2	44.6	0.9	0.9	9.3	9.5	10.9	0.4	1.3	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	1.0	11.2	6.0	4.6	4.9	5.0	6.1	7.9	7.9	1.2	4.4	4.6
LnGrp Delay(d),s/veh	47.9	18.8	16.7	91.2	14.7	14.8	50.6	48.2	49.7	43.4	43.0	43.1
LnGrp LOS	D	B	B	F	B	B	D	D	D	D	D	D
Approach Vol, veh/h		958			706			729			376	
Approach Delay, s/veh		20.2			26.5			49.4			43.1	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	53.6	19.0	17.5	7.8	56.8	13.0	23.4
Change Period (Y+Rc), s	3.5	6.0	6.0	6.0	3.5	6.0	6.0	6.0
Max Green Setting (Gmax), s	7.5	30.0	14.0	28.0	5.5	32.0	28.0	14.0
Max Q Clear Time (g_c+I1), s	10.1	23.5	12.9	10.9	4.0	11.6	4.4	16.5
Green Ext Time (p_c), s	0.0	5.5	0.0	0.6	0.0	14.8	0.1	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	32.6
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	2	687	629	0	3	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	2	747	684	0	3	23

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	684	0	-	0	1435	684
Stage 1	-	-	-	-	684	-
Stage 2	-	-	-	-	751	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	914	-	-	-	148	450
Stage 1	-	-	-	-	503	-
Stage 2	-	-	-	-	468	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	914	-	-	-	148	450
Mov Cap-2 Maneuver	-	-	-	-	288	-
Stage 1	-	-	-	-	503	-
Stage 2	-	-	-	-	467	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	13.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	914	-	-	-	288	450
HCM Lane V/C Ratio	0.002	-	-	-	0.011	0.051
HCM Control Delay (s)	8.9	-	-	-	17.6	13.4
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0	-	-	-	0	0.2

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	26	629	26	13	568	4	18	1	9	7	2	30
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	150	-	150	150	-	150	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	26	635	26	13	574	4	18	1	9	7	2	30

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	574	0	0	635	0	0	1304	1288	635	1293	1288	574
Stage 1	-	-	-	-	-	-	688	688	-	600	600	-
Stage 2	-	-	-	-	-	-	616	600	-	693	688	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	1004	-	-	953	-	-	138	165	480	140	165	520
Stage 1	-	-	-	-	-	-	438	448	-	489	491	-
Stage 2	-	-	-	-	-	-	480	491	-	435	448	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1004	-	-	953	-	-	125	159	480	133	159	520
Mov Cap-2 Maneuver	-	-	-	-	-	-	125	159	-	133	159	-
Stage 1	-	-	-	-	-	-	427	436	-	476	484	-
Stage 2	-	-	-	-	-	-	444	484	-	415	436	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.2	31.1	18
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	166	1004	-	-	953	-	-	317
HCM Lane V/C Ratio	0.17	0.026	-	-	0.014	-	-	0.124
HCM Control Delay (s)	31.1	8.7	-	-	8.8	-	-	18
HCM Lane LOS	D	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0	-	-	0.4

Intersection	
Intersection Delay, s/veh	44.1
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	0	0	22	0	29	0	3	0	8	660	108	0	2	492	4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	0	0	24	0	31	0	3	0	9	710	116	0	2	529	4
Number of Lanes	0	0	1	0	0	0	1	0	0	1	1	0	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	1	1
HCM Control Delay	9.8	11.1	59.4	23.9
HCM LOS	A	B	F	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	91%	100%	0%	0%
Vol Thru, %	0%	86%	0%	0%	0%	100%	0%
Vol Right, %	0%	14%	100%	9%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	8	768	22	32	2	492	4
LT Vol	8	0	0	29	2	0	0
Through Vol	0	660	0	0	0	492	0
RT Vol	0	108	22	3	0	0	4
Lane Flow Rate	9	826	24	34	2	529	4
Geometry Grp	8	8	7	7	7	7	7
Degree of Util (X)	0.015	1	0.044	0.074	0.003	0.778	0.005
Departure Headway (Hd)	6.367	5.767	6.705	7.734	5.793	5.294	4.596
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	558	628	532	463	618	682	778
Service Time	4.15	3.549	4.464	5.489	3.526	3.027	2.328
HCM Lane V/C Ratio	0.016	1.315	0.045	0.073	0.003	0.776	0.005
HCM Control Delay	9.2	59.9	9.8	11.1	8.5	24.1	7.4
HCM Lane LOS	A	F	A	B	A	C	A
HCM 95th-tile Q	0	15.2	0.1	0.2	0	7.5	0

Intersection	
Intersection Delay, s/veh	18.9
Intersection LOS	C

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Vol, veh/h	0	470	187	0	28	331	0	121	43
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	505	201	0	30	356	0	130	46
Number of Lanes	0	1	1	0	1	1	0	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay	21.8	16.6	12.3
HCM LOS	C	C	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2
Vol Left, %	100%	0%	0%	0%	100%	0%
Vol Thru, %	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	121	43	470	187	28	331
LT Vol	121	0	0	0	28	0
Through Vol	0	0	470	0	0	331
RT Vol	0	43	0	187	0	0
Lane Flow Rate	130	46	505	201	30	356
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.274	0.082	0.794	0.276	0.054	0.593
Departure Headway (Hd)	7.583	6.361	5.658	4.95	6.506	5.998
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	474	563	642	726	550	601
Service Time	5.329	4.106	3.392	2.684	4.247	3.74
HCM Lane V/C Ratio	0.274	0.082	0.787	0.277	0.055	0.592
HCM Control Delay	13.2	9.7	26.7	9.6	9.6	17.2
HCM Lane LOS	B	A	D	A	A	C
HCM 95th-tile Q	1.1	0.3	7.8	1.1	0.2	3.9

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	15	15	68	49	14	19	62	338	58	19	237	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	16	16	73	53	15	20	67	363	62	20	255	15

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	849	862	262	876	839	395	270	0	0	426	0	0
Stage 1	303	303	-	528	528	-	-	-	-	-	-	-
Stage 2	546	559	-	348	311	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	282	294	779	270	303	656	1299	-	-	1139	-	-
Stage 1	708	665	-	536	529	-	-	-	-	-	-	-
Stage 2	524	513	-	670	660	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	244	268	779	218	276	656	1299	-	-	1139	-	-
Mov Cap-2 Maneuver	244	268	-	218	276	-	-	-	-	-	-	-
Stage 1	660	651	-	500	493	-	-	-	-	-	-	-
Stage 2	459	478	-	580	646	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.6	24.8	1.1	0.6
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1299	-	-	479	269	1139	-	-
HCM Lane V/C Ratio	0.051	-	-	0.22	0.328	0.018	-	-
HCM Control Delay (s)	7.9	0	-	14.6	24.8	8.2	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.8	1.4	0.1	-	-

Intersection	
Intersection Delay, s/veh	25.7
Intersection LOS	D

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	128	0	35	0	0	0	0	0	45	373	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	138	0	38	0	0	0	0	0	48	401	0
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	12.6	0	18.8
HCM LOS	B	-	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	79%	0%	0%
Vol Thru, %	89%	0%	100%	75%
Vol Right, %	0%	21%	0%	25%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	418	163	0	593
LT Vol	45	128	0	0
Through Vol	373	0	0	446
RT Vol	0	35	0	147
Lane Flow Rate	449	175	0	638
Geometry Grp	1	1	1	1
Degree of Util (X)	0.672	0.318	0	0.886
Departure Headway (Hd)	5.379	6.523	7.128	5.003
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	670	550	0	721
Service Time	3.424	4.582	5.223	3.044
HCM Lane V/C Ratio	0.67	0.318	0	0.885
HCM Control Delay	18.8	12.6	10.2	34.1
HCM Lane LOS	C	B	N	D
HCM 95th-tile Q	5.2	1.4	0	11.1

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	0	446	147
Peak Hour Factor	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1
Mvmt Flow	0	0	480	158
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	34.1
HCM LOS	D

Lane

Intersection	
Intersection Delay, s/veh	17.3
Intersection LOS	C

Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Vol, veh/h	0	149	24	0	57	347	0	302	185
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	160	26	0	61	373	0	325	199
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	12.3	16.9	19.3
HCM LOS	B	C	C

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	14%	86%	0%
Vol Thru, %	86%	0%	62%
Vol Right, %	0%	14%	38%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	404	173	487
LT Vol	57	149	0
Through Vol	347	0	302
RT Vol	0	24	185
Lane Flow Rate	434	186	524
Geometry Grp	1	1	1
Degree of Util (X)	0.633	0.325	0.714
Departure Headway (Hd)	5.243	6.281	4.906
Convergence, Y/N	Yes	Yes	Yes
Cap	686	571	738
Service Time	3.28	4.33	2.942
HCM Lane V/C Ratio	0.633	0.326	0.71
HCM Control Delay	16.9	12.3	19.3
HCM Lane LOS	C	B	C
HCM 95th-tile Q	4.5	1.4	6.1

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	26	52	22	0	8	53	10	0	32	234	6	0	20	149	17
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	28	56	24	0	9	57	11	0	34	252	6	0	22	160	18
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.1	8.9	10.5	9.4
HCM LOS	A	A	B	A

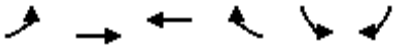
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	12%	26%	11%	11%
Vol Thru, %	86%	52%	75%	80%
Vol Right, %	2%	22%	14%	9%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	272	100	71	186
LT Vol	32	26	8	20
Through Vol	234	52	53	149
RT Vol	6	22	10	17
Lane Flow Rate	292	108	76	200
Geometry Grp	1	1	1	1
Degree of Util (X)	0.376	0.152	0.109	0.261
Departure Headway (Hd)	4.627	5.08	5.146	4.689
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	775	701	691	762
Service Time	2.679	3.148	3.218	2.745
HCM Lane V/C Ratio	0.377	0.154	0.11	0.262
HCM Control Delay	10.5	9.1	8.9	9.4
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	1.8	0.5	0.4	1

Intersection	
Intersection Delay, s/veh	12.9
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	9	0	11	0	148	1	45	0	4	229	226	0	19	164	4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	10	0	12	0	159	1	48	0	4	246	243	0	20	176	4
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9	11.3	14.8	10.4
HCM LOS	A	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	45%	76%	10%
Vol Thru, %	50%	0%	1%	88%
Vol Right, %	49%	55%	23%	2%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	459	20	194	187
LT Vol	4	9	148	19
Through Vol	229	0	1	164
RT Vol	226	11	45	4
Lane Flow Rate	494	22	209	201
Geometry Grp	1	1	1	1
Degree of Util (X)	0.619	0.034	0.326	0.292
Departure Headway (Hd)	4.513	5.77	5.63	5.226
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	790	622	642	690
Service Time	2.611	3.791	3.639	3.242
HCM Lane V/C Ratio	0.625	0.035	0.326	0.291
HCM Control Delay	14.8	9	11.3	10.4
HCM Lane LOS	B	A	B	B
HCM 95th-tile Q	4.4	0.1	1.4	1.2



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	437	477	284	19	13	315
Number	5	2	6	16	7	14
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
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	470	513	305	20	14	339
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	514	1099	418	355	433	386
Arrive On Green	0.29	0.58	0.22	0.22	0.24	0.24
Sat Flow, veh/h	1792	1881	1881	1599	1792	1599
Grp Volume(v), veh/h	470	513	305	20	14	339
Grp Sat Flow(s),veh/h/ln	1792	1881	1881	1599	1792	1599
Q Serve(g_s), s	16.5	10.1	9.8	0.6	0.4	13.2
Cycle Q Clear(g_c), s	16.5	10.1	9.8	0.6	0.4	13.2
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	514	1099	418	355	433	386
V/C Ratio(X)	0.91	0.47	0.73	0.06	0.03	0.88
Avail Cap(c_a), veh/h	555	1130	1130	960	773	690
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	22.4	7.7	23.5	19.9	18.8	23.7
Incr Delay (d2), s/veh	18.3	0.1	0.9	0.0	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	10.7	5.2	5.2	0.3	0.2	0.3
LnGrp Delay(d),s/veh	40.7	7.8	24.4	19.9	18.8	26.2
LnGrp LOS	D	A	C	B	B	C
Approach Vol, veh/h		983	325		353	
Approach Delay, s/veh		23.5	24.1		25.9	
Approach LOS		C	C		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		43.9		21.0	23.5	20.4		
Change Period (Y+Rc), s		6.0		5.3	4.9	6.0		
Max Green Setting (Gmax), s		39.0		28.0	20.1	39.0		
Max Q Clear Time (g_c+I1), s		12.1		15.2	18.5	11.8		
Green Ext Time (p_c), s		2.6		0.5	0.2	2.6		

Intersection Summary	
HCM 2010 Ctrl Delay	24.2
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	17	40	39	461	307	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	18	43	42	501	334	18

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	929	343	352	0	-	0
Stage 1	343	-	-	-	-	-
Stage 2	586	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	298	702	1212	-	-	-
Stage 1	721	-	-	-	-	-
Stage 2	558	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	284	702	1212	-	-	-
Mov Cap-2 Maneuver	284	-	-	-	-	-
Stage 1	721	-	-	-	-	-
Stage 2	531	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.4	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1212	-	488	-	-
HCM Lane V/C Ratio	0.035	-	0.127	-	-
HCM Control Delay (s)	8.1	0	13.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	0	5	4	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	5	4	0	0	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	9	0	0	0	-	0
Stage 1	0	-	-	-	-	-
Stage 2	9	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	1014	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	1017	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	1014	-	-	-	-	-
Mov Cap-2 Maneuver	1014	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	1017	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	-	-	-
HCM Lane LOS	-	-	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-	-

Intersection	
Int Delay, s/veh	-

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	0	0	0	0	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	0	0	0	0	-	0
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	-	-	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	14	0	0	24	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	15	0	0	26	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	15	0	41	15
Stage 1	-	-	-	-	15	-
Stage 2	-	-	-	-	26	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1609	-	973	1067
Stage 1	-	-	-	-	1010	-
Stage 2	-	-	-	-	999	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1609	-	973	1067
Mov Cap-2 Maneuver	-	-	-	-	973	-
Stage 1	-	-	-	-	1010	-
Stage 2	-	-	-	-	999	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1609	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	24	41	27	23	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	26	44	29	25	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	73	0	-	0	85	59
Stage 1	-	-	-	-	59	-
Stage 2	-	-	-	-	26	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1533	-	-	-	919	1010
Stage 1	-	-	-	-	966	-
Stage 2	-	-	-	-	999	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1533	-	-	-	919	1010
Mov Cap-2 Maneuver	-	-	-	-	919	-
Stage 1	-	-	-	-	966	-
Stage 2	-	-	-	-	999	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1533	-	-	-	919
HCM Lane V/C Ratio	-	-	-	-	0.027
HCM Control Delay (s)	0	-	-	-	9
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

MOVEMENT SUMMARY

Site: Ex+A+P PM 2020 - #9 Rancho California Rd & Anza Rd

Ex+A+P PM - #9 Rancho California Rd & Anza Rd
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
SouthEast: Anza Rd											
5	L2	73	1.0	0.494	16.8	LOS C	3.9	97.8	0.86	0.96	33.8
2	T1	14	1.0	0.494	10.5	LOS B	3.9	97.8	0.86	0.96	33.7
12	R2	219	1.0	0.494	10.7	LOS B	3.9	97.8	0.86	0.96	32.7
Approach		306	1.0	0.494	12.1	LOS B	3.9	97.8	0.86	0.96	33.0
NorthEast: Rancho California Rd											
3	L2	149	1.0	0.633	11.5	LOS B	6.4	162.0	0.61	0.56	35.9
8	T1	505	1.0	0.633	5.2	LOS A	6.4	162.0	0.61	0.56	35.7
18	R2	10	1.0	0.633	5.3	LOS A	6.4	162.0	0.61	0.56	34.6
Approach		665	1.0	0.633	6.6	LOS A	6.4	162.0	0.61	0.56	35.7
NorthWest: Anza Rd											
1	L2	12	1.0	0.078	15.2	LOS C	0.4	11.3	0.74	0.75	34.6
6	T1	12	1.0	0.078	8.9	LOS A	0.4	11.3	0.74	0.75	34.5
16	R2	20	1.0	0.078	9.0	LOS A	0.4	11.3	0.74	0.75	33.4
Approach		44	1.0	0.078	10.6	LOS B	0.4	11.3	0.74	0.75	34.0
SouthWest: Rancho California Rd											
7	L2	37	1.0	0.669	12.4	LOS B	6.8	172.5	0.71	0.62	35.9
4	T1	568	1.0	0.669	6.1	LOS A	6.8	172.5	0.71	0.62	35.8
14	R2	63	1.0	0.669	6.2	LOS A	6.8	172.5	0.71	0.62	34.6
Approach		668	1.0	0.669	6.4	LOS A	6.8	172.5	0.71	0.62	35.7
All Vehicles		1683	1.0	0.669	7.7	LOS A	6.8	172.5	0.70	0.66	35.1

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 12 [Ex+A+P PM 2020 - #12 Rancho California Rd & Buck Rd]

Ex+A+P PM - #12 Rancho California Rd & Buck Rd
Roundabout

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: Buck Rd											
1a	L1	11	1.0	0.035	12.4	LOS B	0.2	4.3	0.62	0.69	33.8
2	T1	1	1.0	0.035	8.3	LOS A	0.2	4.3	0.62	0.69	34.1
16b	R3	11	1.0	0.035	8.3	LOS A	0.2	4.3	0.62	0.69	33.0
Approach		23	1.0	0.035	10.3	LOS B	0.2	4.3	0.62	0.69	33.4
NorthEast: Rancho California Rd											
1bx	L3	12	1.0	0.347	11.2	LOS B	2.3	57.0	0.29	0.44	36.8
6x	T1	340	1.0	0.347	4.8	LOS A	2.3	57.0	0.29	0.44	36.5
16ax	R1	20	1.0	0.347	4.5	LOS A	2.3	57.0	0.29	0.44	36.2
Approach		372	1.0	0.347	5.0	LOS A	2.3	57.0	0.29	0.44	36.5
West: Buck Rd											
5a	L1	13	1.0	0.066	10.7	LOS B	0.3	8.3	0.52	0.64	35.1
6	T1	1	1.0	0.066	6.6	LOS A	0.3	8.3	0.52	0.64	35.5
12b	R3	39	1.0	0.066	6.7	LOS A	0.3	8.3	0.52	0.64	34.2
Approach		53	1.0	0.066	7.7	LOS A	0.3	8.3	0.52	0.64	34.4
SouthWest: Rancho California Rd											
5bx	L3	54	1.0	0.515	10.9	LOS B	4.6	115.0	0.23	0.43	36.8
2x	T1	514	1.0	0.515	4.5	LOS A	4.6	115.0	0.23	0.43	36.5
12ax	R1	11	1.0	0.515	4.2	LOS A	4.6	115.0	0.23	0.43	36.2
Approach		578	1.0	0.515	5.1	LOS A	4.6	115.0	0.23	0.43	36.5
All Vehicles		1026	1.0	0.515	5.3	LOS A	4.6	115.0	0.27	0.45	36.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1010	318	543	756	0	0	0	0	1228	0	430
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	1041	328	560	779	0				1404	0	295
Adj No. of Lanes	0	3	1	2	3	0				2	0	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	2326	645	632	3190	0				1129	0	503
Arrive On Green	0.00	0.42	0.41	0.24	0.83	0.00				0.32	0.00	0.32
Sat Flow, veh/h	0	5588	1583	3442	5253	0				3548	0	1582
Grp Volume(v), veh/h	0	1041	328	560	779	0				1404	0	295
Grp Sat Flow(s),veh/h/ln	0	1863	1583	1721	1695	0				1774	0	1582
Q Serve(g_s), s	0.0	14.7	17.0	17.3	3.5	0.0				35.0	0.0	17.2
Cycle Q Clear(g_c), s	0.0	14.7	17.0	17.3	3.5	0.0				35.0	0.0	17.2
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2326	645	632	3190	0				1129	0	503
V/C Ratio(X)	0.00	0.45	0.51	0.89	0.24	0.00				1.24	0.00	0.59
Avail Cap(c_a), veh/h	0	2326	645	720	3190	0				1129	0	503
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.89	0.89	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	23.0	24.4	40.4	3.7	0.0				37.5	0.0	31.4
Incr Delay (d2), s/veh	0.0	0.6	2.9	9.7	0.2	0.0				117.3	0.0	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
%ile BackOfQ(-26165%),veh/ln	0.0	7.7	8.0	9.0	1.7	0.0				35.5	0.0	7.7
LnGrp Delay(d),s/veh	0.0	23.7	27.2	50.2	3.9	0.0				154.8	0.0	33.2
LnGrp LOS		C	C	D	A					F		C
Approach Vol, veh/h		1369			1339						1699	
Approach Delay, s/veh		24.5			23.2						133.6	
Approach LOS		C			C						F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	23.2	48.8		38.0		72.0		
Change Period (Y+Rc), s	3.5	5.0		5.0		5.0		
Max Green Setting (Gmax), s	22.5	41.0		33.0		67.0		
Max Q Clear Time (g_c+I1), s	19.3	19.0		37.0		5.5		
Green Ext Time (p_c), s	0.5	15.4		0.0		27.8		

Intersection Summary	
HCM 2010 Ctrl Delay	66.2
HCM 2010 LOS	E

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1860	0	0	1048	1127	184	0	690	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	0	1863	0	0	1863	1863	1863	1863	1863			
Adj Flow Rate, veh/h	0	1918	0	0	1080	1162	127	0	779			
Adj No. of Lanes	0	3	0	0	3	2	1	0	2			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	0	2	0	0	2	2	2	2	2			
Cap, veh/h	0	3165	0	0	3478	1971	573	0	1023			
Arrive On Green	0.00	0.62	0.00	0.00	1.00	1.00	0.32	0.00	0.32			
Sat Flow, veh/h	0	5421	0	0	5588	3167	1774	0	3167			
Grp Volume(v), veh/h	0	1918	0	0	1080	1162	127	0	779			
Grp Sat Flow(s),veh/h/ln	0	1695	0	0	1863	1583	1774	0	1583			
Q Serve(g_s), s	0.0	25.2	0.0	0.0	0.0	0.0	5.7	0.0	24.3			
Cycle Q Clear(g_c), s	0.0	25.2	0.0	0.0	0.0	0.0	5.7	0.0	24.3			
Prop In Lane	0.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	3165	0	0	3478	1971	573	0	1023			
V/C Ratio(X)	0.00	0.61	0.00	0.00	0.31	0.59	0.22	0.00	0.76			
Avail Cap(c_a), veh/h	0	3165	0	0	3478	1971	790	0	1411			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.67	1.67	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.49	0.00	0.00	0.50	0.50	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	12.6	0.0	0.0	0.0	0.0	27.1	0.0	33.4			
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.0	0.1	0.7	0.3	0.0	2.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(-26165%),veh/ln	0.0	11.8	0.0	0.0	0.0	0.2	2.9	0.0	10.9			
LnGrp Delay(d),s/veh	0.0	13.0	0.0	0.0	0.1	0.7	27.4	0.0	35.5			
LnGrp LOS		B			A	A	C		D			
Approach Vol, veh/h		1918			2242			906				
Approach Delay, s/veh		13.0			0.4			34.4				
Approach LOS		B			A			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		71.5				71.5		38.5
Change Period (Y+Rc), s		5.0				5.0		5.0
Max Green Setting (Gmax), s		53.0				53.0		47.0
Max Q Clear Time (g_c+I1), s		27.2				2.0		26.3
Green Ext Time (p_c), s		25.1				48.4		7.3

Intersection Summary	
HCM 2010 Ctrl Delay	11.3
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	488	1357	691	213	1298	250	362	451	116	180	734	567
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	503	1399	712	220	1338	258	373	465	120	186	757	585
Adj No. of Lanes	2	3	1	1	3	1	2	2	1	2	2	2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	947	1694	718	365	1341	417	461	965	431	273	772	1330
Arrive On Green	0.55	0.67	0.64	0.21	0.26	0.26	0.13	0.27	0.27	0.08	0.22	0.20
Sat Flow, veh/h	3442	5085	1583	1774	5085	1582	3442	3539	1580	3442	3539	2754
Grp Volume(v), veh/h	503	1399	712	220	1338	258	373	465	120	186	757	585
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1774	1695	1582	1721	1770	1580	1721	1770	1377
Q Serve(g_s), s	10.2	22.5	31.2	12.4	28.9	15.8	11.6	12.1	6.6	5.8	23.4	0.0
Cycle Q Clear(g_c), s	10.2	22.5	31.2	12.4	28.9	15.8	11.6	12.1	6.6	5.8	23.4	0.0
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	947	1694	718	365	1341	417	461	965	431	273	772	1330
V/C Ratio(X)	0.53	0.83	0.99	0.60	1.00	0.62	0.81	0.48	0.28	0.68	0.98	0.44
Avail Cap(c_a), veh/h	947	1942	795	365	1341	417	563	965	431	375	772	1330
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)	0.73	0.73	0.73	0.89	0.89	0.89	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.2	16.0	12.3	39.6	40.5	35.6	46.3	33.5	31.5	49.3	42.8	18.8
Incr Delay (d2), s/veh	0.2	3.5	26.9	1.8	22.7	6.0	5.9	1.7	1.6	1.1	27.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	4.8	10.7	15.4	6.2	16.3	7.6	5.9	6.1	3.1	2.8	14.4	5.8
LnGrp Delay(d),s/veh	20.4	19.5	39.2	41.4	63.2	41.7	52.2	35.2	33.1	50.4	70.2	19.0
LnGrp LOS	C	B	D	D	E	D	D	D	C	D	E	B
Approach Vol, veh/h		2614			1816			958			1528	
Approach Delay, s/veh		25.1			57.5			41.5			48.2	
Approach LOS		C			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.8	41.5	17.7	27.0	33.3	32.0	11.7	33.0
Change Period (Y+Rc), s	3.5	5.0	3.5	5.0	3.5	5.0	3.5	5.0
Max Green Setting (Gmax), s	13.5	40.0	17.5	22.0	26.5	27.0	11.5	28.0
Max Q Clear Time (g_c+I1), s	14.4	33.2	13.6	25.4	12.2	30.9	7.8	14.1
Green Ext Time (p_c), s	0.0	5.1	0.5	0.0	1.2	0.0	0.5	1.7

Intersection Summary	
HCM 2010 Ctrl Delay	41.0
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	91	1112	178	73	1047	203	208	451	71	316	549	85
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1881	1881	1881	1881	1881	1881	1900
Adj Flow Rate, veh/h	93	1135	182	74	1068	207	212	460	72	322	560	87
Adj No. of Lanes	1	2	0	1	2	1	2	2	1	2	2	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	382	1618	259	103	1235	551	289	613	260	432	702	109
Arrive On Green	0.21	0.52	0.51	0.06	0.35	0.35	0.08	0.17	0.16	0.12	0.23	0.22
Sat Flow, veh/h	1792	3087	493	1792	3574	1596	3476	3574	1599	3476	3103	481
Grp Volume(v), veh/h	93	655	662	74	1068	207	212	460	72	322	322	325
Grp Sat Flow(s),veh/h/ln	1792	1787	1794	1792	1787	1596	1738	1787	1599	1738	1787	1796
Q Serve(g_s), s	4.7	30.3	30.7	4.5	30.7	10.7	6.6	13.5	3.6	9.8	18.7	18.8
Cycle Q Clear(g_c), s	4.7	30.3	30.7	4.5	30.7	10.7	6.6	13.5	3.6	9.8	18.7	18.8
Prop In Lane	1.00		0.28	1.00		1.00	1.00		1.00	1.00		0.27
Lane Grp Cap(c), veh/h	382	937	940	103	1235	551	289	613	260	432	404	406
V/C Ratio(X)	0.24	0.70	0.70	0.72	0.86	0.38	0.73	0.75	0.28	0.75	0.80	0.80
Avail Cap(c_a), veh/h	382	937	940	195	1235	551	379	942	407	537	552	555
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)	0.98	0.98	0.98	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.9	19.7	20.0	51.0	33.6	27.1	49.2	43.3	28.1	46.5	40.2	40.3
Incr Delay (d2), s/veh	0.1	4.2	4.3	3.0	7.2	1.7	3.2	1.4	0.4	3.1	4.9	5.1
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(-26165%),veh/ln	2.4	16.0	16.2	2.3	16.4	5.0	3.3	6.8	1.6	4.9	9.8	9.9
LnGrp Delay(d),s/veh	36.0	23.9	24.3	54.0	40.8	28.8	52.4	44.7	28.5	49.6	45.1	45.4
LnGrp LOS	D	C	C	D	D	C	D	D	C	D	D	D
Approach Vol, veh/h		1410			1349			744			969	
Approach Delay, s/veh		24.9			39.7			45.3			46.7	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	60.7	12.1	27.9	29.0	41.0	18.2	21.9
Change Period (Y+Rc), s	3.5	6.0	3.5	5.0	6.0	* 6	5.0	* 5
Max Green Setting (Gmax), s	11.5	37.0	11.5	32.0	13.5	* 35	16.5	* 27
Max Q Clear Time (g_c+I1), s	6.5	32.7	8.6	20.8	6.7	32.7	11.8	15.5
Green Ext Time (p_c), s	0.0	2.9	0.1	2.1	0.3	1.6	1.3	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	37.5
HCM 2010 LOS	D

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	85	1132	169	48	861	26	222	189	39	45	97	99
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.96	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	90	1204	180	51	916	28	236	201	41	48	103	105
Adj No. of Lanes	1	2	0	1	2	0	2	2	0	1	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	107	1956	291	59	2123	65	305	424	84	66	166	146
Arrive On Green	0.06	0.63	0.61	0.03	0.60	0.58	0.09	0.14	0.14	0.04	0.09	0.09
Sat Flow, veh/h	1792	3121	465	1792	3541	108	3476	2950	587	1792	1787	1568
Grp Volume(v), veh/h	90	687	697	51	462	482	236	120	122	48	103	105
Grp Sat Flow(s),veh/h/ln	1792	1787	1799	1792	1787	1862	1738	1787	1750	1792	1787	1568
Q Serve(g_s), s	5.0	23.3	23.8	2.8	14.0	14.0	6.6	6.2	6.4	2.7	5.5	6.5
Cycle Q Clear(g_c), s	5.0	23.3	23.8	2.8	14.0	14.0	6.6	6.2	6.4	2.7	5.5	6.5
Prop In Lane	1.00		0.26	1.00		0.06	1.00		0.34	1.00		1.00
Lane Grp Cap(c), veh/h	107	1120	1127	59	1072	1117	305	257	252	66	166	146
V/C Ratio(X)	0.84	0.61	0.62	0.87	0.43	0.43	0.77	0.47	0.49	0.73	0.62	0.72
Avail Cap(c_a), veh/h	269	1120	1127	143	1072	1117	382	483	473	107	393	345
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)	0.62	0.62	0.62	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.6	11.3	11.6	48.1	10.8	10.8	44.6	39.3	39.4	47.7	43.7	44.1
Incr Delay (d2), s/veh	4.2	1.6	1.6	11.5	1.1	1.1	5.7	0.5	0.5	5.6	1.4	2.5
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(-26165%),veh/ln	2.6	11.9	12.2	1.6	7.1	7.4	3.4	3.1	3.2	1.4	2.8	2.9
LnGrp Delay(d),s/veh	50.7	12.9	13.2	59.6	11.9	11.9	50.3	39.8	39.9	53.3	45.1	46.6
LnGrp LOS	D	B	B	E	B	B	D	D	D	D	D	D
Approach Vol, veh/h		1474			995			478			256	
Approach Delay, s/veh		15.3			14.3			45.0			47.2	
Approach LOS		B			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.3	66.7	12.8	13.3	10.0	64.0	7.7	18.4
Change Period (Y+Rc), s	3.5	6.0	4.0	4.0	3.5	6.0	4.0	4.0
Max Green Setting (Gmax), s	3.5	41.0	11.0	22.0	15.5	34.0	6.0	27.0
Max Q Clear Time (g_c+I1), s	4.8	25.8	8.6	8.5	7.0	16.0	4.7	8.4
Green Ext Time (p_c), s	0.0	14.8	0.1	0.8	0.1	17.4	0.0	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	22.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	18	837	291	133	775	59	196	204	178	75	203	20
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1900	1881	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	19	872	303	139	807	61	204	212	185	78	211	21
Adj No. of Lanes	2	1	1	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	54	992	843	106	1924	145	267	308	255	160	347	34
Arrive On Green	0.02	0.53	0.53	0.06	0.57	0.55	0.15	0.17	0.17	0.09	0.11	0.11
Sat Flow, veh/h	3476	1881	1599	1792	3369	255	1792	1856	1541	1792	3287	324
Grp Volume(v), veh/h	19	872	303	139	428	440	204	204	193	78	114	118
Grp Sat Flow(s),veh/h/ln	1738	1881	1599	1792	1787	1836	1792	1787	1609	1792	1787	1824
Q Serve(g_s), s	0.5	41.3	11.2	6.0	13.6	13.7	11.0	10.8	11.5	4.2	6.1	6.3
Cycle Q Clear(g_c), s	0.5	41.3	11.2	6.0	13.6	13.7	11.0	10.8	11.5	4.2	6.1	6.3
Prop In Lane	1.00		1.00	1.00		0.14	1.00		0.96	1.00		0.18
Lane Grp Cap(c), veh/h	54	992	843	106	1021	1049	267	296	267	160	189	193
V/C Ratio(X)	0.35	0.88	0.36	1.31	0.42	0.42	0.76	0.69	0.72	0.49	0.60	0.61
Avail Cap(c_a), veh/h	172	992	843	106	1021	1049	284	296	267	532	531	542
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)	0.72	0.72	0.72	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.2	21.0	13.9	47.5	12.2	12.3	41.2	39.7	39.9	43.8	43.1	43.2
Incr Delay (d2), s/veh	1.0	8.2	0.9	190.0	1.3	1.2	9.6	5.5	8.2	0.9	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.3	23.6	5.1	8.6	7.0	7.2	6.2	5.8	5.7	2.1	3.1	3.2
LnGrp Delay(d),s/veh	50.3	29.2	14.8	237.5	13.5	13.5	50.8	45.1	48.1	44.7	44.3	44.4
LnGrp LOS	D	C	B	F	B	B	D	D	D	D	D	D
Approach Vol, veh/h		1194			1007			601			310	
Approach Delay, s/veh		25.9			44.4			48.0			44.4	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	57.3	19.1	14.7	5.6	61.7	13.0	20.7
Change Period (Y+Rc), s	3.5	6.0	6.0	6.0	3.5	6.0	6.0	6.0
Max Green Setting (Gmax), s	6.5	31.0	14.0	28.0	5.5	32.0	28.0	14.0
Max Q Clear Time (g_c+I1), s	8.0	43.3	13.0	8.3	2.5	15.7	6.2	13.5
Green Ext Time (p_c), s	0.0	0.0	0.0	0.4	0.0	14.8	0.1	0.1

Intersection Summary	
HCM 2010 Ctrl Delay	38.0
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	38	1034	1015	31	37	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	40	1088	1068	33	39	31

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1101	0	-	0	2253	1085
Stage 1	-	-	-	-	1085	-
Stage 2	-	-	-	-	1168	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	638	-	-	-	46	265
Stage 1	-	-	-	-	326	-
Stage 2	-	-	-	-	297	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	638	-	-	-	43	265
Mov Cap-2 Maneuver	-	-	-	-	156	-
Stage 1	-	-	-	-	326	-
Stage 2	-	-	-	-	278	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	28.9
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	638	-	-	-	156	265
HCM Lane V/C Ratio	0.063	-	-	-	0.25	0.115
HCM Control Delay (s)	11	-	-	-	35.6	20.3
HCM Lane LOS	B	-	-	-	E	C
HCM 95th %tile Q(veh)	0.2	-	-	-	0.9	0.4

Intersection	
Int Delay, s/veh	41.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	101	905	21	12	927	53	17	7	19	35	6	76
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	150	-	150	150	-	150	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	106	953	22	13	976	56	18	7	20	37	6	80

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	976	0	0	953	0	0	2209	2166	953	2180	2166	976
Stage 1	-	-	-	-	-	-	1165	1165	-	1001	1001	-
Stage 2	-	-	-	-	-	-	1044	1001	-	1179	1165	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	711	-	-	725	-	-	32	47	316	~ 33	47	306
Stage 1	-	-	-	-	-	-	238	269	-	294	322	-
Stage 2	-	-	-	-	-	-	278	322	-	233	269	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	711	-	-	725	-	-	18	39	316	~ 23	39	306
Mov Cap-2 Maneuver	-	-	-	-	-	-	18	39	-	~ 23	39	-
Stage 1	-	-	-	-	-	-	203	229	-	250	316	-
Stage 2	-	-	-	-	-	-	198	316	-	180	229	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	0.1	$ 407.7	$ 619.1
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	36	711	-	-	725	-	-	61
HCM Lane V/C Ratio	1.257	0.15	-	-	0.017	-	-	2.019
HCM Control Delay (s)	$ 407.7	11	-	-	10.1	-	-	$ 619.1
HCM Lane LOS	F	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	4.7	0.5	-	-	0.1	-	-	11.7

Notes

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

Intersection	
Intersection Delay, s/veh	55.5
Intersection LOS	F

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	0	0	55	0	44	0	22	0	59	755	63	0	15	727	20
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	0	0	59	0	47	0	24	0	63	812	68	0	16	782	22
Number of Lanes	0	0	1	0	0	0	1	0	0	1	1	0	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	1	1
HCM Control Delay	10.9	12.2	60	57.4
HCM LOS	B	B	F	F

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	67%	100%	0%	0%
Vol Thru, %	0%	92%	0%	0%	0%	100%	0%
Vol Right, %	0%	8%	100%	33%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	59	818	55	66	15	727	20
LT Vol	59	0	0	44	15	0	0
Through Vol	0	755	0	0	0	727	0
RT Vol	0	63	55	22	0	0	20
Lane Flow Rate	63	880	59	71	16	782	22
Geometry Grp	8	8	7	7	7	7	7
Degree of Util (X)	0.124	1	0.119	0.157	0.028	1	0.03
Departure Headway (Hd)	7.059	6.506	7.227	7.948	6.257	5.757	5.058
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	506	563	497	452	569	625	701
Service Time	4.821	4.268	4.96	5.679	4.035	3.535	2.836
HCM Lane V/C Ratio	0.125	1.563	0.119	0.157	0.028	1.251	0.031
HCM Control Delay	10.8	63.6	10.9	12.2	9.2	59.8	8
HCM Lane LOS	B	F	B	B	A	F	A
HCM 95th-tile Q	0.4	14.3	0.4	0.6	0.1	15.2	0.1

Intersection	
Intersection Delay, s/veh	22.8
Intersection LOS	C

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Vol, veh/h	0	416	249	0	41	417	0	184	46
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	447	268	0	44	448	0	198	49
Number of Lanes	0	1	1	0	1	1	0	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay	21.4	28.5	15.3
HCM LOS	C	D	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2
Vol Left, %	100%	0%	0%	0%	100%	0%
Vol Thru, %	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	184	46	416	249	41	417
LT Vol	184	0	0	0	41	0
Through Vol	0	0	416	0	0	417
RT Vol	0	46	0	249	0	0
Lane Flow Rate	198	49	447	268	44	448
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.434	0.092	0.771	0.408	0.085	0.8
Departure Headway (Hd)	7.89	6.663	6.204	5.491	6.935	6.426
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	455	535	582	651	514	560
Service Time	5.664	4.436	3.973	3.26	4.71	4.2
HCM Lane V/C Ratio	0.435	0.092	0.768	0.412	0.086	0.8
HCM Control Delay	16.6	10.1	27	12	10.4	30.3
HCM Lane LOS	C	B	D	B	B	D
HCM 95th-tile Q	2.2	0.3	7.1	2	0.3	7.7

Intersection	
Int Delay, s/veh	7.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	29	29	131	53	24	10	111	175	50	5	268	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	31	31	141	57	26	11	119	188	54	5	288	26

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	784	793	301	852	779	215	314	0	0	242	0	0
Stage 1	312	312	-	454	454	-	-	-	-	-	-	-
Stage 2	472	481	-	398	325	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	312	322	741	281	328	827	1252	-	-	1330	-	-
Stage 1	701	659	-	588	571	-	-	-	-	-	-	-
Stage 2	574	555	-	630	651	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	262	285	741	190	290	827	1252	-	-	1330	-	-
Mov Cap-2 Maneuver	262	285	-	190	290	-	-	-	-	-	-	-
Stage 1	623	656	-	523	508	-	-	-	-	-	-	-
Stage 2	478	493	-	484	648	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.6	30.4	2.7	0.1
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1252	-	-	486	233	1330	-	-
HCM Lane V/C Ratio	0.095	-	-	0.418	0.401	0.004	-	-
HCM Control Delay (s)	8.2	0	-	17.6	30.4	7.7	0	-
HCM Lane LOS	A	A	-	C	D	A	A	-
HCM 95th %tile Q(veh)	0.3	-	-	2	1.8	0	-	-

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	38	0	46	0	0	0	0	0	32	190	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	41	0	49	0	0	0	0	0	34	204	0
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	8.4	0	9.2
HCM LOS	A	-	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	45%	0%	0%
Vol Thru, %	86%	0%	100%	80%
Vol Right, %	0%	55%	0%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	222	84	0	220
LT Vol	32	38	0	0
Through Vol	190	0	0	176
RT Vol	0	46	0	44
Lane Flow Rate	239	90	0	237
Geometry Grp	1	1	1	1
Degree of Util (X)	0.292	0.118	0	0.28
Departure Headway (Hd)	4.406	4.71	5.082	4.267
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	816	761	0	842
Service Time	2.426	2.738	3.119	2.287
HCM Lane V/C Ratio	0.293	0.118	0	0.281
HCM Control Delay	9.2	8.4	8.1	8.9
HCM Lane LOS	A	A	N	A
HCM 95th-tile Q	1.2	0.4	0	1.1

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	0	176	44
Peak Hour Factor	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1
Mvmt Flow	0	0	189	47
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	8.9
HCM LOS	A

Lane

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Vol, veh/h	0	25	35	0	35	200	0	189	32
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	27	38	0	38	215	0	203	34
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.2	9.3	8.9
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	15%	42%	0%
Vol Thru, %	85%	0%	86%
Vol Right, %	0%	58%	14%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	235	60	221
LT Vol	35	25	0
Through Vol	200	0	189
RT Vol	0	35	32
Lane Flow Rate	253	65	238
Geometry Grp	1	1	1
Degree of Util (X)	0.305	0.084	0.28
Departure Headway (Hd)	4.341	4.708	4.246
Convergence, Y/N	Yes	Yes	Yes
Cap	831	762	848
Service Time	2.356	2.732	2.26
HCM Lane V/C Ratio	0.304	0.085	0.281
HCM Control Delay	9.3	8.2	8.9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.3	0.3	1.1

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	44	73	28	0	4	35	20	0	34	235	6	0	21	166	26
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	47	78	30	0	4	38	22	0	37	253	6	0	23	178	28
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.8	8.8	10.9	10
HCM LOS	A	A	B	A

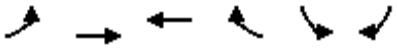
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	12%	30%	7%	10%
Vol Thru, %	85%	50%	59%	78%
Vol Right, %	2%	19%	34%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	275	145	59	213
LT Vol	34	44	4	21
Through Vol	235	73	35	166
RT Vol	6	28	20	26
Lane Flow Rate	296	156	63	229
Geometry Grp	1	1	1	1
Degree of Util (X)	0.392	0.224	0.091	0.304
Departure Headway (Hd)	4.767	5.173	5.188	4.784
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	748	688	682	744
Service Time	2.833	3.257	3.287	2.854
HCM Lane V/C Ratio	0.396	0.227	0.092	0.308
HCM Control Delay	10.9	9.8	8.8	10
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	1.9	0.9	0.3	1.3

Intersection	
Intersection Delay, s/veh	16.3
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	7	2	19	0	226	8	66	0	13	184	276	0	47	145	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	8	2	20	0	243	9	71	0	14	198	297	0	51	156	1
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.6	15.2	19.2	11.8
HCM LOS	A	C	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	25%	75%	24%
Vol Thru, %	39%	7%	3%	75%
Vol Right, %	58%	68%	22%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	473	28	300	193
LT Vol	13	7	226	47
Through Vol	184	2	8	145
RT Vol	276	19	66	1
Lane Flow Rate	509	30	323	208
Geometry Grp	1	1	1	1
Degree of Util (X)	0.706	0.051	0.523	0.334
Departure Headway (Hd)	4.994	6.128	5.834	5.788
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	722	579	616	618
Service Time	3.045	4.218	3.889	3.853
HCM Lane V/C Ratio	0.705	0.052	0.524	0.337
HCM Control Delay	19.2	9.6	15.2	11.8
HCM Lane LOS	C	A	C	B
HCM 95th-tile Q	5.9	0.2	3	1.5



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	454	414	431	25	18	388
Number	5	2	6	16	7	14
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
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	488	445	463	27	19	417
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	436	1093	523	444	506	451
Arrive On Green	0.24	0.58	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1792	1881	1881	1599	1792	1599
Grp Volume(v), veh/h	488	445	463	27	19	417
Grp Sat Flow(s),veh/h/ln	1792	1881	1881	1599	1792	1599
Q Serve(g_s), s	20.1	10.7	19.5	1.0	0.6	20.9
Cycle Q Clear(g_c), s	20.1	10.7	19.5	1.0	0.6	20.9
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	436	1093	523	444	506	451
V/C Ratio(X)	1.12	0.41	0.89	0.06	0.04	0.92
Avail Cap(c_a), veh/h	436	1093	889	756	608	543
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	31.2	9.5	28.5	21.9	21.5	28.7
Incr Delay (d2), s/veh	79.3	0.1	3.0	0.0	0.0	18.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	19.4	5.6	10.5	0.5	0.3	18.6
LnGrp Delay(d),s/veh	110.5	9.6	31.5	21.9	21.5	46.9
LnGrp LOS	F	A	C	C	C	D
Approach Vol, veh/h		933	490		436	
Approach Delay, s/veh		62.4	31.0		45.8	
Approach LOS		E	C		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		53.9		28.6	25.0	28.9		
Change Period (Y+Rc), s		6.0		5.3	4.9	6.0		
Max Green Setting (Gmax), s		39.0		28.0	20.1	39.0		
Max Q Clear Time (g_c+I1), s		12.7		22.9	22.1	21.5		
Green Ext Time (p_c), s		3.0		0.4	0.0	1.5		

Intersection Summary	
HCM 2010 Ctrl Delay	50.2
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	21	49	50	347	362	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	23	53	54	377	393	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	891	405	416	0	-	0
Stage 1	405	-	-	-	-	-
Stage 2	486	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	314	648	1148	-	-	-
Stage 1	676	-	-	-	-	-
Stage 2	621	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	295	648	1148	-	-	-
Mov Cap-2 Maneuver	295	-	-	-	-	-
Stage 1	676	-	-	-	-	-
Stage 2	584	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14	1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1148	-	477	-	-
HCM Lane V/C Ratio	0.047	-	0.16	-	-
HCM Control Delay (s)	8.3	0	14	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.6	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	264	5	0	258	6	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	284	5	0	277	6	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	289	0	564	287
Stage 1	-	-	-	-	287	-
Stage 2	-	-	-	-	277	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1279	-	489	754
Stage 1	-	-	-	-	764	-
Stage 2	-	-	-	-	772	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1279	-	489	754
Mov Cap-2 Maneuver	-	-	-	-	489	-
Stage 1	-	-	-	-	764	-
Stage 2	-	-	-	-	772	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	12.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	489	-	-	1279	-
HCM Lane V/C Ratio	0.013	-	-	-	-
HCM Control Delay (s)	12.5	-	-	0	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	0	0	19	17	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	0	0	20	18	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	20	0	-	0	10	10
Stage 1	-	-	-	-	10	-
Stage 2	-	-	-	-	0	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1603	-	-	-	1013	1074
Stage 1	-	-	-	-	1016	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1603	-	-	-	1013	1074
Mov Cap-2 Maneuver	-	-	-	-	1013	-
Stage 1	-	-	-	-	1016	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1603	-	-	-	1013
HCM Lane V/C Ratio	-	-	-	-	0.018
HCM Control Delay (s)	0	-	-	-	8.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	0	0	19	17	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	0	0	20	18	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	20	0	-	0	10	10
Stage 1	-	-	-	-	10	-
Stage 2	-	-	-	-	0	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1603	-	-	-	1013	1074
Stage 1	-	-	-	-	1016	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1603	-	-	-	1013	1074
Mov Cap-2 Maneuver	-	-	-	-	1013	-
Stage 1	-	-	-	-	1016	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1603	-	-	-	1013
HCM Lane V/C Ratio	-	-	-	-	0.018
HCM Control Delay (s)	0	-	-	-	8.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	29	32	29	36	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	31	34	31	39	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	66	0	-	0	81	50
Stage 1	-	-	-	-	50	-
Stage 2	-	-	-	-	31	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1542	-	-	-	924	1021
Stage 1	-	-	-	-	975	-
Stage 2	-	-	-	-	994	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1542	-	-	-	924	1021
Mov Cap-2 Maneuver	-	-	-	-	924	-
Stage 1	-	-	-	-	975	-
Stage 2	-	-	-	-	994	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1542	-	-	-	924
HCM Lane V/C Ratio	-	-	-	-	0.042
HCM Control Delay (s)	0	-	-	-	9.1
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

MOVEMENT SUMMARY

Site: Ex+A+P WK 2020 - #9 Rancho California Rd & Anza Rd

Ex+A+P WK - #9 Rancho California Rd & Anza Rd
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
SouthEast: Anza Rd											
5	L2	129	1.0	0.973	64.1	LOS F	17.7	446.1	1.00	1.56	19.7
2	T1	18	1.0	0.973	57.9	LOS F	17.7	446.1	1.00	1.56	19.7
12	R2	214	1.0	0.973	58.0	LOS F	17.7	446.1	1.00	1.56	19.3
Approach		361	1.0	0.973	60.2	LOS F	17.7	446.1	1.00	1.56	19.5
NorthEast: Rancho California Rd											
3	L2	174	1.0	1.124	79.0	LOS F	71.6	1803.2	1.00	1.84	17.7
8	T1	883	1.0	1.124	72.7	LOS F	71.6	1803.2	1.00	1.84	17.7
18	R2	38	1.0	1.124	72.8	LOS F	71.6	1803.2	1.00	1.84	17.4
Approach		1095	1.0	1.124	73.7	LOS F	71.6	1803.2	1.00	1.84	17.7
NorthWest: Anza Rd											
1	L2	18	1.0	0.230	21.2	LOS C	1.6	39.3	0.96	0.97	31.7
6	T1	10	1.0	0.230	14.9	LOS B	1.6	39.3	0.96	0.97	31.5
16	R2	40	1.0	0.230	15.1	LOS C	1.6	39.3	0.96	0.97	30.7
Approach		68	1.0	0.230	16.7	LOS C	1.6	39.3	0.96	0.97	31.0
SouthWest: Rancho California Rd											
7	L2	39	1.0	1.047	49.3	LOS F	50.8	1281.1	1.00	1.40	23.1
4	T1	888	1.0	1.047	43.0	LOS F	50.8	1281.1	1.00	1.40	23.1
14	R2	91	1.0	1.047	43.1	LOS F	50.8	1281.1	1.00	1.40	22.6
Approach		1018	1.0	1.047	43.3	LOS E	50.8	1281.1	1.00	1.40	23.0
All Vehicles		2542	1.0	1.124	58.1	LOS F	71.6	1803.2	1.00	1.60	20.0

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 12 [Ex+A+P WK 2020 - #12 Rancho California Rd & Buck Rd]

Ex+A+P WK - #12 Rancho California Rd & Buck Rd
Roundabout

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: Buck Rd											
1a	L1	11	1.0	0.032	11.5	LOS B	0.2	4.0	0.58	0.66	34.2
2	T1	1	1.0	0.032	7.4	LOS A	0.2	4.0	0.58	0.66	34.6
16b	R3	11	1.0	0.032	7.5	LOS A	0.2	4.0	0.58	0.66	33.4
Approach		23	1.0	0.032	9.4	LOS A	0.2	4.0	0.58	0.66	33.8
NorthEast: Rancho California Rd											
1bx	L3	11	1.0	0.420	11.4	LOS B	3.0	76.6	0.36	0.46	36.6
6x	T1	373	1.0	0.420	5.1	LOS A	3.0	76.6	0.36	0.46	36.3
16ax	R1	58	1.0	0.420	4.7	LOS A	3.0	76.6	0.36	0.46	36.0
Approach		442	1.0	0.420	5.2	LOS A	3.0	76.6	0.36	0.46	36.2
West: Buck Rd											
5a	L1	52	1.0	0.163	11.2	LOS B	0.9	21.9	0.58	0.71	34.5
6	T1	1	1.0	0.163	7.1	LOS A	0.9	21.9	0.58	0.71	34.8
12b	R3	72	1.0	0.163	7.2	LOS A	0.9	21.9	0.58	0.71	33.6
Approach		125	1.0	0.163	8.9	LOS A	0.9	21.9	0.58	0.71	34.0
SouthWest: Rancho California Rd											
5bx	L3	70	1.0	0.414	11.2	LOS B	3.1	79.4	0.33	0.48	36.3
2x	T1	359	1.0	0.414	4.9	LOS A	3.1	79.4	0.33	0.48	36.0
12ax	R1	14	1.0	0.414	4.5	LOS A	3.1	79.4	0.33	0.48	35.7
Approach		443	1.0	0.414	5.9	LOS A	3.1	79.4	0.33	0.48	36.0
All Vehicles		1032	1.0	0.420	6.0	LOS A	3.1	79.4	0.38	0.50	35.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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APPENDIX E: EXISTING PLUS AMBIENT GROWTH PLUS CUMULATIVE (2020) PLUS PROJECT TRAFFIC CONDITIONS LOS RESULTS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	489	202	602	1234	0	0	0	0	1038	0	728
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	591	192	669	1371	0				1402	0	533
Adj No. of Lanes	0	3	1	2	3	0				2	0	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.91
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1288	349	723	2393	0				1666	0	743
Arrive On Green	0.00	0.23	0.22	0.07	0.16	0.00				0.47	0.00	0.47
Sat Flow, veh/h	0	5588	1583	3442	5253	0				3548	0	1582
Grp Volume(v), veh/h	0	591	192	669	1371	0				1402	0	533
Grp Sat Flow(s),veh/h/ln	0	1863	1583	1721	1695	0				1774	0	1582
Q Serve(g_s), s	0.0	9.1	10.8	19.3	25.0	0.0				34.7	0.0	26.9
Cycle Q Clear(g_c), s	0.0	9.1	10.8	19.3	25.0	0.0				34.7	0.0	26.9
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1288	349	723	2393	0				1666	0	743
V/C Ratio(X)	0.00	0.46	0.55	0.93	0.57	0.00				0.84	0.00	0.72
Avail Cap(c_a), veh/h	0	1288	349	723	2393	0				1810	0	807
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.81	0.81	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	33.1	34.6	45.8	32.9	0.0				23.3	0.0	21.2
Incr Delay (d2), s/veh	0.0	1.2	6.1	15.0	0.8	0.0				3.5	0.0	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.0	4.8	5.3	10.7	11.9	0.0				17.8	0.0	12.3
LnGrp Delay(d),s/veh	0.0	34.3	40.7	60.8	33.7	0.0				26.8	0.0	24.0
LnGrp LOS		C	D	E	C					C		C
Approach Vol, veh/h		783			2040						1935	
Approach Delay, s/veh		35.9			42.6						26.0	
Approach LOS		D			D						C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	24.0	26.1		49.9		50.1		
Change Period (Y+Rc), s	3.5	5.0		5.0		5.0		
Max Green Setting (Gmax), s	20.5	17.0		49.0		41.0		
Max Q Clear Time (g_c+I1), s	21.3	12.8		36.7		27.0		
Green Ext Time (p_c), s	0.0	3.8		8.3		11.0		

Intersection Summary	
HCM 2010 Ctrl Delay	34.8
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1340	0	0	1425	956	428	0	364	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	0	1863	0	0	1863	1863	1863	1863	1863			
Adj Flow Rate, veh/h	0	1473	0	0	1566	1051	594	0	267			
Adj No. of Lanes	0	3	0	0	3	2	2	0	1			
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91			
Percent Heavy Veh, %	0	2	0	0	2	2	2	2	2			
Cap, veh/h	0	3508	0	0	3855	2185	887	0	396			
Arrive On Green	0.00	0.69	0.00	0.00	1.00	1.00	0.25	0.00	0.25			
Sat Flow, veh/h	0	5421	0	0	5588	3167	3548	0	1583			
Grp Volume(v), veh/h	0	1473	0	0	1566	1051	594	0	267			
Grp Sat Flow(s),veh/h/ln	0	1695	0	0	1863	1583	1774	0	1583			
Q Serve(g_s), s	0.0	12.6	0.0	0.0	0.0	0.0	15.1	0.0	15.2			
Cycle Q Clear(g_c), s	0.0	12.6	0.0	0.0	0.0	0.0	15.1	0.0	15.2			
Prop In Lane	0.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	3508	0	0	3855	2185	887	0	396			
V/C Ratio(X)	0.00	0.42	0.00	0.00	0.41	0.48	0.67	0.00	0.67			
Avail Cap(c_a), veh/h	0	3508	0	0	3855	2185	1277	0	570			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.63	0.00	0.00	0.25	0.25	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	6.8	0.0	0.0	0.0	0.0	33.8	0.0	33.8			
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.1	0.2	1.3	0.0	2.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(-26165%),veh/ln	0.0	5.9	0.0	0.0	0.0	0.1	7.5	0.0	7.0			
LnGrp Delay(d),s/veh	0.0	7.0	0.0	0.0	0.1	0.2	35.0	0.0	36.7			
LnGrp LOS		A			A	A	D		D			
Approach Vol, veh/h		1473			2617			861				
Approach Delay, s/veh		7.0			0.1			35.5				
Approach LOS		A			A			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		72.0				72.0		28.0
Change Period (Y+Rc), s		5.0				5.0		5.0
Max Green Setting (Gmax), s		56.0				56.0		34.0
Max Q Clear Time (g_c+I1), s		14.6				2.0		17.2
Green Ext Time (p_c), s		39.3				50.6		5.8

Intersection Summary	
HCM 2010 Ctrl Delay	8.3
HCM 2010 LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	502	902	427	127	1448	169	664	547	104	96	326	286
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	570	1025	485	144	1645	192	755	622	118	109	370	325
Adj No. of Lanes	2	3	1	1	3	1	2	2	1	2	2	2
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	715	1387	756	417	1526	475	757	1026	458	231	538	955
Arrive On Green	0.35	0.46	0.43	0.24	0.30	0.30	0.22	0.29	0.29	0.07	0.15	0.14
Sat Flow, veh/h	3442	5085	1583	1774	5085	1582	3442	3539	1580	3442	3539	2738
Grp Volume(v), veh/h	570	1025	485	144	1645	192	755	622	118	109	370	325
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1774	1695	1582	1721	1770	1580	1721	1770	1369
Q Serve(g_s), s	14.9	16.5	8.5	6.8	30.0	9.7	21.9	15.1	5.7	3.1	9.9	3.3
Cycle Q Clear(g_c), s	14.9	16.5	8.5	6.8	30.0	9.7	21.9	15.1	5.7	3.1	9.9	3.3
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	715	1387	756	417	1526	475	757	1026	458	231	538	955
V/C Ratio(X)	0.80	0.74	0.64	0.35	1.08	0.40	1.00	0.61	0.26	0.47	0.69	0.34
Avail Cap(c_a), veh/h	715	1831	895	417	1526	475	757	1026	458	379	637	1031
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.88	0.88	0.88	0.89	0.89	0.89	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.7	24.3	5.2	31.8	35.0	27.9	39.0	30.6	27.2	44.9	40.1	9.4
Incr Delay (d2), s/veh	5.2	3.2	3.7	0.2	46.2	2.3	31.9	2.7	1.4	0.6	2.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	7.5	8.0	4.2	3.3	20.5	4.5	13.7	7.7	2.7	1.5	5.0	1.6
LnGrp Delay(d),s/veh	35.9	27.5	8.8	32.0	81.2	30.2	70.9	33.2	28.6	45.5	42.3	9.5
LnGrp LOS	D	C	A	C	F	C	E	C	C	D	D	A
Approach Vol, veh/h		2080			1981			1495			804	
Approach Delay, s/veh		25.4			72.7			51.9			29.5	
Approach LOS		C			E			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.5	30.3	25.0	18.2	23.8	33.0	11.2	32.0
Change Period (Y+Rc), s	3.5	5.0	3.5	5.0	3.5	5.0	5.0	* 5
Max Green Setting (Gmax), s	11.5	34.0	21.5	16.0	17.5	28.0	10.5	* 27
Max Q Clear Time (g_c+I1), s	18.8	18.5	23.9	11.9	16.9	32.0	5.1	17.1
Green Ext Time (p_c), s	0.5	6.7	0.0	1.2	0.1	0.0	1.5	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	46.9
HCM 2010 LOS	D

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	45	516	127	91	1080	161	235	272	41	144	380	68
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1881	1881	1881	1881	1881	1881	1900
Adj Flow Rate, veh/h	57	653	161	115	1367	204	297	344	52	182	481	86
Adj No. of Lanes	1	2	0	1	2	1	2	2	1	2	2	0
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	82	1353	333	152	1839	822	378	873	375	266	643	114
Arrive On Green	0.05	0.48	0.46	0.08	0.51	0.51	0.11	0.24	0.23	0.08	0.21	0.20
Sat Flow, veh/h	1792	2844	700	1792	3574	1597	3476	3574	1599	3476	3034	540
Grp Volume(v), veh/h	57	410	404	115	1367	204	297	344	52	182	282	285
Grp Sat Flow(s),veh/h/ln	1792	1787	1757	1792	1787	1597	1738	1787	1599	1738	1787	1786
Q Serve(g_s), s	3.2	15.8	16.0	6.3	30.4	7.2	8.4	8.1	2.6	5.2	14.9	15.1
Cycle Q Clear(g_c), s	3.2	15.8	16.0	6.3	30.4	7.2	8.4	8.1	2.6	5.2	14.9	15.1
Prop In Lane	1.00		0.40	1.00		1.00	1.00		1.00	1.00		0.30
Lane Grp Cap(c), veh/h	82	850	836	152	1839	822	378	873	375	266	379	379
V/C Ratio(X)	0.69	0.48	0.48	0.76	0.74	0.25	0.79	0.39	0.14	0.68	0.75	0.75
Avail Cap(c_a), veh/h	213	850	836	213	1839	822	413	1026	443	413	513	513
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)	0.98	0.98	0.98	0.66	0.66	0.66	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.5	18.0	18.3	45.2	19.3	13.6	43.9	31.9	30.6	45.5	37.2	37.4
Incr Delay (d2), s/veh	3.8	1.9	1.9	3.7	1.8	0.5	7.8	0.2	0.1	1.2	3.3	3.5
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(-26165%),veh/ln	1.7	8.2	8.1	3.3	15.3	3.3	4.5	4.0	1.2	2.5	7.7	7.8
LnGrp Delay(d),s/veh	51.2	19.9	20.3	48.9	21.1	14.1	51.7	32.1	30.7	46.6	40.5	41.0
LnGrp LOS	D	B	C	D	C	B	D	C	C	D	D	D
Approach Vol, veh/h		871			1686			693			749	
Approach Delay, s/veh		22.1			22.2			40.4			42.2	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.5	51.1	14.0	24.4	7.6	55.0	10.7	27.7
Change Period (Y+Rc), s	3.5	6.0	3.5	5.0	3.5	6.0	3.5	5.0
Max Green Setting (Gmax), s	11.5	33.0	11.5	27.0	11.5	33.0	11.5	27.0
Max Q Clear Time (g_c+I1), s	9.3	18.0	10.4	17.1	5.2	32.4	7.2	10.1
Green Ext Time (p_c), s	0.0	12.1	0.1	2.3	0.0	0.6	0.1	2.8

Intersection Summary	
HCM 2010 Ctrl Delay	29.1
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	39	579	100	25	990	17	381	123	18	31	122	123
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	48	706	122	30	1207	21	465	150	22	38	149	150
Adj No. of Lanes	1	2	0	1	2	0	2	2	0	1	2	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	57	1665	288	42	1933	34	521	744	107	58	215	190
Arrive On Green	0.03	0.55	0.53	0.02	0.54	0.52	0.15	0.24	0.24	0.03	0.12	0.12
Sat Flow, veh/h	1792	3049	526	1792	3595	63	3476	3127	450	1792	1787	1575
Grp Volume(v), veh/h	48	414	414	30	600	628	465	85	87	38	149	150
Grp Sat Flow(s),veh/h/ln	1792	1787	1788	1792	1787	1870	1738	1787	1789	1792	1787	1575
Q Serve(g_s), s	2.7	13.7	13.8	1.7	23.4	23.4	13.1	3.8	3.9	2.1	8.0	9.3
Cycle Q Clear(g_c), s	2.7	13.7	13.8	1.7	23.4	23.4	13.1	3.8	3.9	2.1	8.0	9.3
Prop In Lane	1.00		0.29	1.00		0.03	1.00		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	57	976	977	42	961	1005	521	425	426	58	215	190
V/C Ratio(X)	0.84	0.42	0.42	0.72	0.62	0.62	0.89	0.20	0.21	0.65	0.69	0.79
Avail Cap(c_a), veh/h	179	976	977	215	961	1005	521	500	501	179	411	362
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)	0.85	0.85	0.85	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.2	13.4	13.6	48.5	16.1	16.1	41.7	30.5	30.5	47.8	42.2	42.7
Incr Delay (d2), s/veh	10.0	1.1	1.1	7.6	2.8	2.7	16.9	0.1	0.1	4.5	1.5	2.8
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(-26165%),veh/ln	1.5	7.0	7.0	0.9	12.2	12.8	7.5	1.9	2.0	1.1	4.0	4.2
LnGrp Delay(d),s/veh	58.2	14.5	14.8	56.1	18.9	18.8	58.6	30.6	30.6	52.3	43.7	45.5
LnGrp LOS	E	B	B	E	B	B	E	C	C	D	D	D
Approach Vol, veh/h		876			1258			637			337	
Approach Delay, s/veh		17.0			19.7			51.1			45.5	
Approach LOS		B			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.3	58.6	19.0	16.1	7.2	57.8	7.3	27.8
Change Period (Y+Rc), s	3.5	6.0	4.0	4.0	3.5	6.0	4.0	4.0
Max Green Setting (Gmax), s	12.5	32.0	15.0	23.0	10.5	34.0	10.0	28.0
Max Q Clear Time (g_c+I1), s	3.7	15.8	15.1	11.3	4.7	25.4	4.1	5.9
Green Ext Time (p_c), s	0.0	15.3	0.0	0.8	0.0	8.3	0.0	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	28.2
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	22	363	158	58	450	32	224	234	75	42	227	22
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1900	1881	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	24	390	170	62	484	34	241	252	81	45	244	24
Adj No. of Lanes	2	1	1	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	67	958	815	71	1796	126	305	538	169	161	396	39
Arrive On Green	0.02	0.51	0.51	0.04	0.53	0.51	0.17	0.20	0.20	0.09	0.12	0.12
Sat Flow, veh/h	3476	1881	1599	1792	3389	237	1792	2679	841	1792	3291	321
Grp Volume(v), veh/h	24	390	170	62	255	263	241	166	167	45	132	136
Grp Sat Flow(s),veh/h/ln	1738	1881	1599	1792	1787	1839	1792	1787	1733	1792	1787	1825
Q Serve(g_s), s	0.7	12.8	5.8	3.4	7.8	7.9	12.9	8.2	8.5	2.3	7.0	7.1
Cycle Q Clear(g_c), s	0.7	12.8	5.8	3.4	7.8	7.9	12.9	8.2	8.5	2.3	7.0	7.1
Prop In Lane	1.00		1.00	1.00		0.13	1.00		0.49	1.00		0.18
Lane Grp Cap(c), veh/h	67	958	815	71	947	975	305	359	348	161	215	220
V/C Ratio(X)	0.36	0.41	0.21	0.87	0.27	0.27	0.79	0.46	0.48	0.28	0.61	0.62
Avail Cap(c_a), veh/h	174	958	815	125	947	975	358	359	348	537	536	547
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)	0.92	0.92	0.92	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.4	15.2	13.5	47.8	12.9	13.0	39.8	35.2	35.3	42.5	41.8	41.8
Incr Delay (d2), s/veh	1.1	1.2	0.5	11.3	0.7	0.7	8.1	0.3	0.4	0.3	1.1	1.1
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(-26165%),veh/ln	0.8	6.9	2.7	1.9	4.0	4.2	7.0	4.1	4.1	1.2	3.5	3.7
LnGrp Delay(d),s/veh	49.5	16.4	14.0	59.1	13.6	13.7	47.9	35.6	35.7	42.8	42.8	42.9
LnGrp LOS	D	B	B	E	B	B	D	D	D	D	D	D
Approach Vol, veh/h		584			580			574			313	
Approach Delay, s/veh		17.0			18.5			40.8			42.8	
Approach LOS		B			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	54.9	21.0	16.0	5.9	57.0	13.0	24.1
Change Period (Y+Rc), s	3.5	6.0	6.0	6.0	3.5	6.0	6.0	6.0
Max Green Setting (Gmax), s	7.5	25.0	18.0	28.0	5.5	27.0	28.0	18.0
Max Q Clear Time (g_c+I1), s	5.4	14.8	14.9	9.1	2.7	9.9	4.3	10.5
Green Ext Time (p_c), s	0.0	6.7	0.1	0.9	0.0	9.9	0.1	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	28.0
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	12	441	542	1	1	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	13	479	589	1	1	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	590	0	-	0	1095	590
Stage 1	-	-	-	-	590	-
Stage 2	-	-	-	-	505	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	990	-	-	-	238	509
Stage 1	-	-	-	-	556	-
Stage 2	-	-	-	-	608	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	990	-	-	-	235	509
Mov Cap-2 Maneuver	-	-	-	-	370	-
Stage 1	-	-	-	-	556	-
Stage 2	-	-	-	-	600	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	12.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	990	-	-	-	370	509
HCM Lane V/C Ratio	0.013	-	-	-	0.003	0.013
HCM Control Delay (s)	8.7	-	-	-	14.8	12.2
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	-	0	0

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	21	381	19	26	497	3	11	6	8	2	8	35
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	150	-	150	150	-	150	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	22	405	20	28	529	3	12	6	9	2	9	37

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	529	0	0	405	0	0	1057	1034	405	1041	1034	529
Stage 1	-	-	-	-	-	-	450	450	-	584	584	-
Stage 2	-	-	-	-	-	-	607	584	-	457	450	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	1043	-	-	1159	-	-	204	233	648	209	233	552
Stage 1	-	-	-	-	-	-	590	573	-	499	500	-
Stage 2	-	-	-	-	-	-	485	500	-	585	573	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1043	-	-	1159	-	-	178	223	648	195	223	552
Mov Cap-2 Maneuver	-	-	-	-	-	-	178	223	-	195	223	-
Stage 1	-	-	-	-	-	-	578	561	-	488	488	-
Stage 2	-	-	-	-	-	-	434	488	-	559	561	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.4	21.3	14.9
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	247	1043	-	-	1159	-	-	411
HCM Lane V/C Ratio	0.108	0.021	-	-	0.024	-	-	0.116
HCM Control Delay (s)	21.3	8.5	-	-	8.2	-	-	14.9
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0.1	-	-	0.4

Intersection	
Intersection Delay, s/veh	27
Intersection LOS	D

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	0	0	6	0	39	0	4	0	6	332	19	0	8	587	4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	0	0	6	0	42	0	4	0	6	357	20	0	9	631	4
Number of Lanes	0	0	1	0	0	0	1	0	0	1	1	0	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	1	1
HCM Control Delay	9.3	11	18.2	33.5
HCM LOS	A	B	C	D

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	91%	100%	0%	0%
Vol Thru, %	0%	95%	0%	0%	0%	100%	0%
Vol Right, %	0%	5%	100%	9%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	6	351	6	43	8	587	4
LT Vol	6	0	0	39	8	0	0
Through Vol	0	332	0	0	0	587	0
RT Vol	0	19	6	4	0	0	4
Lane Flow Rate	6	377	6	46	9	631	4
Geometry Grp	8	8	7	7	7	7	7
Degree of Util (X)	0.012	0.625	0.012	0.096	0.013	0.885	0.005
Departure Headway (Hd)	6.497	5.957	6.509	7.466	5.551	5.048	4.344
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	546	600	553	483	640	713	815
Service Time	4.296	3.755	4.213	5.167	3.323	2.819	2.115
HCM Lane V/C Ratio	0.011	0.628	0.011	0.095	0.014	0.885	0.005
HCM Control Delay	9.4	18.3	9.3	11	8.4	34	7.1
HCM Lane LOS	A	C	A	B	A	D	A
HCM 95th-tile Q	0	4.3	0	0.3	0	11	0

Intersection	
Intersection Delay, s/veh	16.2
Intersection LOS	C

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Vol, veh/h	0	274	54	0	34	370	0	216	41
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	295	58	0	37	398	0	232	44
Number of Lanes	0	1	1	0	1	1	0	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay	13.9	19	14.8
HCM LOS	B	C	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2
Vol Left, %	100%	0%	0%	0%	100%	0%
Vol Thru, %	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	216	41	274	54	34	370
LT Vol	216	0	0	0	34	0
Through Vol	0	0	274	0	0	370
RT Vol	0	41	0	54	0	0
Lane Flow Rate	232	44	295	58	37	398
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.461	0.073	0.501	0.087	0.066	0.663
Departure Headway (Hd)	7.139	5.922	6.12	5.408	6.505	5.997
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	504	603	589	660	550	601
Service Time	4.892	3.674	3.871	3.159	4.254	3.746
HCM Lane V/C Ratio	0.46	0.073	0.501	0.088	0.067	0.662
HCM Control Delay	15.9	9.1	14.9	8.7	9.7	19.8
HCM Lane LOS	C	A	B	A	A	C
HCM 95th-tile Q	2.4	0.2	2.8	0.3	0.2	4.9

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	3	79	1	38	3	234	45	12	313	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	0	3	85	1	41	3	252	48	13	337	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	666	669	337	647	645	276	338	0	0	300	0	0
Stage 1	363	363	-	282	282	-	-	-	-	-	-	-
Stage 2	303	306	-	365	363	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	374	380	707	385	392	765	1227	-	-	1267	-	-
Stage 1	658	626	-	727	680	-	-	-	-	-	-	-
Stage 2	708	663	-	656	626	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	349	374	707	379	386	765	1227	-	-	1267	-	-
Mov Cap-2 Maneuver	349	374	-	379	386	-	-	-	-	-	-	-
Stage 1	656	618	-	725	678	-	-	-	-	-	-	-
Stage 2	667	661	-	645	618	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.1	16	0.1	0.3
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1227	-	-	707	453	1267	-	-
HCM Lane V/C Ratio	0.003	-	-	0.005	0.28	0.01	-	-
HCM Control Delay (s)	7.9	0	-	10.1	16	7.9	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	1.1	0	-	-

Intersection	
Intersection Delay, s/veh	12
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	64	0	38	0	1	0	0	0	30	348	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	69	0	41	0	1	0	0	0	32	374	0
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	9.7	9.2	12.8
HCM LOS	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	8%	63%	100%	0%
Vol Thru, %	92%	0%	0%	78%
Vol Right, %	0%	37%	0%	22%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	378	102	1	351
LT Vol	30	64	1	0
Through Vol	348	0	0	274
RT Vol	0	38	0	77
Lane Flow Rate	406	110	1	377
Geometry Grp	1	1	1	1
Degree of Util (X)	0.525	0.168	0.002	0.476
Departure Headway (Hd)	4.646	5.526	6.164	4.542
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	772	644	584	789
Service Time	2.698	3.61	4.164	2.594
HCM Lane V/C Ratio	0.526	0.171	0.002	0.478
HCM Control Delay	12.8	9.7	9.2	11.7
HCM Lane LOS	B	A	A	B
HCM 95th-tile Q	3.1	0.6	0	2.6

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	0	274	77
Peak Hour Factor	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1
Mvmt Flow	0	0	295	83
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	11.7
HCM LOS	B

Lane

Intersection	
Intersection Delay, s/veh	10.4
Intersection LOS	B

Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Vol, veh/h	0	73	38	0	56	233	0	219	91
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	78	41	0	60	251	0	235	98
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	9.4	10.7	10.5
HCM LOS	A	B	B

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	19%	66%	0%
Vol Thru, %	81%	0%	71%
Vol Right, %	0%	34%	29%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	289	111	310
LT Vol	56	73	0
Through Vol	233	0	219
RT Vol	0	38	91
Lane Flow Rate	311	119	333
Geometry Grp	1	1	1
Degree of Util (X)	0.399	0.174	0.408
Departure Headway (Hd)	4.628	5.245	4.406
Convergence, Y/N	Yes	Yes	Yes
Cap	777	680	813
Service Time	2.669	3.307	2.445
HCM Lane V/C Ratio	0.4	0.175	0.41
HCM Control Delay	10.7	9.4	10.5
HCM Lane LOS	B	A	B
HCM 95th-tile Q	1.9	0.6	2

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	29	18	18	0	10	62	20	0	29	116	10	0	11	152	46
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	31	19	19	0	11	67	22	0	31	125	11	0	12	163	49
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.4	8.5	8.8	9.1
HCM LOS	A	A	A	A

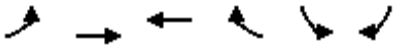
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	19%	45%	11%	5%
Vol Thru, %	75%	28%	67%	73%
Vol Right, %	6%	28%	22%	22%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	155	65	92	209
LT Vol	29	29	10	11
Through Vol	116	18	62	152
RT Vol	10	18	20	46
Lane Flow Rate	167	70	99	225
Geometry Grp	1	1	1	1
Degree of Util (X)	0.212	0.094	0.131	0.274
Departure Headway (Hd)	4.574	4.852	4.781	4.397
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	783	737	748	816
Service Time	2.607	2.896	2.823	2.427
HCM Lane V/C Ratio	0.213	0.095	0.132	0.276
HCM Control Delay	8.8	8.4	8.5	9.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.8	0.3	0.4	1.1

Intersection	
Intersection Delay, s/veh	10.6
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	2	1	6	0	221	2	20	0	4	126	148	0	24	143	4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	2	1	6	0	238	2	22	0	4	135	159	0	26	154	4
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.3	11.4	10.4	9.8
HCM LOS	A	B	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	22%	91%	14%
Vol Thru, %	45%	11%	1%	84%
Vol Right, %	53%	67%	8%	2%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	278	9	243	171
LT Vol	4	2	221	24
Through Vol	126	1	2	143
RT Vol	148	6	20	4
Lane Flow Rate	299	10	261	184
Geometry Grp	1	1	1	1
Degree of Util (X)	0.378	0.014	0.375	0.255
Departure Headway (Hd)	4.549	5.181	5.162	4.996
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	786	695	690	713
Service Time	2.613	3.181	3.242	3.071
HCM Lane V/C Ratio	0.38	0.014	0.378	0.258
HCM Control Delay	10.4	8.3	11.4	9.8
HCM Lane LOS	B	A	B	A
HCM 95th-tile Q	1.8	0	1.7	1



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	230	224	366	11	11	390
Number	5	2	6	16	7	14
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
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	247	241	394	12	12	419
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	301	966	493	419	527	471
Arrive On Green	0.17	0.51	0.26	0.26	0.29	0.29
Sat Flow, veh/h	1792	1881	1881	1599	1792	1599
Grp Volume(v), veh/h	247	241	394	12	12	419
Grp Sat Flow(s),veh/h/ln	1792	1881	1881	1599	1792	1599
Q Serve(g_s), s	7.8	4.2	11.5	0.3	0.3	14.7
Cycle Q Clear(g_c), s	7.8	4.2	11.5	0.3	0.3	14.7
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	301	966	493	419	527	471
V/C Ratio(X)	0.82	0.25	0.80	0.03	0.02	0.89
Avail Cap(c_a), veh/h	613	1248	1248	1061	853	762
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	23.6	8.0	20.2	16.1	14.7	19.8
Incr Delay (d2), s/veh	2.1	0.0	1.1	0.0	0.0	4.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	4.0	2.2	6.1	0.1	0.1	12.2
LnGrp Delay(d),s/veh	25.7	8.0	21.4	16.1	14.7	24.7
LnGrp LOS	C	A	C	B	B	C
Approach Vol, veh/h		488	406		431	
Approach Delay, s/veh		17.0	21.2		24.4	
Approach LOS		B	C		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		36.2		22.6	14.8	21.4		
Change Period (Y+Rc), s		6.0		5.3	4.9	6.0		
Max Green Setting (Gmax), s		39.0		28.0	20.1	39.0		
Max Q Clear Time (g_c+I1), s		6.2		16.7	9.8	13.5		
Green Ext Time (p_c), s		2.0		0.6	0.2	1.9		

Intersection Summary	
HCM 2010 Ctrl Delay	20.7
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	17	39	55	289	379	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	18	42	60	314	412	25

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	858	424	437	0	-	0
Stage 1	424	-	-	-	-	-
Stage 2	434	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	329	632	1128	-	-	-
Stage 1	662	-	-	-	-	-
Stage 2	655	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	308	632	1128	-	-	-
Mov Cap-2 Maneuver	308	-	-	-	-	-
Stage 1	662	-	-	-	-	-
Stage 2	613	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.6	1.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1128	-	479	-	-
HCM Lane V/C Ratio	0.053	-	0.127	-	-
HCM Control Delay (s)	8.4	0	13.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.4	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	324	3	0	257	6	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	348	3	0	276	6	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	352	0	626	350
Stage 1	-	-	-	-	350	-
Stage 2	-	-	-	-	276	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1212	-	450	696
Stage 1	-	-	-	-	716	-
Stage 2	-	-	-	-	773	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1212	-	450	696
Mov Cap-2 Maneuver	-	-	-	-	450	-
Stage 1	-	-	-	-	716	-
Stage 2	-	-	-	-	773	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	450	-	-	1212	-
HCM Lane V/C Ratio	0.014	-	-	-	-
HCM Control Delay (s)	13.1	-	-	0	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	0	0	7	22	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	0	0	8	24	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	8	0	-	0	4	4
Stage 1	-	-	-	-	4	-
Stage 2	-	-	-	-	0	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1619	-	-	-	1021	1082
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1619	-	-	-	1021	1082
Mov Cap-2 Maneuver	-	-	-	-	1021	-
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1619	-	-	-	1021
HCM Lane V/C Ratio	-	-	-	-	0.023
HCM Control Delay (s)	0	-	-	-	8.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	22	7	7	22	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	24	8	8	24	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	15	0	-	0	35	11
Stage 1	-	-	-	-	11	-
Stage 2	-	-	-	-	24	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1609	-	-	-	980	1073
Stage 1	-	-	-	-	1015	-
Stage 2	-	-	-	-	1001	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1609	-	-	-	980	1073
Mov Cap-2 Maneuver	-	-	-	-	980	-
Stage 1	-	-	-	-	1015	-
Stage 2	-	-	-	-	1001	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1609	-	-	-	980
HCM Lane V/C Ratio	-	-	-	-	0.024
HCM Control Delay (s)	0	-	-	-	8.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	37	12	20	35	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	40	13	22	38	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	34	0	-	0	64	24
Stage 1	-	-	-	-	24	-
Stage 2	-	-	-	-	40	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1584	-	-	-	944	1055
Stage 1	-	-	-	-	1001	-
Stage 2	-	-	-	-	985	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1584	-	-	-	944	1055
Mov Cap-2 Maneuver	-	-	-	-	944	-
Stage 1	-	-	-	-	1001	-
Stage 2	-	-	-	-	985	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1584	-	-	-	944
HCM Lane V/C Ratio	-	-	-	-	0.04
HCM Control Delay (s)	0	-	-	-	9
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

MOVEMENT SUMMARY

Site: 03- Ex + Am-Proj+Cumulative_AM- #9 Rancho California Rd & Anza Rd

Ex AM - #9 Rancho California Rd & Anza Rd
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
SouthEast: Anza Rd											
5	L2	59	1.0	0.176	11.7	LOS B	1.0	24.5	0.49	0.63	36.0
2	T1	9	1.0	0.176	5.4	LOS A	1.0	24.5	0.49	0.63	35.9
12	R2	93	1.0	0.176	5.5	LOS A	1.0	24.5	0.49	0.63	34.7
Approach		162	1.0	0.176	7.8	LOS A	1.0	24.5	0.49	0.63	35.3
NorthEast: Rancho California Rd											
3	L2	140	1.0	0.540	10.7	LOS B	4.9	123.5	0.41	0.48	36.5
8	T1	462	1.0	0.540	4.4	LOS A	4.9	123.5	0.41	0.48	36.3
18	R2	1	1.0	0.540	4.6	LOS A	4.9	123.5	0.41	0.48	35.2
Approach		602	1.0	0.540	5.9	LOS A	4.9	123.5	0.41	0.48	36.4
NorthWest: Anza Rd											
1	L2	2	1.0	0.026	14.3	LOS B	0.1	3.5	0.67	0.64	35.6
6	T1	10	1.0	0.026	8.0	LOS A	0.1	3.5	0.67	0.64	35.4
16	R2	4	1.0	0.026	8.1	LOS A	0.1	3.5	0.67	0.64	34.3
Approach		16	1.0	0.026	8.8	LOS A	0.1	3.5	0.67	0.64	35.2
SouthWest: Rancho California Rd											
7	L2	4	1.0	0.295	11.1	LOS B	1.8	46.1	0.42	0.48	37.1
4	T1	260	1.0	0.295	4.8	LOS A	1.8	46.1	0.42	0.48	36.9
14	R2	38	1.0	0.295	4.9	LOS A	1.8	46.1	0.42	0.48	35.7
Approach		303	1.0	0.295	4.9	LOS A	1.8	46.1	0.42	0.48	36.8
All Vehicles		1084	1.0	0.540	5.9	LOS A	4.9	123.5	0.43	0.50	36.3

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 2020 PP AM - #12 Rancho California Rd & Buck Rd

2020 PP AM - #12 Rancho California Rd & Buck Rd
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: Buck Rd											
1a	L1	11	1.0	0.029	10.8	LOS B	0.1	3.5	0.51	0.63	34.6
2	T1	1	1.0	0.029	6.7	LOS A	0.1	3.5	0.51	0.63	34.9
16b	R3	11	1.0	0.029	6.8	LOS A	0.1	3.5	0.51	0.63	33.7
Approach		23	1.0	0.029	8.7	LOS A	0.1	3.5	0.51	0.63	34.2
NorthEast: Rancho California Rd											
1bx	L3	18	1.0	0.406	11.0	LOS B	2.9	73.0	0.23	0.42	37.0
6x	T1	423	1.0	0.406	4.6	LOS A	2.9	73.0	0.23	0.42	36.6
16ax	R1	9	1.0	0.406	4.2	LOS A	2.9	73.0	0.23	0.42	36.3
Approach		449	1.0	0.406	4.9	LOS A	2.9	73.0	0.23	0.42	36.6
West: Buck Rd											
5a	L1	20	1.0	0.108	11.5	LOS B	0.5	13.9	0.58	0.70	34.6
6	T1	1	1.0	0.108	7.4	LOS A	0.5	13.9	0.58	0.70	35.0
12b	R3	58	1.0	0.108	7.5	LOS A	0.5	13.9	0.58	0.70	33.8
Approach		80	1.0	0.108	8.6	LOS A	0.5	13.9	0.58	0.70	34.0
SouthWest: Rancho California Rd											
5bx	L3	27	1.0	0.355	11.0	LOS B	2.5	61.7	0.23	0.43	36.9
2x	T1	339	1.0	0.355	4.6	LOS A	2.5	61.7	0.23	0.43	36.6
12ax	R1	26	1.0	0.355	4.2	LOS A	2.5	61.7	0.23	0.43	36.3
Approach		391	1.0	0.355	5.0	LOS A	2.5	61.7	0.23	0.43	36.6
All Vehicles		943	1.0	0.406	5.3	LOS A	2.9	73.0	0.27	0.46	36.3

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1686	307	461	912	0	0	0	0	1155	0	376
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	1775	323	485	960	0				1339	0	264
Adj No. of Lanes	0	3	1	2	3	0				2	0	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	2440	677	562	3190	0				1129	0	503
Arrive On Green	0.00	0.44	0.43	0.22	0.83	0.00				0.32	0.00	0.32
Sat Flow, veh/h	0	5588	1583	3442	5253	0				3548	0	1582
Grp Volume(v), veh/h	0	1775	323	485	960	0				1339	0	264
Grp Sat Flow(s),veh/h/ln	0	1863	1583	1721	1695	0				1774	0	1582
Q Serve(g_s), s	0.0	28.8	16.1	14.9	4.6	0.0				35.0	0.0	15.0
Cycle Q Clear(g_c), s	0.0	28.8	16.1	14.9	4.6	0.0				35.0	0.0	15.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2440	677	562	3190	0				1129	0	503
V/C Ratio(X)	0.00	0.73	0.48	0.86	0.30	0.00				1.19	0.00	0.52
Avail Cap(c_a), veh/h	0	2440	677	720	3190	0				1129	0	503
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.82	0.82	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	25.6	22.6	41.9	3.8	0.0				37.5	0.0	30.7
Incr Delay (d2), s/veh	0.0	1.9	2.4	6.0	0.2	0.0				92.9	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.0	15.2	7.5	7.5	2.2	0.0				31.7	0.0	6.7
LnGrp Delay(d),s/veh	0.0	27.5	25.0	47.9	4.0	0.0				130.4	0.0	31.7
LnGrp LOS		C	C	D	A					F		C
Approach Vol, veh/h		2098			1445						1603	
Approach Delay, s/veh		27.1			18.7						114.1	
Approach LOS		C			B						F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	21.0	51.0		38.0		72.0		
Change Period (Y+Rc), s	3.5	5.0		5.0		5.0		
Max Green Setting (Gmax), s	22.5	41.0		33.0		67.0		
Max Q Clear Time (g_c+I1), s	16.9	30.8		37.0		6.6		
Green Ext Time (p_c), s	0.5	9.5		0.0		45.8		

Intersection Summary	
HCM 2010 Ctrl Delay	51.9
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	2260	0	0	1093	1113	228	0	1078	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	0	1863	0	0	1863	1863	1863	1863	1863			
Adj Flow Rate, veh/h	0	2379	0	0	1151	1172	160	0	1221			
Adj No. of Lanes	0	3	0	0	3	2	1	0	2			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	0	2	0	0	2	2	2	2	2			
Cap, veh/h	0	2610	0	0	2868	1625	767	0	1369			
Arrive On Green	0.00	0.51	0.00	0.00	0.86	0.86	0.43	0.00	0.43			
Sat Flow, veh/h	0	5421	0	0	5588	3167	1774	0	3167			
Grp Volume(v), veh/h	0	2379	0	0	1151	1172	160	0	1221			
Grp Sat Flow(s),veh/h/ln	0	1695	0	0	1863	1583	1774	0	1583			
Q Serve(g_s), s	0.0	47.1	0.0	0.0	4.9	15.2	6.2	0.0	39.2			
Cycle Q Clear(g_c), s	0.0	47.1	0.0	0.0	4.9	15.2	6.2	0.0	39.2			
Prop In Lane	0.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2610	0	0	2868	1625	767	0	1369			
V/C Ratio(X)	0.00	0.91	0.00	0.00	0.40	0.72	0.21	0.00	0.89			
Avail Cap(c_a), veh/h	0	2610	0	0	2868	1625	790	0	1411			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.67	1.67	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.17	0.00	0.00	0.45	0.45	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	24.5	0.0	0.0	4.2	4.9	19.5	0.0	28.9			
Incr Delay (d2), s/veh	0.0	1.2	0.0	0.0	0.2	1.3	0.2	0.0	7.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(-26165%),veh/ln	0.0	22.1	0.0	0.0	2.5	6.5	3.1	0.0	18.6			
LnGrp Delay(d),s/veh	0.0	25.7	0.0	0.0	4.4	6.2	19.7	0.0	36.5			
LnGrp LOS		C			A	A	B		D			
Approach Vol, veh/h		2379			2323			1381				
Approach Delay, s/veh		25.7			5.3			34.5				
Approach LOS		C			A			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		59.4				59.4		50.6
Change Period (Y+Rc), s		5.0				5.0		5.0
Max Green Setting (Gmax), s		53.0				53.0		47.0
Max Q Clear Time (g_c+I1), s		49.1				17.2		41.2
Green Ext Time (p_c), s		3.9				35.2		4.4

Intersection Summary	
HCM 2010 Ctrl Delay	19.9
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	785	1753	781	215	1101	243	514	653	136	186	744	644
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	872	1948	868	239	1223	270	571	726	151	207	827	716
Adj No. of Lanes	2	3	1	1	3	1	2	2	1	2	2	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	845	1942	842	226	1341	417	563	965	431	375	772	1247
Arrive On Green	0.49	0.76	0.74	0.13	0.26	0.26	0.16	0.27	0.27	0.11	0.22	0.20
Sat Flow, veh/h	3442	5085	1583	1774	5085	1582	3442	3539	1580	3442	3539	2754
Grp Volume(v), veh/h	872	1948	868	239	1223	270	571	726	151	207	827	716
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1774	1695	1582	1721	1770	1580	1721	1770	1377
Q Serve(g_s), s	27.0	42.0	40.5	14.0	25.6	16.7	18.0	20.6	8.5	6.3	24.0	0.0
Cycle Q Clear(g_c), s	27.0	42.0	40.5	14.0	25.6	16.7	18.0	20.6	8.5	6.3	24.0	0.0
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	845	1942	842	226	1341	417	563	965	431	375	772	1247
V/C Ratio(X)	1.03	1.00	1.03	1.06	0.91	0.65	1.01	0.75	0.35	0.55	1.07	0.57
Avail Cap(c_a), veh/h	845	1942	842	226	1341	417	563	965	431	375	772	1247
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)	0.30	0.30	0.30	0.89	0.89	0.89	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.0	13.0	10.3	48.0	39.3	36.0	46.0	36.6	32.2	46.4	43.0	22.4
Incr Delay (d2), s/veh	25.9	11.9	25.5	72.8	9.9	6.8	41.4	5.4	2.2	1.0	53.1	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(-26165%),veh/ln	15.7	20.5	24.1	11.4	13.2	8.1	11.8	10.8	4.0	3.0	17.4	8.1
LnGrp Delay(d),s/veh	53.9	24.9	35.8	120.8	49.2	42.7	87.4	42.0	34.4	47.5	96.1	22.9
LnGrp LOS	F	F	F	F	D	D	F	D	C	D	F	C
Approach Vol, veh/h		3688			1732			1448			1750	
Approach Delay, s/veh		34.4			58.1			59.1			60.4	
Approach LOS		C			E			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	45.0	21.0	27.0	30.0	32.0	15.0	33.0
Change Period (Y+Rc), s	3.5	5.0	3.5	5.0	3.5	5.0	3.5	5.0
Max Green Setting (Gmax), s	13.5	40.0	17.5	22.0	26.5	27.0	11.5	28.0
Max Q Clear Time (g_c+I1), s	16.0	44.0	20.0	26.0	29.0	27.6	8.3	22.6
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.6

Intersection Summary		
HCM 2010 Ctrl Delay		48.6
HCM 2010 LOS		D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	183	1452	250	85	899	251	312	732	131	524	699	48
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1881	1881	1881	1881	1881	1881	1900
Adj Flow Rate, veh/h	191	1512	260	89	936	261	325	762	136	546	728	50
Adj No. of Lanes	1	2	0	1	2	1	2	2	1	2	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	556	1870	315	121	1235	551	379	889	383	537	1045	72
Arrive On Green	0.31	0.61	0.59	0.07	0.35	0.35	0.11	0.25	0.24	0.15	0.31	0.30
Sat Flow, veh/h	1792	3061	516	1792	3574	1596	3476	3574	1599	3476	3394	233
Grp Volume(v), veh/h	191	871	901	89	936	261	325	762	136	546	383	395
Grp Sat Flow(s),veh/h/ln	1792	1787	1790	1792	1787	1596	1738	1787	1599	1738	1787	1840
Q Serve(g_s), s	9.1	40.6	43.6	5.4	25.5	14.1	10.1	22.4	8.3	17.0	20.8	20.8
Cycle Q Clear(g_c), s	9.1	40.6	43.6	5.4	25.5	14.1	10.1	22.4	8.3	17.0	20.8	20.8
Prop In Lane	1.00		0.29	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	556	1092	1094	121	1235	551	379	889	383	537	550	566
V/C Ratio(X)	0.34	0.80	0.82	0.74	0.76	0.47	0.86	0.86	0.35	1.02	0.70	0.70
Avail Cap(c_a), veh/h	556	1092	1094	195	1235	551	379	942	407	537	552	569
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)	0.98	0.98	0.98	0.77	0.77	0.77	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.3	16.2	17.0	50.3	31.9	28.2	48.2	39.5	40.0	46.5	33.5	33.6
Incr Delay (d2), s/veh	0.1	5.9	6.9	2.5	3.4	2.2	16.7	7.4	0.4	43.0	3.6	3.5
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(-26165%),veh/ln	4.5	21.6	23.4	2.7	13.2	6.5	5.8	11.9	3.7	11.3	10.8	11.1
LnGrp Delay(d),s/veh	29.4	22.2	24.0	52.9	35.3	30.4	64.8	46.9	40.4	89.5	37.1	37.1
LnGrp LOS	C	C	C	D	D	C	E	D	D	F	D	D
Approach Vol, veh/h		1963			1286			1223			1324	
Approach Delay, s/veh		23.7			35.5			50.9			58.7	
Approach LOS		C			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.4	70.3	15.0	36.9	39.7	41.0	21.5	30.4
Change Period (Y+Rc), s	3.5	6.0	3.5	5.0	6.0	* 6	5.0	* 5
Max Green Setting (Gmax), s	11.5	37.0	11.5	32.0	13.5	* 35	16.5	* 27
Max Q Clear Time (g_c+I1), s	7.4	45.6	12.1	22.8	11.1	27.5	19.0	24.4
Green Ext Time (p_c), s	0.0	0.0	0.0	2.6	0.2	4.3	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	40.1
HCM 2010 LOS	D

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	180	1546	279	45	746	24	279	358	68	54	185	81
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	198	1699	307	49	820	26	307	393	75	59	203	89
Adj No. of Lanes	1	2	0	1	2	0	2	2	0	1	2	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	223	1772	311	58	1735	55	371	545	103	76	288	122
Arrive On Green	0.12	0.58	0.56	0.03	0.49	0.47	0.11	0.18	0.18	0.04	0.12	0.12
Sat Flow, veh/h	1792	3041	533	1792	3536	112	3476	2985	564	1792	2439	1029
Grp Volume(v), veh/h	198	977	1029	49	414	432	307	234	234	59	147	145
Grp Sat Flow(s),veh/h/ln	1792	1787	1787	1792	1787	1861	1738	1787	1761	1792	1787	1681
Q Serve(g_s), s	10.9	50.4	56.6	2.7	15.4	15.4	8.7	12.3	12.5	3.3	7.9	8.4
Cycle Q Clear(g_c), s	10.9	50.4	56.6	2.7	15.4	15.4	8.7	12.3	12.5	3.3	7.9	8.4
Prop In Lane	1.00		0.30	1.00		0.06	1.00		0.32	1.00		0.61
Lane Grp Cap(c), veh/h	223	1041	1041	58	877	913	371	326	322	76	211	199
V/C Ratio(X)	0.89	0.94	0.99	0.85	0.47	0.47	0.83	0.72	0.73	0.78	0.69	0.73
Avail Cap(c_a), veh/h	269	1041	1041	143	877	913	382	483	476	107	393	370
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	0.89	0.89	0.89	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.1	19.2	20.8	48.2	16.9	16.9	43.8	38.4	38.5	47.4	42.3	42.6
Incr Delay (d2), s/veh	2.9	2.2	6.0	10.9	1.6	1.6	12.7	1.1	1.2	12.4	1.5	2.0
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(-26165%),veh/ln	5.6	25.3	29.5	1.5	8.0	8.3	4.8	6.1	6.2	1.9	4.0	4.0
LnGrp Delay(d),s/veh	46.0	21.4	26.9	59.1	18.5	18.5	56.4	39.5	39.7	59.8	43.9	44.5
LnGrp LOS	D	C	C	E	B	B	E	D	D	E	D	D
Approach Vol, veh/h		2204			895			775			351	
Approach Delay, s/veh		26.2			20.7			46.3			46.8	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.2	62.3	14.7	15.8	16.4	53.1	8.2	22.3
Change Period (Y+Rc), s	3.5	6.0	4.0	4.0	3.5	6.0	4.0	4.0
Max Green Setting (Gmax), s	3.5	41.0	11.0	22.0	15.5	34.0	6.0	27.0
Max Q Clear Time (g_c+I1), s	14.7	58.6	10.7	10.4	12.9	17.4	5.3	14.5
Green Ext Time (p_c), s	0.0	0.0	0.0	1.3	0.1	16.5	0.0	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	30.4
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	66	533	321	105	526	47	194	379	127	44	286	31
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1900	1881	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	69	555	334	109	548	49	202	395	132	46	298	32
Adj No. of Lanes	2	1	1	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	130	923	785	124	1735	155	266	508	168	160	434	46
Arrive On Green	0.04	0.49	0.49	0.07	0.52	0.50	0.15	0.19	0.19	0.09	0.13	0.13
Sat Flow, veh/h	3476	1881	1599	1792	3320	296	1792	2642	873	1792	3260	347
Grp Volume(v), veh/h	69	555	334	109	294	303	202	266	261	46	162	168
Grp Sat Flow(s),veh/h/ln	1738	1881	1599	1792	1787	1829	1792	1787	1727	1792	1787	1820
Q Serve(g_s), s	2.0	21.5	13.6	6.1	9.5	9.6	10.9	14.2	14.5	2.4	8.7	8.9
Cycle Q Clear(g_c), s	2.0	21.5	13.6	6.1	9.5	9.6	10.9	14.2	14.5	2.4	8.7	8.9
Prop In Lane	1.00		1.00	1.00		0.16	1.00		0.51	1.00		0.19
Lane Grp Cap(c), veh/h	130	923	785	124	934	956	266	344	332	160	238	242
V/C Ratio(X)	0.53	0.60	0.43	0.88	0.32	0.32	0.76	0.77	0.79	0.29	0.68	0.69
Avail Cap(c_a), veh/h	172	923	785	124	934	956	284	344	332	532	531	541
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.7	18.6	16.6	46.6	13.8	13.9	41.3	38.7	38.8	43.0	41.7	41.8
Incr Delay (d2), s/veh	0.1	0.3	0.2	44.6	0.9	0.9	9.3	9.5	10.9	0.4	1.3	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	1.0	11.2	6.0	4.6	4.9	5.0	6.1	7.9	7.9	1.2	4.4	4.6
LnGrp Delay(d),s/veh	47.9	18.8	16.7	91.2	14.7	14.8	50.6	48.2	49.7	43.4	43.0	43.1
LnGrp LOS	D	B	B	F	B	B	D	D	D	D	D	D
Approach Vol, veh/h		958			706			729			376	
Approach Delay, s/veh		20.2			26.5			49.4			43.1	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	53.6	19.0	17.5	7.8	56.8	13.0	23.4
Change Period (Y+Rc), s	3.5	6.0	6.0	6.0	3.5	6.0	6.0	6.0
Max Green Setting (Gmax), s	7.5	30.0	14.0	28.0	5.5	32.0	28.0	14.0
Max Q Clear Time (g_c+I1), s	10.1	23.5	12.9	10.9	4.0	11.6	4.4	16.5
Green Ext Time (p_c), s	0.0	5.5	0.0	0.6	0.0	14.8	0.1	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	32.6
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	2	687	629	0	3	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	2	747	684	0	3	23

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	684	0	-	0	1435	684
Stage 1	-	-	-	-	684	-
Stage 2	-	-	-	-	751	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	914	-	-	-	148	450
Stage 1	-	-	-	-	503	-
Stage 2	-	-	-	-	468	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	914	-	-	-	148	450
Mov Cap-2 Maneuver	-	-	-	-	288	-
Stage 1	-	-	-	-	503	-
Stage 2	-	-	-	-	467	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	13.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	914	-	-	-	288	450
HCM Lane V/C Ratio	0.002	-	-	-	0.011	0.051
HCM Control Delay (s)	8.9	-	-	-	17.6	13.4
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0	-	-	-	0	0.2

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	26	629	26	13	568	4	18	1	9	7	2	30
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	150	-	150	150	-	150	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	26	635	26	13	574	4	18	1	9	7	2	30

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	574	0	0	635	0	0	1304	1288	635	1293	1288	574
Stage 1	-	-	-	-	-	-	688	688	-	600	600	-
Stage 2	-	-	-	-	-	-	616	600	-	693	688	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	1004	-	-	953	-	-	138	165	480	140	165	520
Stage 1	-	-	-	-	-	-	438	448	-	489	491	-
Stage 2	-	-	-	-	-	-	480	491	-	435	448	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1004	-	-	953	-	-	125	159	480	133	159	520
Mov Cap-2 Maneuver	-	-	-	-	-	-	125	159	-	133	159	-
Stage 1	-	-	-	-	-	-	427	436	-	476	484	-
Stage 2	-	-	-	-	-	-	444	484	-	415	436	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.2	31.1	18
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	166	1004	-	-	953	-	-	317
HCM Lane V/C Ratio	0.17	0.026	-	-	0.014	-	-	0.124
HCM Control Delay (s)	31.1	8.7	-	-	8.8	-	-	18
HCM Lane LOS	D	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0	-	-	0.4

Intersection	
Intersection Delay, s/veh	44.1
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	0	0	22	0	29	0	3	0	8	660	108	0	2	492	4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	0	0	24	0	31	0	3	0	9	710	116	0	2	529	4
Number of Lanes	0	0	1	0	0	0	1	0	0	1	1	0	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	1	1
HCM Control Delay	9.8	11.1	59.4	23.9
HCM LOS	A	B	F	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	91%	100%	0%	0%
Vol Thru, %	0%	86%	0%	0%	0%	100%	0%
Vol Right, %	0%	14%	100%	9%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	8	768	22	32	2	492	4
LT Vol	8	0	0	29	2	0	0
Through Vol	0	660	0	0	0	492	0
RT Vol	0	108	22	3	0	0	4
Lane Flow Rate	9	826	24	34	2	529	4
Geometry Grp	8	8	7	7	7	7	7
Degree of Util (X)	0.015	1	0.044	0.074	0.003	0.778	0.005
Departure Headway (Hd)	6.367	5.767	6.705	7.734	5.793	5.294	4.596
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	558	628	532	463	618	682	778
Service Time	4.15	3.549	4.464	5.489	3.526	3.027	2.328
HCM Lane V/C Ratio	0.016	1.315	0.045	0.073	0.003	0.776	0.005
HCM Control Delay	9.2	59.9	9.8	11.1	8.5	24.1	7.4
HCM Lane LOS	A	F	A	B	A	C	A
HCM 95th-tile Q	0	15.2	0.1	0.2	0	7.5	0

Intersection	
Intersection Delay, s/veh	18.9
Intersection LOS	C

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Vol, veh/h	0	470	187	0	28	331	0	121	43
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	505	201	0	30	356	0	130	46
Number of Lanes	0	1	1	0	1	1	0	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay	21.8	16.6	12.3
HCM LOS	C	C	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2
Vol Left, %	100%	0%	0%	0%	100%	0%
Vol Thru, %	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	121	43	470	187	28	331
LT Vol	121	0	0	0	28	0
Through Vol	0	0	470	0	0	331
RT Vol	0	43	0	187	0	0
Lane Flow Rate	130	46	505	201	30	356
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.274	0.082	0.794	0.276	0.054	0.593
Departure Headway (Hd)	7.583	6.361	5.658	4.95	6.506	5.998
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	474	563	642	726	550	601
Service Time	5.329	4.106	3.392	2.684	4.247	3.74
HCM Lane V/C Ratio	0.274	0.082	0.787	0.277	0.055	0.592
HCM Control Delay	13.2	9.7	26.7	9.6	9.6	17.2
HCM Lane LOS	B	A	D	A	A	C
HCM 95th-tile Q	1.1	0.3	7.8	1.1	0.2	3.9

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	15	15	68	49	14	19	62	338	58	19	237	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	16	16	73	53	15	20	67	363	62	20	255	15

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	849	862	262	876	839	395	270	0	0	426	0	0
Stage 1	303	303	-	528	528	-	-	-	-	-	-	-
Stage 2	546	559	-	348	311	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	282	294	779	270	303	656	1299	-	-	1139	-	-
Stage 1	708	665	-	536	529	-	-	-	-	-	-	-
Stage 2	524	513	-	670	660	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	244	268	779	218	276	656	1299	-	-	1139	-	-
Mov Cap-2 Maneuver	244	268	-	218	276	-	-	-	-	-	-	-
Stage 1	660	651	-	500	493	-	-	-	-	-	-	-
Stage 2	459	478	-	580	646	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.6	24.8	1.1	0.6
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1299	-	-	479	269	1139	-	-
HCM Lane V/C Ratio	0.051	-	-	0.22	0.328	0.018	-	-
HCM Control Delay (s)	7.9	0	-	14.6	24.8	8.2	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.8	1.4	0.1	-	-

Intersection	
Intersection Delay, s/veh	25.7
Intersection LOS	D

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	128	0	35	0	0	0	0	0	45	373	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	138	0	38	0	0	0	0	0	48	401	0
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	12.6	0	18.8
HCM LOS	B	-	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	79%	0%	0%
Vol Thru, %	89%	0%	100%	75%
Vol Right, %	0%	21%	0%	25%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	418	163	0	593
LT Vol	45	128	0	0
Through Vol	373	0	0	446
RT Vol	0	35	0	147
Lane Flow Rate	449	175	0	638
Geometry Grp	1	1	1	1
Degree of Util (X)	0.672	0.318	0	0.886
Departure Headway (Hd)	5.379	6.523	7.128	5.003
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	670	550	0	721
Service Time	3.424	4.582	5.223	3.044
HCM Lane V/C Ratio	0.67	0.318	0	0.885
HCM Control Delay	18.8	12.6	10.2	34.1
HCM Lane LOS	C	B	N	D
HCM 95th-tile Q	5.2	1.4	0	11.1

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	0	446	147
Peak Hour Factor	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1
Mvmt Flow	0	0	480	158
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	34.1
HCM LOS	D

Lane

Intersection	
Intersection Delay, s/veh	17.3
Intersection LOS	C

Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Vol, veh/h	0	149	24	0	57	347	0	302	185
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	160	26	0	61	373	0	325	199
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	12.3	16.9	19.3
HCM LOS	B	C	C

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	14%	86%	0%
Vol Thru, %	86%	0%	62%
Vol Right, %	0%	14%	38%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	404	173	487
LT Vol	57	149	0
Through Vol	347	0	302
RT Vol	0	24	185
Lane Flow Rate	434	186	524
Geometry Grp	1	1	1
Degree of Util (X)	0.633	0.325	0.714
Departure Headway (Hd)	5.243	6.281	4.906
Convergence, Y/N	Yes	Yes	Yes
Cap	686	571	738
Service Time	3.28	4.33	2.942
HCM Lane V/C Ratio	0.633	0.326	0.71
HCM Control Delay	16.9	12.3	19.3
HCM Lane LOS	C	B	C
HCM 95th-tile Q	4.5	1.4	6.1

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	26	52	22	0	8	53	10	0	32	234	6	0	20	149	17
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	28	56	24	0	9	57	11	0	34	252	6	0	22	160	18
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.1	8.9	10.5	9.4
HCM LOS	A	A	B	A

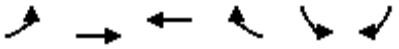
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	12%	26%	11%	11%
Vol Thru, %	86%	52%	75%	80%
Vol Right, %	2%	22%	14%	9%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	272	100	71	186
LT Vol	32	26	8	20
Through Vol	234	52	53	149
RT Vol	6	22	10	17
Lane Flow Rate	292	108	76	200
Geometry Grp	1	1	1	1
Degree of Util (X)	0.376	0.152	0.109	0.261
Departure Headway (Hd)	4.627	5.08	5.146	4.689
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	775	701	691	762
Service Time	2.679	3.148	3.218	2.745
HCM Lane V/C Ratio	0.377	0.154	0.11	0.262
HCM Control Delay	10.5	9.1	8.9	9.4
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	1.8	0.5	0.4	1

Intersection	
Intersection Delay, s/veh	12.9
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	9	0	11	0	148	1	45	0	4	229	226	0	19	164	4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	10	0	12	0	159	1	48	0	4	246	243	0	20	176	4
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9	11.3	14.8	10.4
HCM LOS	A	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	45%	76%	10%
Vol Thru, %	50%	0%	1%	88%
Vol Right, %	49%	55%	23%	2%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	459	20	194	187
LT Vol	4	9	148	19
Through Vol	229	0	1	164
RT Vol	226	11	45	4
Lane Flow Rate	494	22	209	201
Geometry Grp	1	1	1	1
Degree of Util (X)	0.619	0.034	0.326	0.292
Departure Headway (Hd)	4.513	5.77	5.63	5.226
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	790	622	642	690
Service Time	2.611	3.791	3.639	3.242
HCM Lane V/C Ratio	0.625	0.035	0.326	0.291
HCM Control Delay	14.8	9	11.3	10.4
HCM Lane LOS	B	A	B	B
HCM 95th-tile Q	4.4	0.1	1.4	1.2



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	437	477	284	19	13	315
Number	5	2	6	16	7	14
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
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	470	513	305	20	14	339
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	514	1099	418	355	433	386
Arrive On Green	0.29	0.58	0.22	0.22	0.24	0.24
Sat Flow, veh/h	1792	1881	1881	1599	1792	1599
Grp Volume(v), veh/h	470	513	305	20	14	339
Grp Sat Flow(s),veh/h/ln	1792	1881	1881	1599	1792	1599
Q Serve(g_s), s	16.5	10.1	9.8	0.6	0.4	13.2
Cycle Q Clear(g_c), s	16.5	10.1	9.8	0.6	0.4	13.2
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	514	1099	418	355	433	386
V/C Ratio(X)	0.91	0.47	0.73	0.06	0.03	0.88
Avail Cap(c_a), veh/h	555	1130	1130	960	773	690
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	22.4	7.7	23.5	19.9	18.8	23.7
Incr Delay (d2), s/veh	18.3	0.1	0.9	0.0	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	10.7	5.2	5.2	0.3	0.2	0.3
LnGrp Delay(d),s/veh	40.7	7.8	24.4	19.9	18.8	26.2
LnGrp LOS	D	A	C	B	B	C
Approach Vol, veh/h		983	325		353	
Approach Delay, s/veh		23.5	24.1		25.9	
Approach LOS		C	C		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		43.9		21.0	23.5	20.4		
Change Period (Y+Rc), s		6.0		5.3	4.9	6.0		
Max Green Setting (Gmax), s		39.0		28.0	20.1	39.0		
Max Q Clear Time (g_c+I1), s		12.1		15.2	18.5	11.8		
Green Ext Time (p_c), s		2.6		0.5	0.2	2.6		

Intersection Summary	
HCM 2010 Ctrl Delay	24.2
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	17	40	39	461	307	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	18	43	42	501	334	18

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	929	343	352	0	-	0
Stage 1	343	-	-	-	-	-
Stage 2	586	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	298	702	1212	-	-	-
Stage 1	721	-	-	-	-	-
Stage 2	558	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	284	702	1212	-	-	-
Mov Cap-2 Maneuver	284	-	-	-	-	-
Stage 1	721	-	-	-	-	-
Stage 2	531	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.4	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1212	-	488	-	-
HCM Lane V/C Ratio	0.035	-	0.127	-	-
HCM Control Delay (s)	8.1	0	13.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	251	5	0	399	4	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	270	5	0	429	4	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	275	0	702	273
Stage 1	-	-	-	-	273	-
Stage 2	-	-	-	-	429	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1294	-	406	768
Stage 1	-	-	-	-	775	-
Stage 2	-	-	-	-	659	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1294	-	406	768
Mov Cap-2 Maneuver	-	-	-	-	406	-
Stage 1	-	-	-	-	775	-
Stage 2	-	-	-	-	659	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	14
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	406	-	-	1294	-
HCM Lane V/C Ratio	0.011	-	-	-	-
HCM Control Delay (s)	14	-	-	0	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	0	0	24	14	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	0	0	26	15	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	26	0	-	0	13	13
Stage 1	-	-	-	-	13	-
Stage 2	-	-	-	-	0	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1595	-	-	-	1009	1070
Stage 1	-	-	-	-	1012	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1595	-	-	-	1009	1070
Mov Cap-2 Maneuver	-	-	-	-	1009	-
Stage 1	-	-	-	-	1012	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1595	-	-	-	1009
HCM Lane V/C Ratio	-	-	-	-	0.015
HCM Control Delay (s)	0	-	-	-	8.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	14	24	24	14	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	15	26	26	15	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	52	0	-	0	54	39
Stage 1	-	-	-	-	39	-
Stage 2	-	-	-	-	15	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1560	-	-	-	957	1035
Stage 1	-	-	-	-	986	-
Stage 2	-	-	-	-	1010	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1560	-	-	-	957	1035
Mov Cap-2 Maneuver	-	-	-	-	957	-
Stage 1	-	-	-	-	986	-
Stage 2	-	-	-	-	1010	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1560	-	-	-	957
HCM Lane V/C Ratio	-	-	-	-	0.016
HCM Control Delay (s)	0	-	-	-	8.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	24	41	27	23	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	26	44	29	25	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	73	0	-	0	85	59
Stage 1	-	-	-	-	59	-
Stage 2	-	-	-	-	26	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1533	-	-	-	919	1010
Stage 1	-	-	-	-	966	-
Stage 2	-	-	-	-	999	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1533	-	-	-	919	1010
Mov Cap-2 Maneuver	-	-	-	-	919	-
Stage 1	-	-	-	-	966	-
Stage 2	-	-	-	-	999	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1533	-	-	-	919
HCM Lane V/C Ratio	-	-	-	-	0.027
HCM Control Delay (s)	0	-	-	-	9
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

MOVEMENT SUMMARY

Site: 03- Ex + Am-Proj+Cumulative_PM - #9 Rancho California Rd & Anza Rd

Ex PM - #9 Rancho California Rd & Anza Rd
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
SouthEast: Anza Rd											
5	L2	77	1.0	0.422	14.9	LOS B	2.9	73.2	0.79	0.86	34.7
2	T1	14	1.0	0.422	8.7	LOS A	2.9	73.2	0.79	0.86	34.5
12	R2	194	1.0	0.422	8.8	LOS A	2.9	73.2	0.79	0.86	33.5
Approach		284	1.0	0.422	10.4	LOS B	2.9	73.2	0.79	0.86	33.9
NorthEast: Rancho California Rd											
3	L2	132	1.0	0.578	11.3	LOS B	5.4	136.0	0.55	0.54	36.1
8	T1	468	1.0	0.578	5.0	LOS A	5.4	136.0	0.55	0.54	35.9
18	R2	9	1.0	0.578	5.1	LOS A	5.4	136.0	0.55	0.54	34.8
Approach		609	1.0	0.578	6.4	LOS A	5.4	136.0	0.55	0.54	35.9
NorthWest: Anza Rd											
1	L2	11	1.0	0.064	14.6	LOS B	0.4	8.9	0.71	0.72	34.9
6	T1	11	1.0	0.064	8.3	LOS A	0.4	8.9	0.71	0.72	34.7
16	R2	16	1.0	0.064	8.4	LOS A	0.4	8.9	0.71	0.72	33.6
Approach		39	1.0	0.064	10.2	LOS B	0.4	8.9	0.71	0.72	34.3
SouthWest: Rancho California Rd											
7	L2	28	1.0	0.604	11.7	LOS B	5.5	138.5	0.62	0.56	36.3
4	T1	519	1.0	0.604	5.5	LOS A	5.5	138.5	0.62	0.56	36.1
14	R2	69	1.0	0.604	5.6	LOS A	5.5	138.5	0.62	0.56	35.0
Approach		616	1.0	0.604	5.8	LOS A	5.5	138.5	0.62	0.56	36.0
All Vehicles		1548	1.0	0.604	7.0	LOS A	5.5	138.5	0.63	0.61	35.5

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 2020 PP PM #12 Rancho California Rd & Buck Rd

2020 PP PM - #12 Rancho California Rd & Buck Rd
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: Buck Rd											
1a	L1	11	1.0	0.036	12.8	LOS B	0.2	4.6	0.64	0.70	33.5
2	T1	1	1.0	0.036	8.7	LOS A	0.2	4.6	0.64	0.70	33.9
16b	R3	11	1.0	0.036	8.8	LOS A	0.2	4.6	0.64	0.70	32.8
Approach		23	1.0	0.036	10.7	LOS B	0.2	4.6	0.64	0.70	33.2
NorthEast: Rancho California Rd											
1bx	L3	12	1.0	0.385	11.2	LOS B	2.6	66.6	0.30	0.44	36.8
6x	T1	381	1.0	0.385	4.9	LOS A	2.6	66.6	0.30	0.44	36.4
16ax	R1	20	1.0	0.385	4.5	LOS A	2.6	66.6	0.30	0.44	36.1
Approach		413	1.0	0.385	5.0	LOS A	2.6	66.6	0.30	0.44	36.4
West: Buck Rd											
5a	L1	13	1.0	0.069	11.1	LOS B	0.3	8.7	0.54	0.66	34.9
6	T1	1	1.0	0.069	6.9	LOS A	0.3	8.7	0.54	0.66	35.3
12b	R3	39	1.0	0.069	7.0	LOS A	0.3	8.7	0.54	0.66	34.0
Approach		53	1.0	0.069	8.0	LOS A	0.3	8.7	0.54	0.66	34.3
SouthWest: Rancho California Rd											
5bx	L3	54	1.0	0.557	10.9	LOS B	5.3	134.4	0.25	0.43	36.8
2x	T1	559	1.0	0.557	4.6	LOS A	5.3	134.4	0.25	0.43	36.4
12ax	R1	12	1.0	0.557	4.2	LOS A	5.3	134.4	0.25	0.43	36.1
Approach		625	1.0	0.557	5.1	LOS A	5.3	134.4	0.25	0.43	36.5
All Vehicles		1113	1.0	0.557	5.3	LOS A	5.3	134.4	0.29	0.45	36.3

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1010	318	568	756	0	0	0	0	1377	0	430
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	1041	328	586	779	0				1558	0	295
Adj No. of Lanes	0	3	1	2	3	0				2	0	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	2288	634	656	3190	0				1129	0	503
Arrive On Green	0.00	0.41	0.40	0.25	0.83	0.00				0.32	0.00	0.32
Sat Flow, veh/h	0	5588	1583	3442	5253	0				3548	0	1582
Grp Volume(v), veh/h	0	1041	328	586	779	0				1558	0	295
Grp Sat Flow(s),veh/h/ln	0	1863	1583	1721	1695	0				1774	0	1582
Q Serve(g_s), s	0.0	14.9	17.2	18.1	3.5	0.0				35.0	0.0	17.2
Cycle Q Clear(g_c), s	0.0	14.9	17.2	18.1	3.5	0.0				35.0	0.0	17.2
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2288	634	656	3190	0				1129	0	503
V/C Ratio(X)	0.00	0.45	0.52	0.89	0.24	0.00				1.38	0.00	0.59
Avail Cap(c_a), veh/h	0	2288	634	720	3190	0				1129	0	503
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.86	0.86	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	23.6	24.9	40.0	3.7	0.0				37.5	0.0	31.4
Incr Delay (d2), s/veh	0.0	0.7	3.0	10.7	0.2	0.0				176.6	0.0	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
%ile BackOfQ(-26165%),veh/ln	0.0	7.8	8.0	9.5	1.6	0.0				44.8	0.0	7.7
LnGrp Delay(d),s/veh	0.0	24.2	27.9	50.7	3.8	0.0				214.1	0.0	33.2
LnGrp LOS		C	C	D	A					F		C
Approach Vol, veh/h		1369			1365						1853	
Approach Delay, s/veh		25.1			24.0						185.3	
Approach LOS		C			C						F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	24.0	48.0		38.0		72.0		
Change Period (Y+Rc), s	3.5	5.0		5.0		5.0		
Max Green Setting (Gmax), s	22.5	41.0		33.0		67.0		
Max Q Clear Time (g_c+I1), s	20.1	19.2		37.0		5.5		
Green Ext Time (p_c), s	0.4	15.3		0.0		27.8		

Intersection Summary	
HCM 2010 Ctrl Delay	89.5
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	2009	0	0	1073	1296	184	0	712	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	0	1863	0	0	1863	1863	1863	1863	1863			
Adj Flow Rate, veh/h	0	2071	0	0	1106	1336	127	0	802			
Adj No. of Lanes	0	3	0	0	3	2	1	0	2			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	0	2	0	0	2	2	2	2	2			
Cap, veh/h	0	3128	0	0	3437	1948	586	0	1046			
Arrive On Green	0.00	0.62	0.00	0.00	1.00	1.00	0.33	0.00	0.33			
Sat Flow, veh/h	0	5421	0	0	5588	3167	1774	0	3167			
Grp Volume(v), veh/h	0	2071	0	0	1106	1336	127	0	802			
Grp Sat Flow(s),veh/h/ln	0	1695	0	0	1863	1583	1774	0	1583			
Q Serve(g_s), s	0.0	29.1	0.0	0.0	0.0	0.0	5.7	0.0	25.0			
Cycle Q Clear(g_c), s	0.0	29.1	0.0	0.0	0.0	0.0	5.7	0.0	25.0			
Prop In Lane	0.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	3128	0	0	3437	1948	586	0	1046			
V/C Ratio(X)	0.00	0.66	0.00	0.00	0.32	0.69	0.22	0.00	0.77			
Avail Cap(c_a), veh/h	0	3128	0	0	3437	1948	790	0	1411			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.67	1.67	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.33	0.00	0.00	0.30	0.30	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	13.7	0.0	0.0	0.0	0.0	26.6	0.0	33.0			
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.0	0.1	0.6	0.3	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			
%ile BackOfQ(-26165%),veh/ln	0.0	13.5	0.0	0.0	0.0	0.2	2.8	0.0	11.2			
LnGrp Delay(d),s/veh	0.0	14.1	0.0	0.0	0.1	0.6	26.8	0.0	35.3			
LnGrp LOS		B			A	A	C		D			
Approach Vol, veh/h		2071			2442			929				
Approach Delay, s/veh		14.1			0.4			34.1				
Approach LOS		B			A			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		70.7				70.7		39.3
Change Period (Y+Rc), s		5.0				5.0		5.0
Max Green Setting (Gmax), s		53.0				53.0		47.0
Max Q Clear Time (g_c+I1), s		31.1				2.0		27.0
Green Ext Time (p_c), s		21.6				49.5		7.4

Intersection Summary	
HCM 2010 Ctrl Delay	11.4
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	488	1527	691	213	1492	250	362	451	116	180	734	567
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	503	1574	712	220	1538	258	373	465	120	186	757	585
Adj No. of Lanes	2	3	1	1	3	1	2	2	1	2	2	2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	947	1792	748	331	1341	417	461	965	431	273	772	1330
Arrive On Green	0.55	0.70	0.68	0.19	0.26	0.26	0.13	0.27	0.27	0.08	0.22	0.20
Sat Flow, veh/h	3442	5085	1583	1774	5085	1582	3442	3539	1580	3442	3539	2754
Grp Volume(v), veh/h	503	1574	712	220	1538	258	373	465	120	186	757	585
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1774	1695	1582	1721	1770	1580	1721	1770	1377
Q Serve(g_s), s	10.2	26.4	12.2	12.7	29.0	15.8	11.6	12.1	6.6	5.8	23.4	0.0
Cycle Q Clear(g_c), s	10.2	26.4	12.2	12.7	29.0	15.8	11.6	12.1	6.6	5.8	23.4	0.0
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	947	1792	748	331	1341	417	461	965	431	273	772	1330
V/C Ratio(X)	0.53	0.88	0.95	0.67	1.15	0.62	0.81	0.48	0.28	0.68	0.98	0.44
Avail Cap(c_a), veh/h	947	1942	795	331	1341	417	563	965	431	375	772	1330
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)	0.67	0.67	0.67	0.89	0.89	0.89	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.2	14.4	9.7	41.6	40.5	35.6	46.3	33.5	31.5	49.3	42.8	18.8
Incr Delay (d2), s/veh	0.2	4.5	17.5	3.6	74.5	6.0	5.9	1.7	1.6	1.1	27.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	4.8	12.7	5.4	6.6	22.8	7.6	5.9	6.1	3.1	2.8	14.4	5.8
LnGrp Delay(d),s/veh	20.4	18.9	27.2	45.2	115.0	41.7	52.2	35.2	33.1	50.4	70.2	19.0
LnGrp LOS	C	B	C	D	F	D	D	D	C	D	E	B
Approach Vol, veh/h		2789			2016			958			1528	
Approach Delay, s/veh		21.3			98.0			41.5			48.2	
Approach LOS		C			F			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.5	41.8	17.7	27.0	33.3	32.0	11.7	33.0
Change Period (Y+Rc), s	3.5	5.0	3.5	5.0	3.5	5.0	3.5	5.0
Max Green Setting (Gmax), s	13.5	40.0	17.5	22.0	26.5	27.0	11.5	28.0
Max Q Clear Time (g_c+I1), s	14.7	28.4	13.6	25.4	12.2	31.0	7.8	14.1
Green Ext Time (p_c), s	0.0	8.4	0.5	0.0	1.2	0.0	0.5	1.7

Intersection Summary	
HCM 2010 Ctrl Delay	50.8
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	91	1282	178	73	1241	203	208	451	71	316	549	85
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1881	1881	1881	1881	1881	1881	1900
Adj Flow Rate, veh/h	93	1308	182	74	1266	207	212	460	72	322	560	87
Adj No. of Lanes	1	2	0	1	2	1	2	2	1	2	2	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	382	1654	229	103	1235	551	289	613	260	432	702	109
Arrive On Green	0.21	0.52	0.51	0.06	0.35	0.35	0.08	0.17	0.16	0.12	0.23	0.22
Sat Flow, veh/h	1792	3155	436	1792	3574	1596	3476	3574	1599	3476	3103	481
Grp Volume(v), veh/h	93	737	753	74	1266	207	212	460	72	322	322	325
Grp Sat Flow(s),veh/h/ln	1792	1787	1804	1792	1787	1596	1738	1787	1599	1738	1787	1796
Q Serve(g_s), s	4.7	36.7	37.6	4.5	38.0	10.7	6.6	13.5	3.6	9.8	18.7	18.8
Cycle Q Clear(g_c), s	4.7	36.7	37.6	4.5	38.0	10.7	6.6	13.5	3.6	9.8	18.7	18.8
Prop In Lane	1.00		0.24	1.00		1.00	1.00		1.00	1.00		0.27
Lane Grp Cap(c), veh/h	382	937	946	103	1235	551	289	613	260	432	404	406
V/C Ratio(X)	0.24	0.79	0.80	0.72	1.03	0.38	0.73	0.75	0.28	0.75	0.80	0.80
Avail Cap(c_a), veh/h	382	937	946	195	1235	551	379	942	407	537	552	555
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)	0.98	0.98	0.98	0.79	0.79	0.79	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.9	21.2	21.6	51.0	36.0	27.1	49.2	43.3	28.1	46.5	40.2	40.3
Incr Delay (d2), s/veh	0.1	6.5	6.8	2.8	29.5	1.5	3.2	1.4	0.4	3.1	4.9	5.1
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(-26165%),veh/ln	2.4	19.7	20.4	2.3	23.8	5.0	3.3	6.8	1.6	4.9	9.8	9.9
LnGrp Delay(d),s/veh	36.0	27.7	28.4	53.8	65.5	28.6	52.4	44.7	28.5	49.6	45.1	45.4
LnGrp LOS	D	C	C	D	F	C	D	D	C	D	D	D
Approach Vol, veh/h		1583			1547			744			969	
Approach Delay, s/veh		28.5			60.0			45.3			46.7	
Approach LOS		C			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	60.7	12.1	27.9	29.0	41.0	18.2	21.9
Change Period (Y+Rc), s	3.5	6.0	3.5	5.0	6.0	* 6	5.0	* 5
Max Green Setting (Gmax), s	11.5	37.0	11.5	32.0	13.5	* 35	16.5	* 27
Max Q Clear Time (g_c+I1), s	6.5	39.6	8.6	20.8	6.7	40.0	11.8	15.5
Green Ext Time (p_c), s	0.0	0.0	0.1	2.1	0.2	0.0	1.3	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	44.8
HCM 2010 LOS	D

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	85	1302	169	48	1055	26	222	189	39	45	97	99
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.96	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	90	1385	180	51	1122	28	236	201	41	48	103	105
Adj No. of Lanes	1	2	0	1	2	0	2	2	0	1	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	107	1995	257	59	2137	53	305	424	84	66	166	146
Arrive On Green	0.06	0.63	0.61	0.03	0.60	0.58	0.09	0.14	0.14	0.04	0.09	0.09
Sat Flow, veh/h	1792	3185	411	1792	3563	89	3476	2950	587	1792	1787	1568
Grp Volume(v), veh/h	90	772	793	51	563	587	236	120	122	48	103	105
Grp Sat Flow(s),veh/h/ln	1792	1787	1808	1792	1787	1865	1738	1787	1750	1792	1787	1568
Q Serve(g_s), s	5.0	28.4	29.3	2.8	18.4	18.4	6.6	6.2	6.4	2.7	5.5	6.5
Cycle Q Clear(g_c), s	5.0	28.4	29.3	2.8	18.4	18.4	6.6	6.2	6.4	2.7	5.5	6.5
Prop In Lane	1.00		0.23	1.00		0.05	1.00		0.34	1.00		1.00
Lane Grp Cap(c), veh/h	107	1120	1133	59	1072	1119	305	257	252	66	166	146
V/C Ratio(X)	0.84	0.69	0.70	0.87	0.52	0.53	0.77	0.47	0.49	0.73	0.62	0.72
Avail Cap(c_a), veh/h	269	1120	1133	143	1072	1119	382	483	473	107	393	345
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)	0.49	0.49	0.49	0.79	0.79	0.79	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.6	12.3	12.6	48.1	11.7	11.7	44.6	39.3	39.4	47.7	43.7	44.1
Incr Delay (d2), s/veh	3.4	1.7	1.8	10.6	1.5	1.4	5.7	0.5	0.5	5.6	1.4	2.5
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(-26165%),veh/ln	2.6	14.5	15.1	1.6	9.5	9.9	3.4	3.1	3.2	1.4	2.8	2.9
LnGrp Delay(d),s/veh	49.9	14.0	14.4	58.8	13.1	13.1	50.3	39.8	39.9	53.3	45.1	46.6
LnGrp LOS	D	B	B	E	B	B	D	D	D	D	D	D
Approach Vol, veh/h		1655			1201			478			256	
Approach Delay, s/veh		16.1			15.1			45.0			47.2	
Approach LOS		B			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.3	66.7	12.8	13.3	10.0	64.0	7.7	18.4
Change Period (Y+Rc), s	3.5	6.0	4.0	4.0	3.5	6.0	4.0	4.0
Max Green Setting (Gmax), s	3.5	41.0	11.0	22.0	15.5	34.0	6.0	27.0
Max Q Clear Time (g_c+I1), s	4.8	31.3	8.6	8.5	7.0	20.4	4.7	8.4
Green Ext Time (p_c), s	0.0	9.6	0.1	0.8	0.1	13.4	0.0	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	21.8
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	18	1007	291	147	969	73	196	204	190	87	203	20
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1900	1881	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	19	1049	303	153	1009	76	204	212	198	91	211	21
Adj No. of Lanes	2	1	1	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	54	986	838	107	1917	144	268	297	264	161	349	34
Arrive On Green	0.02	0.52	0.52	0.06	0.57	0.55	0.15	0.17	0.17	0.09	0.11	0.11
Sat Flow, veh/h	3476	1881	1599	1792	3370	254	1792	1795	1593	1792	3287	324
Grp Volume(v), veh/h	19	1049	303	153	535	550	204	211	199	91	114	118
Grp Sat Flow(s),veh/h/ln	1738	1881	1599	1792	1787	1836	1792	1787	1600	1792	1787	1824
Q Serve(g_s), s	0.5	52.4	11.1	6.0	18.4	18.5	10.9	11.2	11.8	4.9	6.1	6.2
Cycle Q Clear(g_c), s	0.5	52.4	11.1	6.0	18.4	18.5	10.9	11.2	11.8	4.9	6.1	6.2
Prop In Lane	1.00		1.00	1.00		0.14	1.00		1.00	1.00		0.18
Lane Grp Cap(c), veh/h	54	986	838	107	1016	1044	268	296	265	161	190	193
V/C Ratio(X)	0.35	1.06	0.36	1.42	0.53	0.53	0.76	0.71	0.75	0.56	0.60	0.61
Avail Cap(c_a), veh/h	174	986	838	107	1016	1044	287	296	265	537	536	547
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)	0.61	0.61	0.61	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.7	23.8	14.0	47.0	13.3	13.4	40.8	39.5	39.7	43.6	42.7	42.7
Incr Delay (d2), s/veh	0.9	41.5	0.7	235.9	2.0	1.9	9.2	6.7	10.1	1.2	1.1	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.3	38.2	5.0	10.0	9.6	9.9	6.1	6.1	6.0	2.5	3.1	3.2
LnGrp Delay(d),s/veh	49.6	65.3	14.7	282.9	15.2	15.3	50.0	46.2	49.8	44.8	43.8	43.9
LnGrp LOS	D	F	B	F	B	B	D	D	D	D	D	D
Approach Vol, veh/h		1371			1238			614			323	
Approach Delay, s/veh		53.9			48.3			48.7			44.1	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	56.4	19.0	14.6	5.6	60.9	13.0	20.6
Change Period (Y+Rc), s	3.5	6.0	6.0	6.0	3.5	6.0	6.0	6.0
Max Green Setting (Gmax), s	6.5	30.0	14.0	28.0	5.5	31.0	28.0	14.0
Max Q Clear Time (g_c+I1), s	13.0	54.4	12.9	8.2	2.5	20.5	6.9	13.8
Green Ext Time (p_c), s	0.0	0.0	0.0	0.4	0.0	10.2	0.1	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	50.1
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	38	1228	1237	31	37	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	40	1293	1302	33	39	31

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1335	0	-	0	2691	1318
Stage 1	-	-	-	-	1318	-
Stage 2	-	-	-	-	1373	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	520	-	-	-	~ 24	193
Stage 1	-	-	-	-	251	-
Stage 2	-	-	-	-	236	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	520	-	-	-	~ 22	193
Mov Cap-2 Maneuver	-	-	-	-	116	-
Stage 1	-	-	-	-	251	-
Stage 2	-	-	-	-	218	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	40.5
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	520	-	-	-	116	193
HCM Lane V/C Ratio	0.077	-	-	-	0.336	0.158
HCM Control Delay (s)	12.5	-	-	-	51	27.1
HCM Lane LOS	B	-	-	-	F	D
HCM 95th %tile Q(veh)	0.2	-	-	-	1.3	0.5

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

Intersection	
Int Delay, s/veh	80.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	101	1032	21	12	1061	53	17	7	19	35	6	76
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	150	-	150	150	-	150	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	106	1086	22	13	1117	56	18	7	20	37	6	80

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1117	0	0	1086	0	0	2484	2441	1086	2455	2441	1117
Stage 1	-	-	-	-	-	-	1299	1299	-	1142	1142	-
Stage 2	-	-	-	-	-	-	1185	1142	-	1313	1299	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	629	-	-	646	-	-	20	32	264	~ 21	32	253
Stage 1	-	-	-	-	-	-	200	233	-	245	276	-
Stage 2	-	-	-	-	-	-	232	276	-	196	233	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	629	-	-	646	-	-	~ 10	26	264	~ 13	26	253
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 10	26	-	~ 13	26	-
Stage 1	-	-	-	-	-	-	166	194	-	204	270	-
Stage 2	-	-	-	-	-	-	152	270	-	145	194	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	0.1	$ 920	$ 1321.1
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	21	629	-	-	646	-	-	36
HCM Lane V/C Ratio	2.155	0.169	-	-	0.02	-	-	3.421
HCM Control Delay (s)	$ 920	11.9	-	-	10.7	-	-	$ 1321.1
HCM Lane LOS	F	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	5.9	0.6	-	-	0.1	-	-	14.2

Notes

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

Intersection	
Intersection Delay, s/veh	56.2
Intersection LOS	F

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	0	0	55	0	44	0	22	0	59	840	63	0	15	805	20
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	0	0	59	0	47	0	24	0	63	903	68	0	16	866	22
Number of Lanes	0	0	1	0	0	0	1	0	0	1	1	0	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	1	1
HCM Control Delay	10.9	12.2	60.5	57.7
HCM LOS	B	B	F	F

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	67%	100%	0%	0%
Vol Thru, %	0%	93%	0%	0%	0%	100%	0%
Vol Right, %	0%	7%	100%	33%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	59	903	55	66	15	805	20
LT Vol	59	0	0	44	15	0	0
Through Vol	0	840	0	0	0	805	0
RT Vol	0	63	55	22	0	0	20
Lane Flow Rate	63	971	59	71	16	866	22
Geometry Grp	8	8	7	7	7	7	7
Degree of Util (X)	0.125	1	0.119	0.157	0.028	1	0.03
Departure Headway (Hd)	7.074	6.527	7.236	7.955	6.276	5.777	5.077
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	506	563	497	452	568	632	701
Service Time	4.821	4.273	4.961	5.68	4.036	3.536	2.837
HCM Lane V/C Ratio	0.125	1.725	0.119	0.157	0.028	1.37	0.031
HCM Control Delay	10.8	63.7	10.9	12.2	9.2	59.8	8
HCM Lane LOS	B	F	B	B	A	F	A
HCM 95th-tile Q	0.4	14.3	0.4	0.6	0.1	15.2	0.1

Intersection	
Intersection Delay, s/veh	39.6
Intersection LOS	E

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Vol, veh/h	0	496	249	0	41	488	0	184	46
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	533	268	0	44	525	0	198	49
Number of Lanes	0	1	1	0	1	1	0	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay	38	52.1	16.3
HCM LOS	E	F	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2
Vol Left, %	100%	0%	0%	0%	100%	0%
Vol Thru, %	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	184	46	496	249	41	488
LT Vol	184	0	0	0	41	0
Through Vol	0	0	496	0	0	488
RT Vol	0	46	0	249	0	0
Lane Flow Rate	198	49	533	268	44	525
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.452	0.096	0.945	0.421	0.087	0.963
Departure Headway (Hd)	8.23	6.996	6.38	5.666	7.12	6.61
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	435	509	565	629	500	546
Service Time	6.018	4.783	4.165	3.45	4.909	4.399
HCM Lane V/C Ratio	0.455	0.096	0.943	0.426	0.088	0.962
HCM Control Delay	17.7	10.5	50.7	12.6	10.6	55.6
HCM Lane LOS	C	B	F	B	B	F
HCM 95th-tile Q	2.3	0.3	12.3	2.1	0.3	12.7

Intersection	
Int Delay, s/veh	11.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	29	29	131	83	24	10	111	222	83	5	310	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	31	31	141	89	26	11	119	239	89	5	333	26

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	897	924	346	965	892	283	359	0	0	328	0	0
Stage 1	357	357	-	522	522	-	-	-	-	-	-	-
Stage 2	540	567	-	443	370	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	262	270	699	235	282	758	1205	-	-	1237	-	-
Stage 1	663	630	-	540	533	-	-	-	-	-	-	-
Stage 2	528	509	-	596	622	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	215	236	699	153	246	758	1205	-	-	1237	-	-
Mov Cap-2 Maneuver	215	236	-	153	246	-	-	-	-	-	-	-
Stage 1	582	627	-	474	468	-	-	-	-	-	-	-
Stage 2	432	447	-	450	619	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	21	62.3	2.2	0.1
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1205	-	-	425	179	1237	-	-
HCM Lane V/C Ratio	0.099	-	-	0.478	0.703	0.004	-	-
HCM Control Delay (s)	8.3	0	-	21	62.3	7.9	0	-
HCM Lane LOS	A	A	-	C	F	A	A	-
HCM 95th %tile Q(veh)	0.3	-	-	2.5	4.3	0	-	-

Intersection	
Intersection Delay, s/veh	9.7
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	38	0	46	0	0	0	0	0	32	237	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	41	0	49	0	0	0	0	0	34	255	0
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	8.7	0	10
HCM LOS	A	-	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	12%	45%	0%	0%
Vol Thru, %	88%	0%	100%	83%
Vol Right, %	0%	55%	0%	17%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	269	84	0	262
LT Vol	32	38	0	0
Through Vol	237	0	0	218
RT Vol	0	46	0	44
Lane Flow Rate	289	90	0	282
Geometry Grp	1	1	1	1
Degree of Util (X)	0.358	0.123	0	0.34
Departure Headway (Hd)	4.459	4.917	5.305	4.351
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	807	728	0	828
Service Time	2.484	2.957	3.356	2.375
HCM Lane V/C Ratio	0.358	0.124	0	0.341
HCM Control Delay	10	8.7	8.4	9.6
HCM Lane LOS	A	A	N	A
HCM 95th-tile Q	1.6	0.4	0	1.5

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	0	218	44
Peak Hour Factor	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1
Mvmt Flow	0	0	234	47
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	9.6
HCM LOS	A

Lane

Intersection	
Intersection Delay, s/veh	9.6
Intersection LOS	A

Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Vol, veh/h	0	25	35	0	35	247	0	231	32
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	27	38	0	38	266	0	248	34
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.4	10	9.5
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	12%	42%	0%
Vol Thru, %	88%	0%	88%
Vol Right, %	0%	58%	12%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	282	60	263
LT Vol	35	25	0
Through Vol	247	0	231
RT Vol	0	35	32
Lane Flow Rate	303	65	283
Geometry Grp	1	1	1
Degree of Util (X)	0.37	0.088	0.339
Departure Headway (Hd)	4.391	4.912	4.32
Convergence, Y/N	Yes	Yes	Yes
Cap	822	728	834
Service Time	2.41	2.947	2.339
HCM Lane V/C Ratio	0.369	0.089	0.339
HCM Control Delay	10	8.4	9.5
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.7	0.3	1.5

Intersection	
Intersection Delay, s/veh	11.4
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	44	73	28	0	4	35	20	0	34	287	6	0	21	224	26
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	47	78	30	0	4	38	22	0	37	309	6	0	23	241	28
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.3	9.3	12.4	11.2
HCM LOS	B	A	B	B

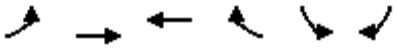
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	10%	30%	7%	8%
Vol Thru, %	88%	50%	59%	83%
Vol Right, %	2%	19%	34%	10%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	327	145	59	271
LT Vol	34	44	4	21
Through Vol	287	73	35	224
RT Vol	6	28	20	26
Lane Flow Rate	352	156	63	291
Geometry Grp	1	1	1	1
Degree of Util (X)	0.476	0.241	0.099	0.396
Departure Headway (Hd)	4.975	5.575	5.632	5.002
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	728	647	639	723
Service Time	2.975	3.578	3.639	3.002
HCM Lane V/C Ratio	0.484	0.241	0.099	0.402
HCM Control Delay	12.4	10.3	9.3	11.2
HCM Lane LOS	B	B	A	B
HCM 95th-tile Q	2.6	0.9	0.3	1.9

Intersection	
Intersection Delay, s/veh	20.5
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	7	2	19	0	226	8	76	0	13	226	276	0	58	192	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	8	2	20	0	243	9	82	0	14	243	297	0	62	206	1
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.1	17.1	26.4	13.9
HCM LOS	B	C	D	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	25%	73%	23%
Vol Thru, %	44%	7%	3%	76%
Vol Right, %	54%	68%	25%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	515	28	310	251
LT Vol	13	7	226	58
Through Vol	226	2	8	192
RT Vol	276	19	76	1
Lane Flow Rate	554	30	333	270
Geometry Grp	1	1	1	1
Degree of Util (X)	0.804	0.056	0.568	0.449
Departure Headway (Hd)	5.23	6.737	6.137	5.985
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	687	535	583	596
Service Time	3.307	4.737	4.219	4.076
HCM Lane V/C Ratio	0.806	0.056	0.571	0.453
HCM Control Delay	26.4	10.1	17.1	13.9
HCM Lane LOS	D	B	C	B
HCM 95th-tile Q	8.2	0.2	3.5	2.3



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	484	414	431	37	32	421
Number	5	2	6	16	7	14
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
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	520	445	463	40	34	453
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	418	1066	520	442	541	483
Arrive On Green	0.23	0.57	0.28	0.28	0.30	0.30
Sat Flow, veh/h	1792	1881	1881	1599	1792	1599
Grp Volume(v), veh/h	520	445	463	40	34	453
Grp Sat Flow(s),veh/h/ln	1792	1881	1881	1599	1792	1599
Q Serve(g_s), s	20.1	11.6	20.3	1.6	1.2	23.8
Cycle Q Clear(g_c), s	20.1	11.6	20.3	1.6	1.2	23.8
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	418	1066	520	442	541	483
V/C Ratio(X)	1.24	0.42	0.89	0.09	0.06	0.94
Avail Cap(c_a), veh/h	418	1066	852	724	582	520
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	33.0	10.6	29.9	23.1	21.4	29.3
Incr Delay (d2), s/veh	128.5	0.1	4.1	0.0	0.0	23.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	24.8	6.0	11.1	0.7	0.6	21.5
LnGrp Delay(d),s/veh	161.5	10.7	34.0	23.2	21.4	52.7
LnGrp LOS	F	B	C	C	C	D
Approach Vol, veh/h		965	503		487	
Approach Delay, s/veh		91.9	33.2		50.5	
Approach LOS		F	C		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		54.8		31.3	25.0	29.8		
Change Period (Y+Rc), s		6.0		5.3	4.9	6.0		
Max Green Setting (Gmax), s		39.0		28.0	20.1	39.0		
Max Q Clear Time (g_c+I1), s		13.6		25.8	22.1	22.3		
Green Ext Time (p_c), s		3.0		0.3	0.0	1.5		

Intersection Summary	
HCM 2010 Ctrl Delay	66.5
HCM 2010 LOS	E

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	21	49	50	427	434	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	23	53	54	464	472	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1056	483	495	0	-	0
Stage 1	483	-	-	-	-	-
Stage 2	573	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	251	586	1074	-	-	-
Stage 1	622	-	-	-	-	-
Stage 2	566	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	234	586	1074	-	-	-
Mov Cap-2 Maneuver	234	-	-	-	-	-
Stage 1	622	-	-	-	-	-
Stage 2	528	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16	0.9	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1074	-	404	-	-
HCM Lane V/C Ratio	0.051	-	0.188	-	-
HCM Control Delay (s)	8.5	0	16	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.2	-	0.7	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	306	5	0	271	6	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	329	5	0	291	6	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	334	0	623	332
Stage 1	-	-	-	-	332	-
Stage 2	-	-	-	-	291	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1231	-	451	712
Stage 1	-	-	-	-	729	-
Stage 2	-	-	-	-	761	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1231	-	451	712
Mov Cap-2 Maneuver	-	-	-	-	451	-
Stage 1	-	-	-	-	729	-
Stage 2	-	-	-	-	761	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	451	-	-	1231	-
HCM Lane V/C Ratio	0.014	-	-	-	-
HCM Control Delay (s)	13.1	-	-	0	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	0	0	19	17	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	0	0	20	18	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	20	0	-	0	10	10
Stage 1	-	-	-	-	10	-
Stage 2	-	-	-	-	0	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1603	-	-	-	1013	1074
Stage 1	-	-	-	-	1016	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1603	-	-	-	1013	1074
Mov Cap-2 Maneuver	-	-	-	-	1013	-
Stage 1	-	-	-	-	1016	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1603	-	-	-	1013
HCM Lane V/C Ratio	-	-	-	-	0.018
HCM Control Delay (s)	0	-	-	-	8.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	17	19	19	17	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	18	20	20	18	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	41	0	-	0	49	31
Stage 1	-	-	-	-	31	-
Stage 2	-	-	-	-	18	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1575	-	-	-	963	1046
Stage 1	-	-	-	-	994	-
Stage 2	-	-	-	-	1007	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1575	-	-	-	963	1046
Mov Cap-2 Maneuver	-	-	-	-	963	-
Stage 1	-	-	-	-	994	-
Stage 2	-	-	-	-	1007	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1575	-	-	-	963
HCM Lane V/C Ratio	-	-	-	-	0.019
HCM Control Delay (s)	0	-	-	-	8.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	0	29	32	29	36	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	31	34	31	39	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	66	0	-	0	81	50
Stage 1	-	-	-	-	50	-
Stage 2	-	-	-	-	31	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1542	-	-	-	924	1021
Stage 1	-	-	-	-	975	-
Stage 2	-	-	-	-	994	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1542	-	-	-	924	1021
Mov Cap-2 Maneuver	-	-	-	-	924	-
Stage 1	-	-	-	-	975	-
Stage 2	-	-	-	-	994	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1542	-	-	-	924
HCM Lane V/C Ratio	-	-	-	-	0.042
HCM Control Delay (s)	0	-	-	-	9.1
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

MOVEMENT SUMMARY

Site: 03-Ex+Am+P+Cumuliative_2020_WKND

Ex WK - #9 Rancho California Rd & Anza Rd
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
SouthEast: Anza Rd											
5	L2	140	1.0	1.079	92.1	LOS F	27.1	682.6	1.00	1.87	15.9
2	T1	18	1.0	1.079	85.8	LOS F	27.1	682.6	1.00	1.87	15.8
12	R2	254	1.0	1.079	85.9	LOS F	27.1	682.6	1.00	1.87	15.6
Approach		413	1.0	1.079	88.0	LOS F	27.1	682.6	1.00	1.87	15.7
NorthEast: Rancho California Rd											
3	L2	219	1.0	1.287	148.4	LOS F	121.6	3065.3	1.00	2.68	11.5
8	T1	1003	1.0	1.287	142.2	LOS F	121.6	3065.3	1.00	2.68	11.5
18	R2	37	1.0	1.287	142.3	LOS F	121.6	3065.3	1.00	2.68	11.4
Approach		1260	1.0	1.287	143.3	LOS F	121.6	3065.3	1.00	2.68	11.5
NorthWest: Anza Rd											
1	L2	18	1.0	0.231	21.5	LOS C	1.6	39.7	0.97	0.98	31.5
6	T1	10	1.0	0.231	15.2	LOS C	1.6	39.7	0.97	0.98	31.4
16	R2	39	1.0	0.231	15.3	LOS C	1.6	39.7	0.97	0.98	30.5
Approach		67	1.0	0.231	17.0	LOS C	1.6	39.7	0.97	0.98	30.9
SouthWest: Rancho California Rd											
7	L2	38	1.0	1.194	108.8	LOS F	90.0	2268.9	1.00	2.28	14.4
4	T1	999	1.0	1.194	102.5	LOS F	90.0	2268.9	1.00	2.28	14.4
14	R2	105	1.0	1.194	102.7	LOS F	90.0	2268.9	1.00	2.28	14.2
Approach		1143	1.0	1.194	102.8	LOS F	90.0	2268.9	1.00	2.28	14.4
All Vehicles		2882	1.0	1.287	116.4	LOS F	121.6	3065.3	1.00	2.36	13.3

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2020 PP WK- #12 Rancho California Rd & Buck Rd

2020 PP WK - #12 Rancho California Rd & Buck Rd
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: Buck Rd											
1a	L1	11	1.0	0.035	12.2	LOS B	0.2	4.5	0.63	0.69	33.8
2	T1	1	1.0	0.035	8.1	LOS A	0.2	4.5	0.63	0.69	34.2
16b	R3	11	1.0	0.035	8.2	LOS A	0.2	4.5	0.63	0.69	33.0
Approach		23	1.0	0.035	10.1	LOS B	0.2	4.5	0.63	0.69	33.5
NorthEast: Rancho California Rd											
1bx	L3	12	1.0	0.494	11.5	LOS B	4.0	100.7	0.40	0.47	36.5
6x	T1	449	1.0	0.494	5.2	LOS A	4.0	100.7	0.40	0.47	36.1
16ax	R1	58	1.0	0.494	4.8	LOS A	4.0	100.7	0.40	0.47	35.8
Approach		519	1.0	0.494	5.3	LOS A	4.0	100.7	0.40	0.47	36.1
West: Buck Rd											
5a	L1	52	1.0	0.176	11.9	LOS B	1.0	24.3	0.63	0.75	34.1
6	T1	1	1.0	0.176	7.8	LOS A	1.0	24.3	0.63	0.75	34.5
12b	R3	72	1.0	0.176	7.9	LOS A	1.0	24.3	0.63	0.75	33.3
Approach		125	1.0	0.176	9.5	LOS A	1.0	24.3	0.63	0.75	33.6
SouthWest: Rancho California Rd											
5bx	L3	70	1.0	0.496	11.4	LOS B	4.3	107.3	0.38	0.48	36.2
2x	T1	445	1.0	0.496	5.0	LOS A	4.3	107.3	0.38	0.48	35.9
12ax	R1	14	1.0	0.496	4.6	LOS A	4.3	107.3	0.38	0.48	35.6
Approach		529	1.0	0.496	5.8	LOS A	4.3	107.3	0.38	0.48	35.9
All Vehicles		1196	1.0	0.496	6.1	LOS A	4.3	107.3	0.42	0.51	35.7

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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APPENDIX F: MITIGATION LOS RESULTS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1686	307	461	912	0	0	0	0	1155	0	376
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	1775	323	485	960	0				1339	0	264
Adj No. of Lanes	0	3	1	2	3	0				2	0	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	2049	563	1508	4347	0				1380	0	615
Arrive On Green	0.00	0.37	0.36	0.44	0.85	0.00				0.39	0.00	0.39
Sat Flow, veh/h	0	5588	1583	3442	5253	0				3548	0	1582
Grp Volume(v), veh/h	0	1775	323	485	960	0				1339	0	264
Grp Sat Flow(s),veh/h/ln	0	1863	1583	1721	1695	0				1774	0	1582
Q Serve(g_s), s	0.0	26.5	14.9	8.3	3.0	0.0				33.3	0.0	11.0
Cycle Q Clear(g_c), s	0.0	26.5	14.9	8.3	3.0	0.0				33.3	0.0	11.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2049	563	1508	4347	0				1380	0	615
V/C Ratio(X)	0.00	0.87	0.57	0.32	0.22	0.00				0.97	0.00	0.43
Avail Cap(c_a), veh/h	0	2049	563	1508	4347	0				1380	0	615
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.82	0.82	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	26.5	23.5	16.5	1.2	0.0				27.0	0.0	20.2
Incr Delay (d2), s/veh	0.0	5.2	4.2	0.0	0.1	0.0				17.6	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.0	14.6	7.1	3.9	1.4	0.0				19.5	0.0	4.8
LnGrp Delay(d),s/veh	0.0	31.7	27.7	16.6	1.3	0.0				44.6	0.0	20.6
LnGrp LOS		C	C	B	A					D		C
Approach Vol, veh/h		2098			1445						1603	
Approach Delay, s/veh		31.1			6.4						40.6	
Approach LOS		C			A						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	44.2	36.0		38.0		80.2		
Change Period (Y+Rc), s	5.0	* 5		5.0		5.0		
Max Green Setting (Gmax), s	12.5	* 31		33.0		47.0		
Max Q Clear Time (g_c+I1), s	10.3	28.5		35.3		5.0		
Green Ext Time (p_c), s	1.0	2.2		0.0		9.3		

Intersection Summary	
HCM 2010 Ctrl Delay	27.1
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1010	318	543	756	0	0	0	0	1228	0	430
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	1041	328	560	779	0				1404	0	295
Adj No. of Lanes	0	3	1	2	3	0				2	0	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1646	452	618	2549	0				1576	0	703
Arrive On Green	0.00	0.29	0.29	0.36	1.00	0.00				0.44	0.00	0.44
Sat Flow, veh/h	0	5588	1583	3442	5253	0				3548	0	1582
Grp Volume(v), veh/h	0	1041	328	560	779	0				1404	0	295
Grp Sat Flow(s),veh/h/ln	0	1863	1583	1721	1695	0				1774	0	1582
Q Serve(g_s), s	0.0	17.8	20.5	17.0	0.0	0.0				40.0	0.0	14.0
Cycle Q Clear(g_c), s	0.0	17.8	20.5	17.0	0.0	0.0				40.0	0.0	14.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1646	452	618	2549	0				1576	0	703
V/C Ratio(X)	0.00	0.63	0.73	0.91	0.31	0.00				0.89	0.00	0.42
Avail Cap(c_a), veh/h	0	1646	452	657	2549	0				1645	0	734
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.89	0.89	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	33.6	35.4	34.4	0.0	0.0				28.1	0.0	20.9
Incr Delay (d2), s/veh	0.0	1.9	9.8	13.8	0.3	0.0				6.4	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.0	9.4	10.2	9.1	0.1	0.0				20.9	0.0	6.1
LnGrp Delay(d),s/veh	0.0	35.5	45.2	48.1	0.3	0.0				34.5	0.0	21.3
LnGrp LOS		D	D	D	A					C		C
Approach Vol, veh/h		1369			1339						1699	
Approach Delay, s/veh		37.8			20.3						32.2	
Approach LOS		D			C						C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	22.7	35.4		51.9		58.1		
Change Period (Y+Rc), s	3.5	5.0		5.0		5.0		
Max Green Setting (Gmax), s	20.5	27.0		49.0		51.0		
Max Q Clear Time (g_c+I1), s	19.0	22.5		42.0		2.0		
Green Ext Time (p_c), s	0.2	3.9		4.8		25.2		

Intersection Summary	
HCM 2010 Ctrl Delay	30.3
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

MOVEMENT SUMMARY

Site: MIT 2020 - Ex+A+P WK - #9 Rancho California Rd & Anza Rd

CumulPP WK - #9 Rancho California Rd & Anza Rd
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
SouthEast: Anza Rd											
5	L2	142	1.0	0.169	12.4	LOS B	0.8	18.9	0.64	0.83	33.6
2	T1	18	1.0	0.037	7.8	LOS A	0.1	3.4	0.63	0.71	36.0
12	R2	257	1.0	0.302	6.6	LOS A	1.4	36.3	0.67	0.78	35.2
Approach		417	1.0	0.302	8.6	LOS A	1.4	36.3	0.66	0.80	34.7
NorthEast: Rancho California Rd											
3	L2	222	1.0	0.510	11.0	LOS B	3.5	87.5	0.49	0.57	35.9
8	T1	1014	1.0	0.510	4.7	LOS A	3.5	88.6	0.49	0.50	36.3
18	R2	38	1.0	0.027	4.0	LOS A	0.1	2.8	0.15	0.44	36.6
Approach		1273	1.0	0.510	5.8	LOS A	3.5	88.6	0.48	0.51	36.2
NorthWest: Anza Rd											
1	L2	18	1.0	0.025	12.8	LOS B	0.1	2.8	0.67	0.77	33.5
6	T1	10	1.0	0.018	7.7	LOS A	0.1	1.8	0.67	0.69	36.0
16	R2	40	1.0	0.049	6.4	LOS A	0.2	5.4	0.63	0.71	35.3
Approach		68	1.0	0.049	8.3	LOS A	0.2	5.4	0.65	0.73	34.9
SouthWest: Rancho California Rd											
7	L2	39	1.0	0.447	11.2	LOS B	2.8	69.5	0.50	0.51	36.6
4	T1	1010	1.0	0.447	4.9	LOS A	2.8	70.6	0.49	0.49	36.5
14	R2	106	1.0	0.087	4.6	LOS A	0.4	10.0	0.35	0.51	36.1
Approach		1155	1.0	0.447	5.0	LOS A	2.8	70.6	0.48	0.50	36.5
All Vehicles		2913	1.0	0.510	5.9	LOS A	3.5	88.6	0.51	0.55	36.1

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: MIT 2020 - Ex+A+P WK - #8 Rancho California Rd & Calle Contento

MIT - Ex+A+P WK - #8 Rancho California Rd & Calle Contento
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Calle Contento											
3	L2	18	1.0	0.094	15.1	LOS C	0.3	8.7	0.65	0.84	34.6
8	T1	7	1.0	0.094	8.5	LOS A	0.3	8.7	0.65	0.84	34.3
18	R2	20	1.0	0.094	8.8	LOS A	0.3	8.7	0.65	0.84	33.3
Approach		45	1.0	0.094	11.2	LOS B	0.3	8.7	0.65	0.84	33.9
East: Rancho California Road											
1	L2	13	1.0	0.532	11.0	LOS B	3.7	93.0	0.43	0.45	37.4
6	T1	1117	1.0	0.532	4.4	LOS A	3.7	93.0	0.43	0.45	37.1
16	R2	56	1.0	0.532	4.8	LOS A	3.7	93.0	0.43	0.45	35.8
Approach		1185	1.0	0.532	4.5	LOS A	3.7	93.0	0.43	0.45	37.1
North: Calle Contento											
7	L2	37	1.0	0.256	15.3	LOS C	1.0	26.0	0.69	0.85	34.7
4	T1	6	1.0	0.256	8.7	LOS A	1.0	26.0	0.69	0.85	34.5
14	R2	80	1.0	0.256	8.9	LOS A	1.0	26.0	0.69	0.85	33.4
Approach		123	1.0	0.256	10.8	LOS B	1.0	26.0	0.69	0.85	33.8
West: Rancho California Road											
5	L2	106	1.0	0.515	10.4	LOS B	4.0	100.5	0.30	0.43	37.4
2	T1	1086	1.0	0.515	3.8	LOS A	4.0	100.5	0.30	0.40	37.4
12	R2	22	1.0	0.515	4.2	LOS A	4.0	100.5	0.30	0.38	36.3
Approach		1215	1.0	0.515	4.4	LOS A	4.0	100.5	0.30	0.40	37.4
All Vehicles		2568	1.0	0.532	4.9	LOS A	4.0	100.5	0.38	0.46	37.0

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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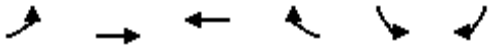
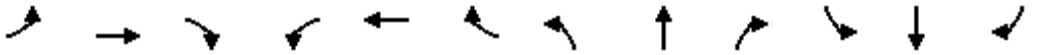
HCM 2010 Signalized Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	454	414	431	25	18	388
Number	5	2	6	16	7	14
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
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	488	445	463	27	19	417
Adj No. of Lanes	2	1	1	1	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	511	989	563	479	522	466
Arrive On Green	0.15	0.53	0.30	0.30	0.29	0.29
Sat Flow, veh/h	3476	1881	1881	1599	1792	1599
Grp Volume(v), veh/h	488	445	463	27	19	417
Grp Sat Flow(s),veh/h/ln	1738	1881	1881	1599	1792	1599
Q Serve(g_s), s	8.6	9.1	14.1	0.7	0.5	15.5
Cycle Q Clear(g_c), s	8.6	9.1	14.1	0.7	0.5	15.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	511	989	563	479	522	466
V/C Ratio(X)	0.95	0.45	0.82	0.06	0.04	0.89
Avail Cap(c_a), veh/h	511	1238	812	690	811	724
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	26.2	9.1	20.1	15.4	15.7	21.0
Incr Delay (d2), s/veh	28.3	0.1	3.0	0.0	0.0	6.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	6.1	4.7	7.8	0.3	0.2	13.0
LnGrp Delay(d),s/veh	54.4	9.2	23.1	15.5	15.7	27.4
LnGrp LOS	D	A	C	B	B	C
Approach Vol, veh/h		933	490		436	
Approach Delay, s/veh		32.9	22.7		26.8	
Approach LOS		C	C		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		38.5		23.3	14.0	24.5		
Change Period (Y+Rc), s		6.0		5.3	4.9	6.0		
Max Green Setting (Gmax), s		40.7		28.0	9.1	26.7		
Max Q Clear Time (g_c+I1), s		11.1		17.5	10.6	16.1		
Green Ext Time (p_c), s		3.0		0.6	0.0	2.4		

Intersection Summary	
HCM 2010 Ctrl Delay	28.8
HCM 2010 LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1686	307	474	912	0	0	0	0	1234	0	376
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	1775	323	499	960	0				1422	0	264
Adj No. of Lanes	0	3	1	2	3	0				2	0	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	2049	563	1569	4438	0				1380	0	615
Arrive On Green	0.00	0.37	0.36	0.46	0.87	0.00				0.39	0.00	0.39
Sat Flow, veh/h	0	5588	1583	3442	5253	0				3548	0	1582
Grp Volume(v), veh/h	0	1775	323	499	960	0				1422	0	264
Grp Sat Flow(s),veh/h/ln	0	1863	1583	1721	1695	0				1774	0	1582
Q Serve(g_s), s	0.0	26.5	14.9	8.3	2.7	0.0				35.0	0.0	11.0
Cycle Q Clear(g_c), s	0.0	26.5	14.9	8.3	2.7	0.0				35.0	0.0	11.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2049	563	1569	4438	0				1380	0	615
V/C Ratio(X)	0.00	0.87	0.57	0.32	0.22	0.00				1.03	0.00	0.43
Avail Cap(c_a), veh/h	0	2049	563	1569	4438	0				1380	0	615
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.80	0.80	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	26.5	23.5	15.6	0.9	0.0				27.5	0.0	20.2
Incr Delay (d2), s/veh	0.0	5.2	4.2	0.0	0.1	0.0				32.4	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.0	14.6	7.1	4.0	1.2	0.0				23.3	0.0	4.8
LnGrp Delay(d),s/veh	0.0	31.7	27.7	15.6	1.0	0.0				59.9	0.0	20.6
LnGrp LOS		C	C	B	A					F		C
Approach Vol, veh/h		2098			1459						1686	
Approach Delay, s/veh		31.1			6.0						53.8	
Approach LOS		C			A						D	

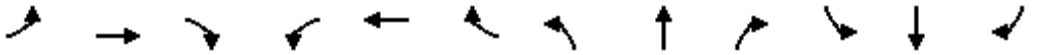
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	45.8	36.0		38.0		81.8		
Change Period (Y+Rc), s	5.0	* 5		5.0		5.0		
Max Green Setting (Gmax), s	12.5	* 31		33.0		47.0		
Max Q Clear Time (g_c+I1), s	10.3	28.5		37.0		4.7		
Green Ext Time (p_c), s	1.0	2.2		0.0		9.3		

Intersection Summary	
HCM 2010 Ctrl Delay	31.4
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1010	318	568	756	0	0	0	0	1377	0	430
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	1041	328	586	779	0				1558	0	295
Adj No. of Lanes	0	3	1	2	3	0				2	0	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1462	400	626	2393	0				1685	0	751
Arrive On Green	0.00	0.26	0.25	0.36	0.94	0.00				0.47	0.00	0.47
Sat Flow, veh/h	0	5588	1583	3442	5253	0				3548	0	1582
Grp Volume(v), veh/h	0	1041	328	586	779	0				1558	0	295
Grp Sat Flow(s),veh/h/ln	0	1863	1583	1721	1695	0				1774	0	1582
Q Serve(g_s), s	0.0	18.6	21.5	18.1	1.4	0.0				45.2	0.0	13.2
Cycle Q Clear(g_c), s	0.0	18.6	21.5	18.1	1.4	0.0				45.2	0.0	13.2
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1462	400	626	2393	0				1685	0	751
V/C Ratio(X)	0.00	0.71	0.82	0.94	0.33	0.00				0.92	0.00	0.39
Avail Cap(c_a), veh/h	0	1462	400	626	2393	0				1710	0	762
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.86	0.86	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	36.9	38.8	34.4	1.8	0.0				27.0	0.0	18.6
Incr Delay (d2), s/veh	0.0	3.0	17.0	19.3	0.3	0.0				8.9	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.0	9.9	11.3	10.1	0.6	0.0				24.2	0.0	5.8
LnGrp Delay(d),s/veh	0.0	39.8	55.8	53.7	2.1	0.0				36.0	0.0	19.0
LnGrp LOS		D	E	D	A					D		B
Approach Vol, veh/h		1369			1365						1853	
Approach Delay, s/veh		43.7			24.2						33.3	
Approach LOS		D			C						C	

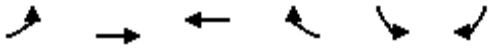
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	23.0	31.8		55.2		54.8		
Change Period (Y+Rc), s	3.5	5.0		5.0		5.0		
Max Green Setting (Gmax), s	19.5	26.0		51.0		49.0		
Max Q Clear Time (g_c+I1), s	20.1	23.5		47.2		3.4		
Green Ext Time (p_c), s	0.0	2.3		3.0		24.3		

Intersection Summary	
HCM 2010 Ctrl Delay	33.7
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	484	414	431	37	32	421
Number	5	2	6	16	7	14
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
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	520	445	463	40	34	453
Adj No. of Lanes	2	1	1	1	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	635	1011	541	460	552	492
Arrive On Green	0.18	0.54	0.29	0.29	0.31	0.31
Sat Flow, veh/h	3476	1881	1881	1599	1792	1599
Grp Volume(v), veh/h	520	445	463	40	34	453
Grp Sat Flow(s),veh/h/ln	1738	1881	1881	1599	1792	1599
Q Serve(g_s), s	10.5	10.5	17.0	1.3	1.0	20.0
Cycle Q Clear(g_c), s	10.5	10.5	17.0	1.3	1.0	20.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	635	1011	541	460	552	492
V/C Ratio(X)	0.82	0.44	0.86	0.09	0.06	0.92
Avail Cap(c_a), veh/h	1383	1562	687	584	686	612
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	28.7	10.2	24.6	19.0	17.8	24.4
Incr Delay (d2), s/veh	1.0	0.1	7.1	0.0	0.0	15.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	5.1	5.5	9.8	0.6	0.5	17.7
LnGrp Delay(d),s/veh	29.7	10.4	31.7	19.0	17.9	39.8
LnGrp LOS	C	B	C	B	B	D
Approach Vol, veh/h		965	503		487	
Approach Delay, s/veh		20.8	30.7		38.3	
Approach LOS		C	C		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		45.3		27.8	18.3	27.0		
Change Period (Y+Rc), s		6.0		5.3	4.9	6.0		
Max Green Setting (Gmax), s		60.7		28.0	29.1	26.7		
Max Q Clear Time (g_c+I1), s		12.5		22.0	12.5	19.0		
Green Ext Time (p_c), s		3.1		0.5	0.8	2.0		

Intersection Summary	
HCM 2010 Ctrl Delay	27.7
HCM 2010 LOS	C

MOVEMENT SUMMARY

Site: 03-Ex+AM+Proj+Cumulative- WK Mitigated- #11 Rancho California Rd & Glen Oaks Rd

CumulNP WK - #11 Rancho California Rd & Glen Oaks Rd
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
SouthEast: Glen Oaks Rd											
5	L2	170	1.0	0.502	12.3	LOS B	3.7	93.9	0.69	0.74	34.7
12	R2	250	1.0	0.502	7.0	LOS A	3.7	93.9	0.69	0.74	33.8
Approach		420	1.0	0.502	9.1	LOS A	3.7	93.9	0.69	0.74	34.2
NorthEast: Rancho California Rd											
3	L2	190	1.0	0.543	11.4	LOS B	4.6	115.5	0.62	0.64	34.7
8	T1	320	1.0	0.543	6.2	LOS A	4.6	115.5	0.62	0.64	34.7
Approach		510	1.0	0.543	8.1	LOS A	4.6	115.5	0.62	0.64	34.7
SouthWest: Rancho California Rd											
4	T1	280	1.0	0.553	6.4	LOS A	4.6	115.9	0.64	0.63	35.6
14	R2	230	1.0	0.553	6.3	LOS A	4.6	115.9	0.64	0.63	34.7
Approach		510	1.0	0.553	6.4	LOS A	4.6	115.9	0.64	0.63	35.2
All Vehicles		1440	1.0	0.553	7.8	LOS A	4.6	115.9	0.65	0.66	34.7

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: Ex+Am+Proj+Cumulative - #9 Rancho California Rd & Anza Rd-Mitigated

Ex+A WK - #9 Rancho California Rd & Anza Rd
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
SouthEast: Anza Rd											
5	L2	142	1.0	0.453	20.0	LOS C	2.9	71.9	0.90	1.01	30.8
2	T1	18	1.0	0.453	13.7	LOS B	2.9	71.9	0.90	1.01	30.7
12	R2	257	1.0	0.611	16.0	LOS C	4.8	121.1	0.96	1.08	30.8
Approach		417	1.0	0.611	17.3	LOS C	4.8	121.1	0.93	1.06	30.8
NorthEast: Rancho California Rd											
3	L2	222	1.0	0.380	12.8	LOS B	2.1	52.2	0.54	0.75	33.7
8	T1	1014	1.0	1.040	37.6	LOS F	46.2	1165.3	1.00	1.38	24.5
18	R2	38	1.0	1.040	37.9	LOS F	46.2	1165.3	1.00	1.38	23.9
Approach		1273	1.0	1.040	33.3	LOS D	46.2	1165.3	0.92	1.27	25.7
NorthWest: Anza Rd											
1	L2	18	1.0	0.326	33.2	LOS D	2.2	56.7	1.00	1.01	27.1
6	T1	10	1.0	0.326	26.9	LOS D	2.2	56.7	1.00	1.01	27.0
16	R2	40	1.0	0.326	27.1	LOS D	2.2	56.7	1.00	1.01	26.4
Approach		68	1.0	0.326	28.7	LOS D	2.2	56.7	1.00	1.01	26.7
SouthWest: Rancho California Rd											
7	L2	39	1.0	0.883	18.6	LOS C	19.0	479.3	1.00	0.93	33.7
4	T1	1010	1.0	0.883	12.1	LOS B	19.0	479.3	0.98	0.91	33.6
14	R2	106	1.0	0.210	6.6	LOS A	1.1	28.8	0.53	0.61	35.3
Approach		1155	1.0	0.883	11.8	LOS B	19.0	479.3	0.94	0.89	33.8
All Vehicles		2913	1.0	1.040	22.4	LOS C	46.2	1165.3	0.93	1.08	29.2

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 03-Ex+Am+Proj- WK - #8 Rancho California Rd & Calle Contento-Mitigated

MIT - Ex+A+P WK - #8 Rancho California Rd & Calle Contento
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Calle Contento											
3	L2	17	1.0	0.077	14.3	LOS B	0.3	7.0	0.60	0.81	35.0
8	T1	6	1.0	0.077	7.7	LOS A	0.3	7.0	0.60	0.81	34.8
18	R2	19	1.0	0.077	7.9	LOS A	0.3	7.0	0.60	0.81	33.7
Approach		42	1.0	0.077	10.4	LOS B	0.3	7.0	0.60	0.81	34.3
East: Rancho California Road											
1	L2	13	1.0	0.434	10.8	LOS B	2.6	65.8	0.36	0.43	37.6
6	T1	906	1.0	0.434	4.2	LOS A	2.6	65.8	0.36	0.43	37.4
16	R2	54	1.0	0.434	4.6	LOS A	2.6	65.8	0.36	0.44	36.1
Approach		973	1.0	0.434	4.4	LOS A	2.6	65.8	0.36	0.43	37.3
North: Calle Contento											
7	L2	35	1.0	0.212	14.4	LOS B	0.8	21.0	0.64	0.83	35.2
4	T1	5	1.0	0.212	7.8	LOS A	0.8	21.0	0.64	0.83	35.0
14	R2	77	1.0	0.212	8.0	LOS A	0.8	21.0	0.64	0.83	33.9
Approach		117	1.0	0.212	9.9	LOS A	0.8	21.0	0.64	0.83	34.3
West: Rancho California Road											
5	L2	102	1.0	0.426	10.4	LOS B	2.8	71.7	0.25	0.43	37.5
2	T1	884	1.0	0.426	3.8	LOS A	2.8	71.7	0.25	0.40	37.6
12	R2	22	1.0	0.426	4.2	LOS A	2.8	71.7	0.25	0.37	36.5
Approach		1008	1.0	0.426	4.4	LOS A	2.8	71.7	0.25	0.40	37.5
All Vehicles		2140	1.0	0.434	4.8	LOS A	2.8	71.7	0.33	0.45	37.2

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 03-Ex+Am+Proj+Cumulative PM - #9 Rancho California Rd & Anza Rd-Mitigated

CumulPP PM - #9 Rancho California Rd & Anza Rd
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
SouthEast: Anza Rd											
5	L2	160	1.0	0.305	12.4	LOS B	1.5	36.8	0.66	0.80	34.7
2	T1	400	1.0	0.305	5.6	LOS A	1.6	39.4	0.65	0.60	35.7
12	R2	256	1.0	0.222	5.3	LOS A	1.2	29.3	0.55	0.64	35.5
Approach		816	1.0	0.305	6.9	LOS A	1.6	39.4	0.62	0.65	35.4
NorthEast: Rancho California Rd											
3	L2	350	1.0	0.428	13.4	LOS B	2.4	59.6	0.70	0.93	33.4
8	T1	430	1.0	0.415	6.1	LOS A	2.4	59.7	0.69	0.62	35.9
18	R2	40	1.0	0.035	5.2	LOS A	0.1	3.7	0.49	0.59	35.7
Approach		820	1.0	0.428	9.2	LOS A	2.4	59.7	0.68	0.75	34.8
NorthWest: Anza Rd											
1	L2	40	1.0	0.259	12.7	LOS B	1.2	30.5	0.67	0.70	35.6
6	T1	410	1.0	0.259	5.9	LOS A	1.3	33.0	0.66	0.62	35.8
16	R2	510	1.0	0.454	5.9	LOS A	2.8	70.8	0.66	0.71	35.3
Approach		960	1.0	0.454	6.2	LOS A	2.8	70.8	0.66	0.67	35.5
SouthWest: Rancho California Rd											
7	L2	290	1.0	0.409	13.2	LOS B	2.2	55.8	0.68	0.89	33.9
4	T1	490	1.0	0.409	6.1	LOS A	2.3	58.4	0.67	0.64	35.7
14	R2	290	1.0	0.267	5.8	LOS A	1.3	33.4	0.60	0.69	35.4
Approach		1070	1.0	0.409	8.0	LOS A	2.3	58.4	0.65	0.72	35.1
All Vehicles		3666	1.0	0.454	7.5	LOS A	2.8	70.8	0.65	0.70	35.2

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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APPENDIX G: TRAFFIC SIGNAL WARRANTS

FEHR PEERS

Sheet No 3 of 9

Major Street Rancho California Rd
Minor Street Calle Contento

Project 12 Oaks Winery
Scenario Existing + Ambient (2020) Plus Project
Peak Hour Weekend

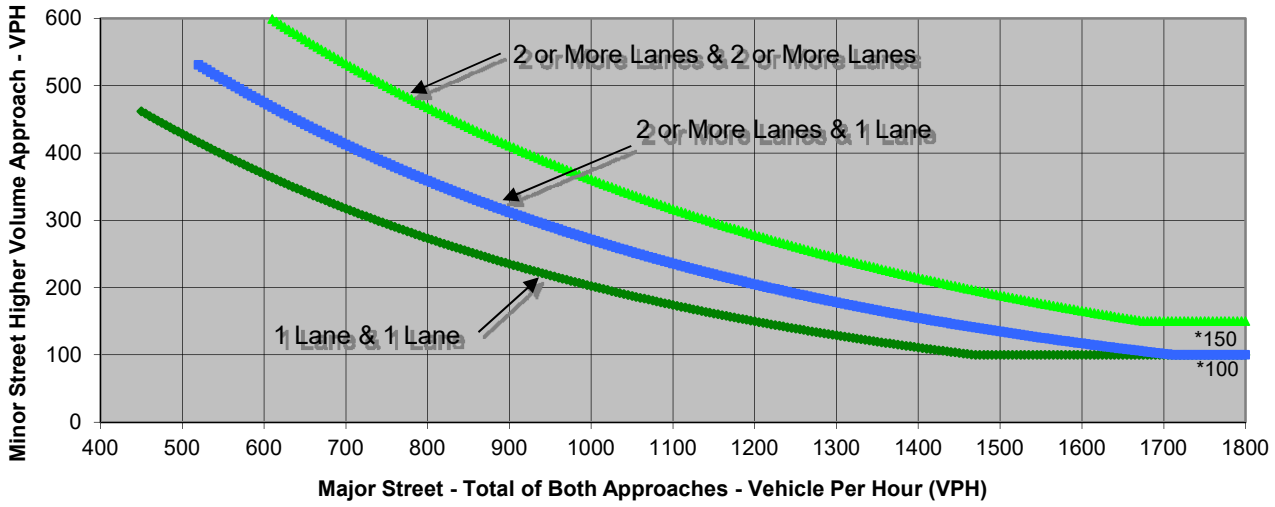
Turn Movement Volumes

	NB	SB	EB	WB
Left	17	35	101	12
Through	7	6	905	927
Right	19	76	21	53
Total	43	117	1,027	992

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street	Minor Street	Warrant Met
	Rancho California Rd	Calle Contento	
Number of Approach Lanes	1	1	YES
Traffic Volume (VPH) *	2,019	117	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Sheet No 4 of 9

Project 12 Oaks Winery
Scenario Existing + Ambient (2020) Plus Project
Peak Hour Weekend

Major Street Rancho California Rd
Minor Street Anza Rd

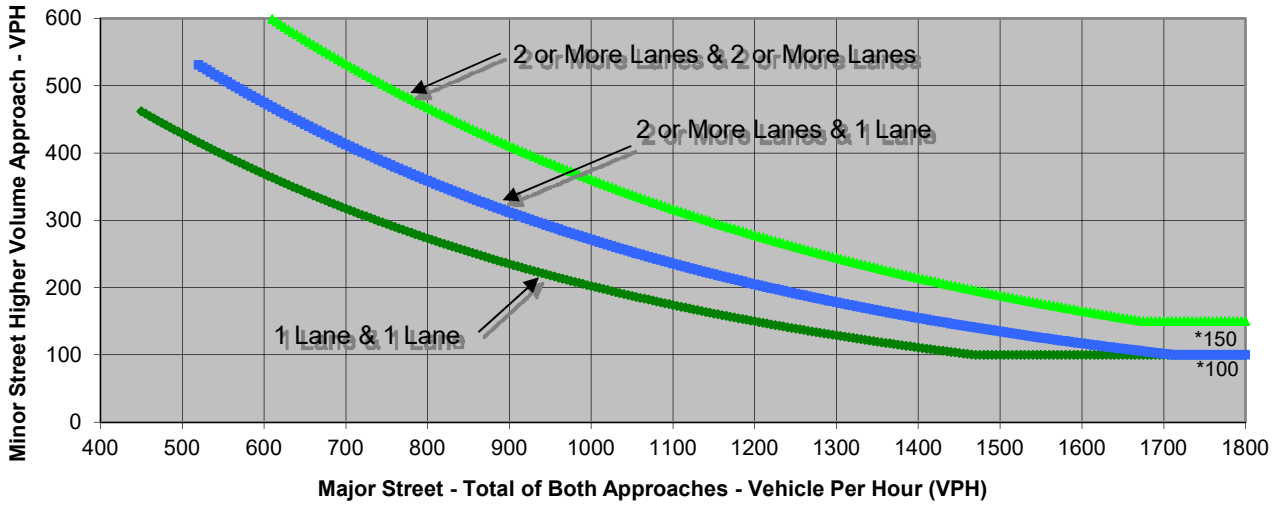
Turn Movement Volumes

	NB	SB	EB	WB
Left	120	17	36	162
Through	17	9	826	821
Right	199	37	85	35
Total	336	63	947	1,018

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street	Minor Street	Warrant Met
	Rancho California Rd	Anza Rd	
Number of Approach Lanes	1	1	YES
Traffic Volume (VPH) *	1,965	336	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Sheet No 6 of 9

Major Street: Rancho California Rd
Minor Street: Monte De Oro

Project: 12 Oaks Winery
Scenario: Existing + Ambient (2020) Plus Project
Peak Hour: PM

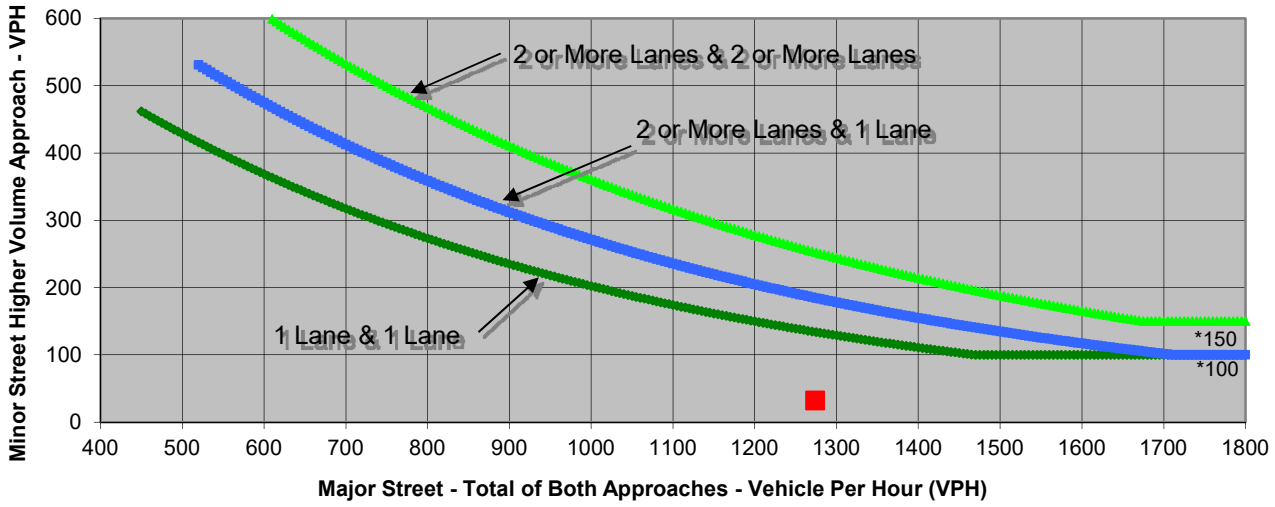
Turn Movement Volumes

	NB	SB	EB	WB
Left	8	2	0	29
Through	660	492	0	0
Right	108	4	22	3
Total	776	498	22	32

Major Street Direction

x North/South
East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street	Minor Street	Warrant Met
	Rancho California Rd	Monte De Oro	
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	1,274	32	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Sheet No 7 of 9

Major Street: Rancho California Rd
Minor Street: Monte De Oro

Project: 12 Oaks Winery
Scenario: Existing + Ambient (2020) Plus Project
Peak Hour: Weekend

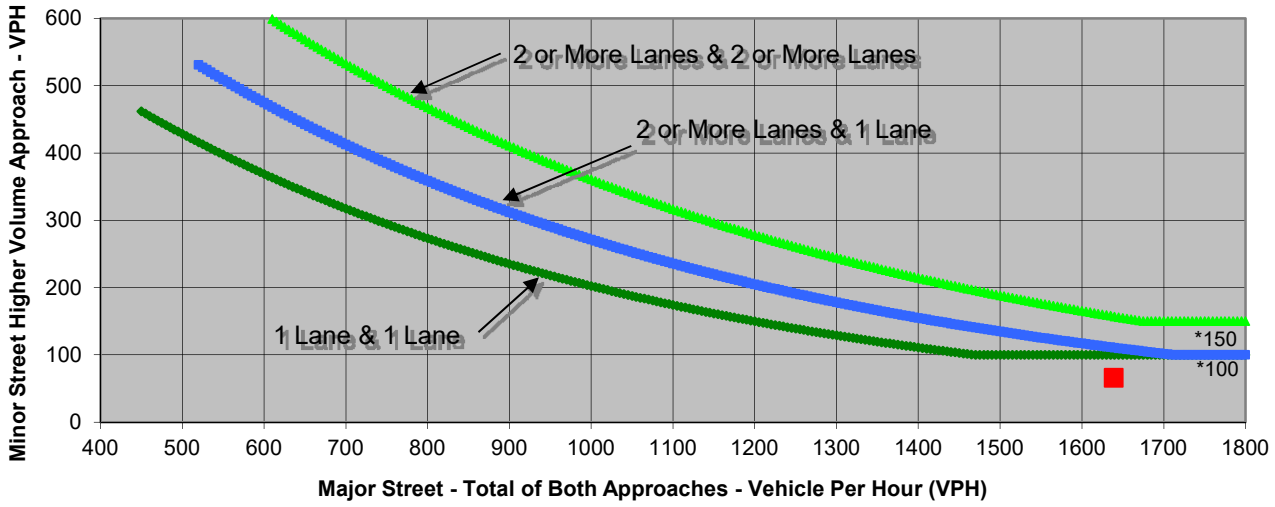
Turn Movement Volumes

	NB	SB	EB	WB
Left	59	15	0	44
Through	755	727	0	0
Right	63	20	55	22
Total	877	762	55	66

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street	Minor Street	Warrant Met
	Rancho California Rd	Monte De Oro	
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	1,639	66	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Sheet No 1 of 9

Project 12 Oaks Winery

Scenario Existing + Ambient + Cumulative (2020) + Project

Peak Hour Weekend

Major Street Rancho California Rd

Minor Street La Serena Rd

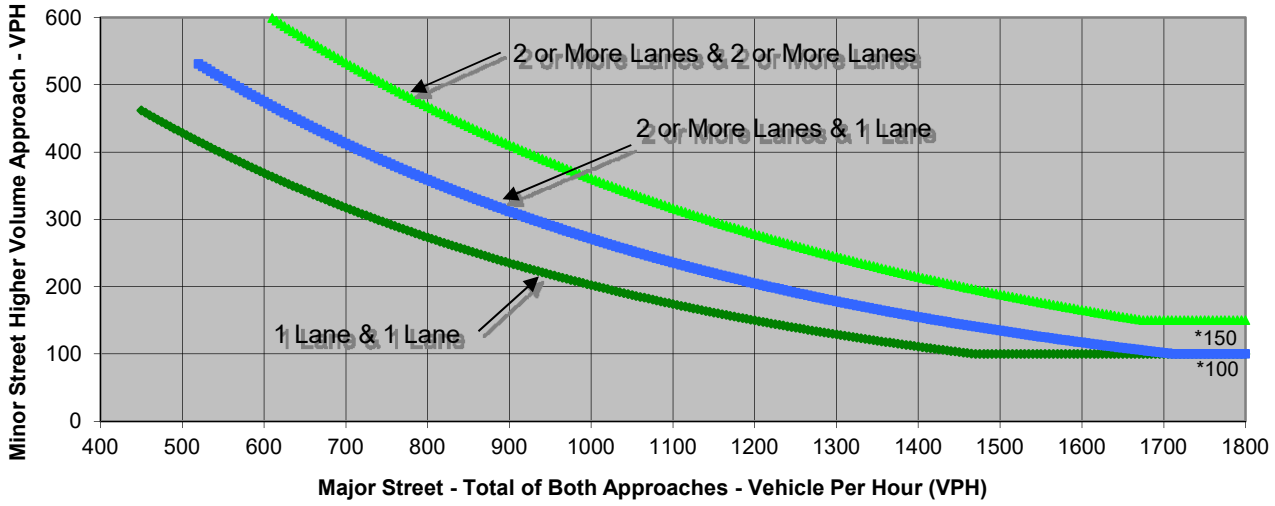
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	37	38	0
Through	0	0	1,228	1,237
Right	0	29	0	31
Total	0	66	1,266	1,268

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street	Minor Street	Warrant Met
	Rancho California Rd	La Serena Rd	
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	2,534	66	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Sheet No 2 of 9

Project 12 Oaks Winery

Scenario Existing + Ambient + Cumulative (2020) + Project

Peak Hour PM

Major Street Rancho California Rd

Minor Street Calle Contento

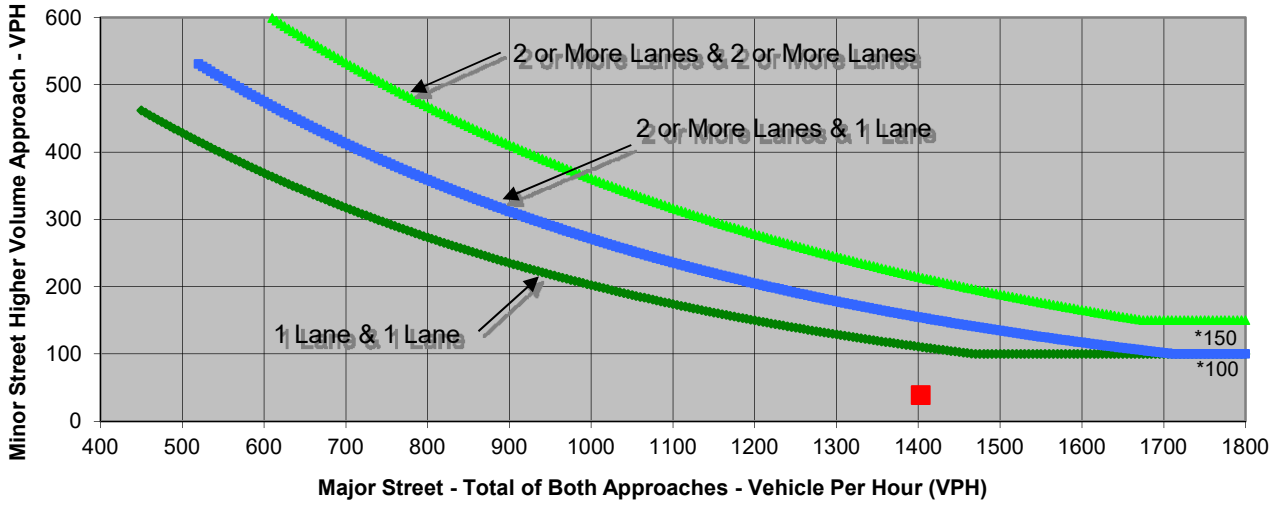
Turn Movement Volumes

	NB	SB	EB	WB
Left	18	7	26	13
Through	1	2	696	638
Right	9	30	26	4
Total	28	39	748	655

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street	Minor Street	Warrant Met
	Rancho California Rd	Calle Contento	
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	1,403	39	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Sheet No 3 of 9

Project 12 Oaks Winery

Scenario Existing + Ambient + Cumulative (2020) + Project

Peak Hour Weekend

Major Street Rancho California Rd

Minor Street Calle Contento

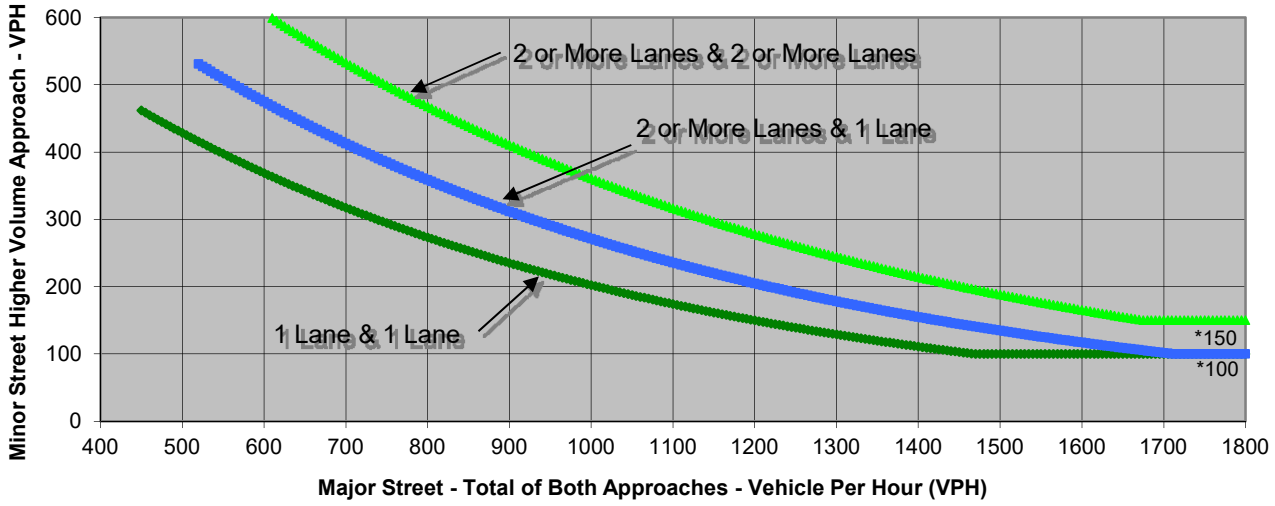
Turn Movement Volumes

	NB	SB	EB	WB
Left	17	35	101	12
Through	7	6	1,032	1,061
Right	19	76	21	53
Total	43	117	1,154	1,126

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street	Minor Street	Warrant Met
	Rancho California Rd	Calle Contento	
Number of Approach Lanes	1	1	YES
Traffic Volume (VPH) *	2,280	117	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Sheet No 4 of 9

Project 12 Oaks Winery

Scenario Existing + Ambient + Cumulative (2020) + Project

Peak Hour Weekend

Major Street Rancho California Rd

Minor Street Anza Rd

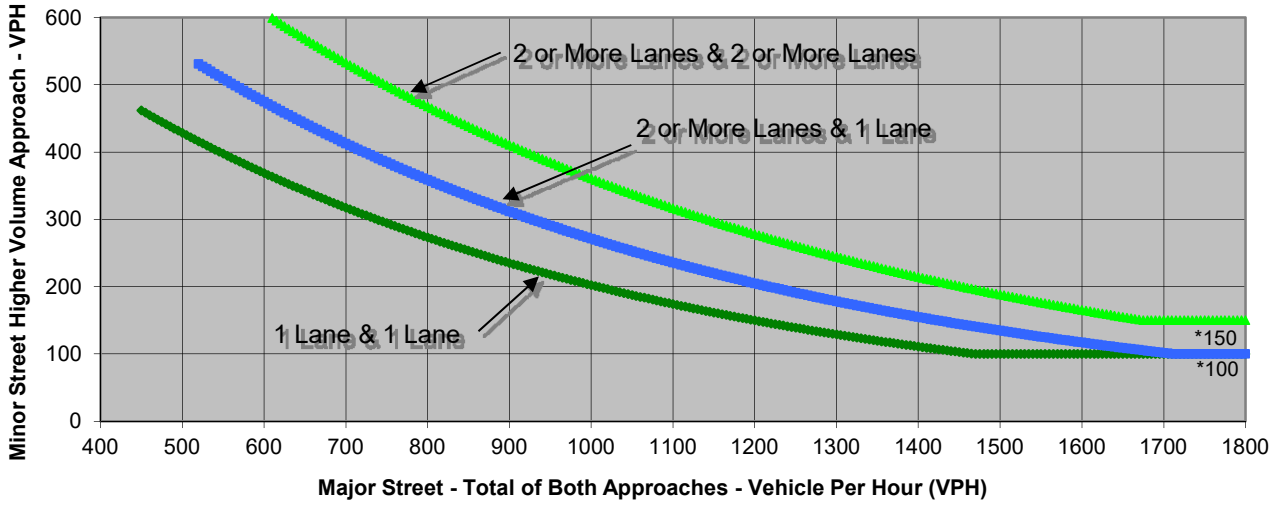
Turn Movement Volumes

	NB	SB	EB	WB
Left	132	17	36	206
Through	17	9	939	943
Right	239	37	99	35
Total	388	63	1,074	1,184

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street	Minor Street	Warrant Met
	Rancho California Rd	Anza Rd	
Number of Approach Lanes	1	1	YES
Traffic Volume (VPH) *	2,258	388	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Sheet No 6 of 9

Project 12 Oaks Winery

Scenario Existing + Ambient + Cumulative (2020) + Project

Major Street Rancho California Rd

Minor Street Monte De Oro

Peak Hour PM

Turn Movement Volumes

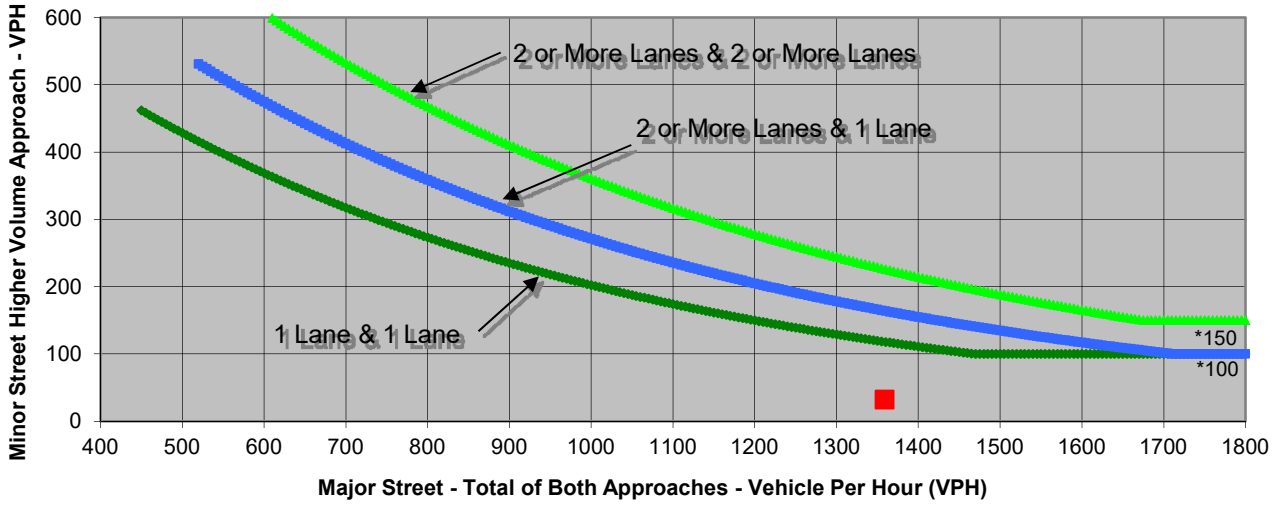
	NB	SB	EB	WB
Left	8	2	0	29
Through	703	534	0	0
Right	108	4	22	3
Total	819	540	22	32

Major Street Direction

x North/South

East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street	Minor Street	Warrant Met
	Rancho California Rd	Monte De Oro	
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	1,359	32	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Sheet No 7 of 9

Project 12 Oaks Winery

Scenario Existing + Ambient + Cumulative (2020) + Project

Peak Hour Weekend

Major Street Rancho California Rd

Minor Street Monte De Oro

Turn Movement Volumes

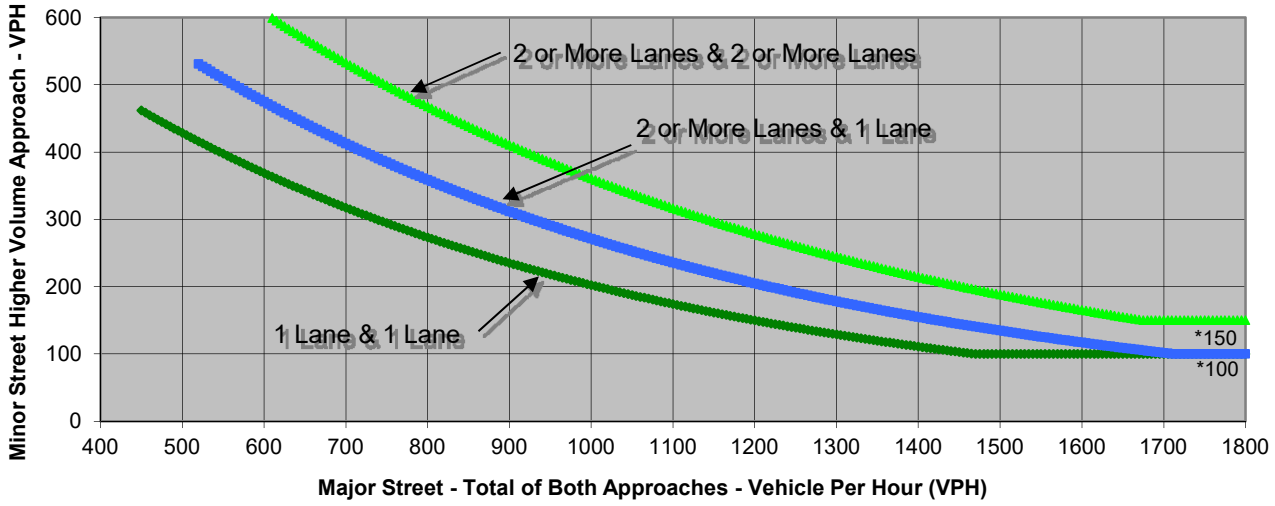
	NB	SB	EB	WB
Left	59	15	0	44
Through	840	805	0	0
Right	63	20	55	22
Total	962	840	55	66

Major Street Direction

x North/South

East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street	Minor Street	Warrant Met
	Rancho California Rd	Monte De Oro	
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	1,802	66	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Sheet No 8 of 9

Project 12 Oaks Winery

Scenario Existing + Ambient + Cumulative (2020) + Project

Peak Hour Weekend

Major Street Rancho California Rd

Minor Street Glen Oaks Rd

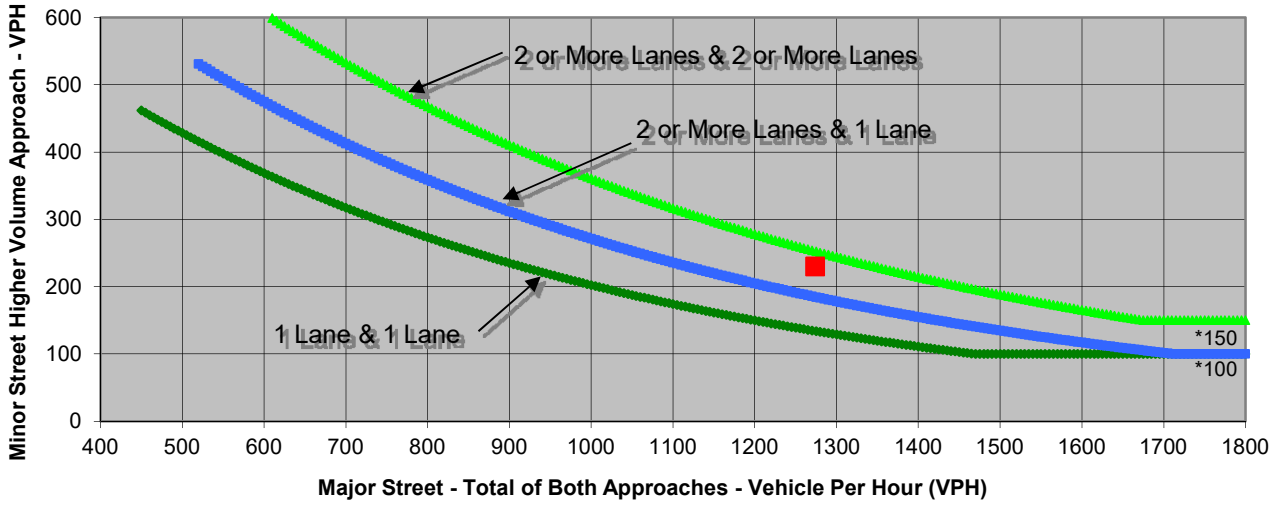
Turn Movement Volumes

	NB	SB	EB	WB
Left	184	0	0	41
Through	0	0	496	488
Right	46	0	249	0
Total	230	0	745	529

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street	Minor Street	Warrant Met
	Rancho California Rd	Glen Oaks Rd	
Number of Approach Lanes	1	1	YES
Traffic Volume (VPH) *	1,274	230	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

APPENDIX H: WINE COUNTRY COMMUNITY PLAN CHAPTER 7 IMPACTS AND MITIGATION

7. IMPACTS AND MITIGATION

The following impact discussion is based on applicable information associated with the WCP area.

IMPACTS ANALYSIS

The proposed project and the analysis results were compared to the significance criteria contained in the CEQA guidelines and refined in the County's and City's Traffic Impact Analysis Guidelines. The results are summarized below.

Please note that the following mitigation measures are based on the Future With Project Condition (Scenario 4) as it is the most appropriate condition for identifying impacts.

a) Does the proposed project conflicts with an applicable plan, ordinance or policy?

Threshold: *Would the project conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?*

For the purposes of this project, the following traffic components would result in a traffic impact:

County of Riverside:

The project degrades operations from an acceptable LOS C or better to LOS D, E, or F; or the proposed project adds traffic to an intersection operating at an unacceptable LOS D, E, or F.

City of Temecula:

- *The project degrades operations at an intersection from an acceptable LOS D or better to an unacceptable LOS E or F;*
- *The project degrades operations at an intersection operating at an unacceptable LOS E or F by increasing the control delay by 2.0 seconds or more;*
- *The project degrades roadway segment operations from an acceptable LOS E or better to an unacceptable LOS F;*
- *The project adds traffic to a roadway segment operating at an unacceptable LOS F.*

Determination: Significant Impacts with Mitigation Measures

General Discussion

The proposed project is consistent with adopted plans and policies related to non-motorized travel in the area. To evaluate motorized facilities, the significance criteria were applied to the analysis results, comparing the Scenario 4 results to the Scenario 1 results to identify significant impacts. As previously noted, the existing plus project traffic was evaluated as Scenario 2, but it is unrealistic to assume that the entire Wine Country Community Plan would be built out in a single year, so impact and mitigation summaries are limited to Scenario 4. The results are summarized in Table 12 and Table 13.

As shown in the tables, the proposed WCP generally improves operations compared to the adopted General Plan. However, based on the significance criteria above, impacts were identified by comparing the results to the existing condition.

TABLE 12 – IMPACT ANALYSIS RESULTS – ROADWAY SEGMENT

Segment	Scenario 4 With Project LOS	Scenario 3 General Plan Traffic Volume	Scenario 4 WCP Traffic Volume	Change in Traffic Volume
Weekday				
I-15 South of SR 79	E	192,212	187,954	-4,258
I-15 North of SR 79	F	213,434	207,795	-5,639
I-15 South of Rancho California Road Interchange	F	213,434	207,795	-5,639
I-15 North of Rancho California Road Interchange	F	223,344	217,642	-5,702
I-15 NB Off-Ramp at Rancho California Road	D	19,555	17,251	-2,304
I-15 NB On-Ramp at Rancho California Road	D	17,970	17,244	-726
I-15 SB Off-Ramp at Rancho California Road	E	20,354	19,000	-1,354
Weekend				
Rancho California Road West of Anza Road	E	21,852	18,248	-3,604
Rancho California Road East of Anza Road	D	19,141	17,013	-2,128
Anza Road South of Rancho California Road	D	36,050	27,672	-8,378
Temecula Parkway E/O Butterfield Stage Road (Feb.)	F	65,847	57,416	-8,431
Temecula Parkway E/O Butterfield Stage Road (Oct.)	F	65,863	57,432	-8,431
I-15 South of SR 79	D	185,484	177,322	-8,162
I-15 North of SR 79	E	199,359	192,487	-6,872
I-15 South of Rancho California Road Interchange	E	199,359	192,487	-6,872
I-15 North of Rancho California Road Interchange	E	208,758	200,190	-8,568
I-15 SB Off-Ramp at Rancho California Road	E	18,711	18,711	0

Source: Fehr & Peers, 2011

TABLE 13 – IMPACT ANALYSIS RESULTS – INTERSECTIONS

Intersection	Scenario 4 With Project LOS	Scenario 3 General Plan Delay	Scenario 4 WCP Delay	Change in Delay
3. Winchester Road at Ynez Road	E	66.4	58.8	-7.6
4. Winchester Road at I-15 NB Ramps	F	>120	>120	N/A
7. Rancho California Road at Ynez Road	F	>120	>120	N/A
17. Margarita Road at Rancho California Road	E	55.6	66.9	-11.3
18. Margarita Road at Rancho Vista Road	E	86.7	60.9	-25.8
19. Margarita Road at Pauba Road	E	67.5	88.2	-20.7
28. Butterfield Stage Road at La Serena Way	F	>120	>120	N/A
29. Butterfield Stage Road at Rancho California Road	F	99.9	>120	N/A
30. Butterfield Stage at Rancho Vista Road	F	>120	>120	N/A
33. Butterfield Stage Road at Temecula Parkway	F	79.5	>120	N/A
34. La Serena Way at Rancho California Road	F	23.5	>120	N/A
35. Calle Contento at Rancho California Road	F	11.0	>120	N/A
39. Anza Road at Borel Road (future)	E	11.5	39.4	+27.9
40. Anza Road at Buck Road (future)	F	13.6	72.2	+58.6
41. Anza Road at Rancho California Road	F	48.7	>120	N/A
42. Anza Road at Madera de Playa	F	>120	>120	N/A
43. Anza Road at Pauba Road	F	16.7	>120	N/A
44. Anza Road at De Portola Road	F	7.7	>120	N/A
45. Anza Road at Temecula Parkway	F	>120	>120	N/A
46. Rancho California Road at Camino del Vino	D	>120	31.6	N/A
49. Rancho California Road at Monte De Oro	F	12.4	>120	N/A
50. Los Caballos Road at Temecula Parkway	F	36.6	>120	N/A
51. Camino del Vino at Glen Oaks Road	D	11.1	32.2	+21.1
52. Camino del Vino at Monte De Oro	E	6.9	36.0	+29.1
58. De Portola Road at Pauba Road	F	40.4	>120	N/A

TABLE 13 – IMPACT ANALYSIS RESULTS – INTERSECTIONS				
Intersection	**Scenario 4 With Project LOS**	**Scenario 3 General Plan Delay**	**Scenario 4 WCP Delay**	**Change in Delay**
60. Pauba Road at Temecula Parkway	F	20.8	59.4	38.6

Source: Fehr & Peers, 2011

N/A – Change in delay not accurately measurable

b) Would the project conflict with an applicable congestion management program (CMP), including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

The Riverside County CMP does not require any specific analysis methodology or analysis requirements be addressed in a transportation impact analysis for a development project. Therefore, Part B of the significance thresholds does not apply for the WCP community plan project.

c) Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

Although the wine country area has hot air balloon rides, the proposed project will not increase the use of the balloons beyond what is currently contemplated in the County's General Plan. Otherwise, there is no land use proposes that would inherently conflict with air traffic patterns; therefore, the project impact is considered ***less-than-significant.***

d) Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Many of the new roadway facilities and site accessibility to future wineries identified in the WCP has not been designed given the programmatic nature of the WCP. Given the potential that increased hazards could occur due to a design feature, this impact is considered ***potentially significant.***

e) Would the project result in inadequate emergency access?

The WCP includes a series of connectivity that will provide for servicing emergency personnel. However, given the programmatic nature of the WCP, not every development building/winery has been thoroughly reviewed to ensure adequate emergency accessibility. Therefore, this impact is considered ***potentially significant.***

f) Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

The County General Plan and the WCP both include measures and policies that support use of alternative modes of travel. Additionally, the WCP will include a comprehensive trails plan that will provide accessibility for pedestrians, bicycles, and equestrians. Based on the County's commitment to these modes of travel in both plans, this impact is considered ***less-than-significant.***

MITIGATION MEASURES

As shown in the tables above, implementation of the WCP will generally decrease volumes and delay on roadways and intersections as compared to the approved County General Plan. However, these facilities still operate at a deficient level of service and therefore mitigation measures have been proposed. A peak hour signal warrant analysis was performed at all unsignalized intersections operating at a deficient level of service, and every location satisfies the peak hour warrant for traffic signal installation[1].

Transportation Impact 1 – Unacceptable Operations to Area Roadway Segments and Intersections

The proposed project will add traffic to area intersections and roadway segments that will operate at an unacceptable level, creating a ***significant and unavoidable*** impact to area roadway segments.

Mitigation 1 – Improvements to Intersections and Roadway Segments

The County shall implement a traffic impact fee program or other funding mechanism specifically for the WCP area. This program will collect fair-share contributions toward identified mitigation measures, as outlined in the WCP Fair Share and Phasing Assessment conducted by Fehr & Peers for the proposed project. This program will collect fair share contributions toward improvements within the WCP area and within the City of Temecula, and the County will enter into an agreement with the City of Temecula to implement the identified improvements. Although participation in the fee program will reduce the impacts to most locations to a less-than-significant level, some measures are considered infeasible and the impact would remain significant and unavoidable. The specific impact locations, and their identified improvements, are described in detail below.

Additionally, future development within the WCP shall be required to prepare a focused traffic study that will assess the following to ensure consistency with the assessment prepared for the WCP:

- Trip generation comparison to estimates assumed in the WCP assessment
- Parking assessment
- Site access and on-site circulation assessment
- Interaction of driveways with adjacent intersections (if appropriate)
- Additional assessment deemed appropriate by the County of Riverside Transportation Department

[1] This analysis is intended to examine the general correlation between the planned level of future development and the need to install new traffic signals. It estimates future development-generated traffic compared against a sub-set of the standard traffic signal warrants recommended in the Federal Highway Administration *Manual on Uniform Traffic Control Devices* (MUTCD) and associated State guidelines (such as the California MUTCD supplement). This analysis should not serve as the only basis for deciding whether and when to install a signal. To reach such a decision, the full set of warrants should be investigated based on field-measured, rather than forecast, traffic data and a thorough study of traffic and roadway conditions by an experienced engineer. Furthermore, the decision to install a signal should not be based solely upon the warrants, since the installation of signals can lead to certain types of collisions. The responsible state or local agency should undertake regular monitoring of actual traffic conditions and accident data, and timely re-evaluation of the full set of warrants in order to prioritize and program intersections for signalization.

Rancho California Road West of Anza

This roadway segment operates at LOS E with the proposed project, an unacceptable level. For the segment to operate at LOS C or better, it would require four lanes. However, the Temecula Valley Design Guidelines and the WCP specifically identifies this roadway segment as a two-lane facility to reflect the rural nature of the area. Therefore, widening of this roadway would be inconsistent with policy and plan direction for the project and the impact is considered significant-and-unavoidable. The County shall work with the City of Temecula to ensure that the transition from the County's lane configurations to the City's planned lane configurations is provided in a safe and efficient manner.

Rancho California Road East of Anza

This roadway segment operates at LOS D with the proposed project, an unacceptable level. For the segment to operate at LOS C or better, it would require four lanes. However, the Temecula Valley Design Guidelines and the WCP specifically identifies this roadway segment as a two-lane facility to reflect the rural nature of the area. Therefore, widening of this roadway would be inconsistent with policy and plan direction for the project and the impact is considered significant-and-unavoidable.

Anza Road South of Rancho California Road

The WCP shall contribute a fair share contribution toward improving Anza Road on this segment as a four-lane roadway through the regional TUMF program. With this improvement, the roadway segment would operate acceptably and the impact would be reduced to a less-than-significant level.

Temecula Parkway east of Butterfield Stage Road

This roadway segment operates at LOS F with the proposed project, an unacceptable level. However, implementation of the WCP will decrease traffic volumes on this segment compared to the No Project Condition. As such, based on the City of Temecula significance criteria requested by the City to be applied at this location, this impact is considered *less-than-significant*.

It should be noted that, for the segment to operate at an acceptable level, it would need additional capacity beyond that of a six-lane Principal Arterial through the addition of a travel lane in each direction or other capacity-enhancing modifications.

I-15 from South of SR-79 (Temecula Parkway) to north of Rancho California Road

The WCP shall make a fair share contribution toward freeway expansion in this area to provide LOS C operations through the regional TUMF program. However, the remaining funding for this improvement has not yet been identified and there is limited right-of-way in the corridor to facilitate freeway expansion. Given the uncertainty of the funding and feasibility of this improvement, the project's impacts to the freeway are considered significant and unavoidable.

I-15 Freeway Ramps to Rancho California (Northbound On and Off Ramps/Southbound Off Ramp)

The WCP shall make a fair share contribution toward the addition of a freeway ramp lane at these locations through the regional TUMF program. However, the remaining funding for this improvement has not yet been identified and there is limited right-of-way in the corridor to facilitate freeway ramp expansion. Given the uncertainty of the funding and feasibility of this improvement, the project's impacts to the freeway are considered significant and unavoidable.

Winchester Road at Ynez Road

This intersection operates at LOS E with the proposed project, an unacceptable level. However, implementation of the WCP will decrease delay at this intersection compared to the No Project condition. As such, based on the City of Temecula significance criteria described above, this impact is considered *less-than-significant*.

For the intersection to operate at an acceptable level, improvements to the Adaptive Traffic Signal Timing Program would be required. With this improvement, the intersection would operate at an acceptable LOS D.

Winchester Road at I-15 NB Ramps

The WCP shall make a fair share contribution through the WCP TIF toward signal modifications to allow "free" westbound right-turn movement, and to revise the Adaptive Traffic Signal Timing Program. Additionally, a second dedicated northbound right-turn lane would be added at the intersection. With these improvements, the intersection would operate at an acceptable LOS D. However, the remaining funding (outside of the TIF) has not been guaranteed. Additionally, this ramp is controlled by Caltrans and is in the City of Temecula; as such, the County cannot guarantee implementation of the identified improvement. As such, the impact is considered significant and unavoidable.

It should be noted that the French Valley Parkway improvements, once fully designed and constructed, may further reduce volumes at this location (beyond that identified in this assessment) which would assist in reducing impacts at this location.

Rancho California Road at Ynez Road

The WCP shall make a fair share contribution through the WCP TIF or other funding mechanism toward the following improvements:

- Northbound Approach - two left-turn lanes, three through lanes, and a right turn lane
- Southbound and Westbound Approaches - Two left-turn lanes, three through lanes, dual right-turn lanes (with overlap right-turn phasing)
- Eastbound Approach - Three left-turn lanes, three through lanes, and a right-turn lane (with overlap right-turn phasing)

Additionally, WCP shall make a fair share contribution to revise the Adaptive Traffic Signal Timing Program through the WCP TIF. With these improvements, the intersection would operate at an acceptable LOS D in the City of Temecula. However, all four quadrants of this intersection are developed and there is limited right-of-way. Additionally, the improvements would encroach onto the adjacent pond/park on the southwest quadrant. Given the right-of-way constraints at this location, the impact is considered significant and unavoidable.

Margarita Road at Rancho California Road

The WCP shall make a fair share contribution through the regional TUMF program or other funding mechanism toward optimizing the Adaptive Traffic Signal Timing Program. With these improvements the intersection would operate at an acceptable LOS D. However, the intersection is controlled by the City of Temecula and the County cannot guarantee implementation of the measure. As such, the impact is considered significant and unavoidable.

Margarita Road at Rancho Vista Road

This intersection operates at LOS E with the proposed project, an unacceptable level. However, implementation of the WCP will decrease delay at this intersection compared to the No Project condition. As such, based on the City of Temecula significance criteria described above, this impact is considered *less-than-significant*.

For this intersection to operate at an acceptable level, optimization of signal timing at the intersection is needed. With this improvement, the intersection will operate at an acceptable LOS D.

Margarita Road at Pauba Road

This intersection operates at LOS E with the proposed project, an unacceptable level. However, implementation of the WCP will decrease delay at this intersection compared to the No Project condition. As such, based on the City of Temecula significance criteria described above, this impact is considered *less-than-significant*.

For the intersection to operate at an acceptable level, a dedicated westbound right-turn lane would be needed at the intersection, providing one left-turn lane, two through lanes, and one right-turn lane at the intersection. With this improvement, the intersection will operate at an acceptable LOS D and the impact would be reduced to a less-than-significant level.

Butterfield Stage Road at La Serena Way

Coordinate with the City of Temecula and contribute a fair share contribution through the WCP TIF or other funding mechanism toward installation of a traffic signal. With this improvement, the intersection will operate at an acceptable LOS C and the impact would be reduced to a less-than-significant level.

Butterfield Stage Road at Rancho California Road

The WCP shall make a fair share contribution through the WCP TIF or other funding mechanism toward design and construction of the intersection improvements described below:

- Northbound Approach - two left-turn lanes, two through lanes, one right-turn lane
- Southbound Approach - one left-turn lane, two through lanes, one right-turn lane
- Eastbound Approach - one left-turn lane, three through lanes, and one right-turn lane (with overlap right-turn phase)
- Westbound Approach - one left-turn lane, two through lanes, and one right-turn lane

With these improvements, the intersection will operate at LOS C.

The identified improvement would reduce the impact to a less-than-significant level.

Butterfield Stage at Rancho Vista Road

The WCP shall make a fair share contribution through the WCP TIF or other funding mechanism toward installation of a traffic signal. With this improvement, the intersection would operate at an acceptable level and the impact would be reduced to a less-than-significant level.

Butterfield Stage Road at Temecula Parkway

The WCP shall make a fair share contribution through the regional TUMF or other funding mechanism toward the following improvements:

- Restriping the southbound approach to include two left-turn lanes
- Addition of a westbound right-turn lane (with overlap right-turn phase).

With these improvements, the intersection will operate at an acceptable LOS D and the impact would be reduced to a less-than-significant level.

La Serena Way at Rancho California Road

The WCP shall make a fair share contribution through the WCP TIF toward Installation of a two-lane roundabout. With this improvement, the intersection will operate at an acceptable LOS C and the impact would be reduced to a less-than-significant level.

Calle Contento at Rancho California Road

The WCP shall make a fair share contribution through the WCP TIF toward Installation of a two-lane roundabout. With this improvement, the intersection will operate at an acceptable LOS C and the impact would be reduced to a less-than-significant level.

Anza Road at Borel Road (future)

The WCP shall make a fair share contribution through the regional TUMF program and the WCP TIF program toward Installation of a traffic signal. With this improvement, the intersection will operate at an acceptable LOS C and the impact would be reduced to a less-than-significant level.

Anza Road at Buck Road (future)

The WCP shall make a fair share contribution through the regional TUMF program and the WCP TIF program toward Installation of a traffic signal. With this improvement, the intersection will operate at an acceptable LOS C and the impact would be reduced to a less-than-significant level.

Anza Road at Rancho California Road

Installation of a large roundabout (minimum of two lanes on each approach) will provide acceptable levels of service. Please note that the County will be constructing this roundabout next year; as such, LOS C operations will be provided and the impact is considered less-than-significant.

Anza Road at Madera de Playa

The WCP shall make a fair-share contribution through the regional TUMF program and the WCP TIF toward the installation of a traffic signal and widen the intersection to consist of the following lane configuration:

- Northbound - two left-turn lanes and two through lanes
- Southbound - two through lanes and one right turn lane
- Eastbound - one left-turn lane and one right-turn lane

With these improvements the intersection will operate at an acceptable LOS C and the impact would be reduced to a less-than-significant level.

Anza Road at Pauba Road

The WCP shall make a fair share contribution through the regional TUMF and the WCP TIF programs toward the installation of a traffic signal and widening the intersection to the following lane configurations:

- Northbound - one left-turn lane, two through lanes, one right-turn lane
- Southbound - one left-turn lane, two through lanes, and one right-turn lane
- Eastbound - one left-turn lane and a shared through/right-turn lane
- Westbound – one shared left/through/right turn lane

With these improvements the intersection will operate at an acceptable LOS C and the impact would be reduced to a less-than-significant level.

Anza Road at De Portola Road

The WCP shall make a fair share contribution through the regional TUMF and the WCP TIF programs toward the installation of a traffic signal and widening the intersection to the following lane configurations:

- Northbound - one left-turn lane, two through lanes, one right-turn lane
- Southbound - one left-turn lane, two through lanes, and one right-turn lane
- Eastbound - one left-turn lane and a shared through/right-turn lane
- Westbound – one left-turn lane and a shared through/right turn lane

With these improvements the intersection will operate at an acceptable LOS C and the impact would be reduced to a less-than-significant level.

Anza Road at Temecula Parkway

The WCP shall make a fair share contribution through the regional TUMF and WCP TIF programs toward the installation of a traffic signal and widening the intersection to the following lane configurations:

- Southbound - one left-turn lane and two right-turn lanes (with overlap right-turn phase)
- Eastbound - two left-turn lanes and two through lanes
- Westbound – two through lanes and a right-turn lane

With these improvements the intersection will operate at an acceptable LOS C and the impact would be reduced to a less-than-significant level.

Rancho California Road at Camino del Vino

The WCP shall make a fair share contribution through the WCP TIF toward the installation of a traffic signal and the addition of a southbound left-turn lane. With these improvements the intersection will operate at an acceptable LOS C. Alternatively, a single-lane roundabout would provide acceptable operations.

Either improvement would reduce the impact to a less-than-significant level.

Rancho California Road at Monte De Oro

The WCP shall make a fair share contribution through the WCP TIF toward installation of a two-lane roundabout. With this improvement, the intersection will operate at an acceptable LOS C and the impact would be reduced to a less-than-significant level.

Los Caballos Road at Temecula Parkway

Given the rural nature of this area, this intersection will remain unsignalized in the future. Therefore, this impact is considered significant and unavoidable.

Camino del Vino at Glen Oaks Road

Given the rural nature of this area, this intersection will remain unsignalized in the future. Therefore, this impact is considered significant and unavoidable.

Camino del Vino at Monte De Oro

Given the rural nature of this area, this intersection will remain unsignalized in the future. Therefore, this impact is considered significant and unavoidable.

De Portola Road at Pauba Road

Given the rural nature of this area, this intersection will remain unsignalized in the future. Therefore, this impact is considered significant and unavoidable.

Pauba Road at Temecula Parkway

Given the rural nature of this area, this intersection will remain unsignalized in the future. Therefore, this impact is considered significant and unavoidable.

Transportation Impact 2 - Potential Increase in Hazards Due to a Design Feature

The following policy/mitigation measure shall be added to the WCP to address the impact identified above:

- All future improvements in the WCP area shall be consistent with design standards set forth by the County or WCP Community Plan. All designs, including site access points, shall be reviewed to determine that designs are consistent with appropriate design standards. Implementation of this policy/mitigation measure will reduce this impact to a ***less-than-significant*** level and no further mitigation is required.

Transportation Impact 3 - Potential Inadequate Emergency Access

The following policy/mitigation measure shall be added to the WCP to address the impact identified above:

- All proposed development in the WCP area shall be reviewed by appropriate emergency services personnel to ensure adequate emergency access is provided. Implementation of this policy/mitigation measure will reduce this impact to a ***less-than-significant*** level and no further mitigation is required.

In addition to the mitigation measures identified above, the following policy is recommended to be added to the WCP to assist in addressing some of the impacts identified above:

- The County shall require wineries and equestrian facilities to prepare a Traffic Management Plan (TMP) for County's review and approval for large special events. The TMP shall provide detail such as traffic management strategies for events that cause a substantial increase of vehicles entering or exiting the project during a small period of time. Large weddings, concerts, festivals, and equestrian events may Figure this type of traffic pattern. An example of some traffic strategies could be the use of a traffic coordinators, event signage, staggered arrival/departure times, etc. The TMP may also be required to include parking strategies to aid traffic management such as a drop-off/pick-up zone.