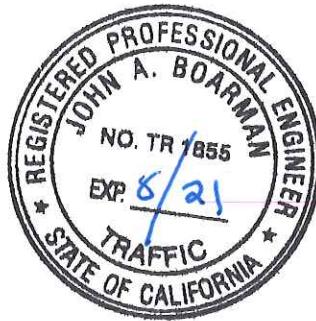


TRANSPORTATION IMPACT ANALYSIS

ALANTE PROJECT

San Diego, California
April 21, 2020
(PTS # 648597)

LLG Ref. 3-19-3102



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EXECUTIVE SUMMARY

The Alante Project is a multifamily residential Project proposed on an existing two-level Park & Ride parking facility owned by the City of San Diego at 10211 Rancho Carmel Drive in the Carmel Mountain Ranch Community. CPA, PDP and Rezone from RM-1-2 to RM-4-10 are required. With the re-opening of the recently expanded MTS Sabre Springs/ Penasquitos Transit Station less than a quarter of a mile away, a Park & Ride facility is no longer needed in this location. The applicant plans a redevelopment of the site by constructing a new 50-unit four-story apartment building atop the existing parking structure.

The project site is located just east of Interstate 15 and just north of Ted Williams Parkway in the southwestern portion of the Carmel Mountain Ranch Community.

The Project is estimated to generate 300 ADT with 24 trips during the AM peak hour (5 inbound and 19 outbound) and 27 trips (19 inbound and 8 outbound) during the PM peak hour.

This study analyzes 6 intersections and 5 segments in the following scenarios:

- Existing
- Existing with Project
- Near-Term Opening Day (Year 2022) without Project
- Near-Term Opening Day (Year 2022) with Project
- Horizon Year 2050 without Project
- Horizon Year 2050 with Project

Based on the City of San Diego significance criteria, no significant impacts are calculated and therefore no mitigation measures are required.

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TRANSPORTATION IMPACT ANALYSIS

ALANTE PROJECT

San Diego, California

April 21, 2020

1.0 INTRODUCTION

The Alante Project proposes to develop 50 multi-family units atop an existing Park & Ride facility owned by the City of San Diego. The Project adds a maximum of 5 peak hour trips to either direction on the freeway (I-15) mainline and the metered freeway on-ramps and therefore, no freeway mainline or metered on-ramp analyses are required. Various intersections and segments within the study area have been analyzed to determine potential Project related impacts, as set forth in the following sections:

- Project Description
- Existing Mobility Conditions
- Study Area, Analysis Scenarios and Methodology
- Significance Criteria
- Project Trip Generation/Distribution/Assignment
- Existing Vehicular Analysis
- Existing + Project Analysis
- Near-Term Opening Day (Year 2022) Traffic Volumes
- Near-Term Opening (Year 2022) Analysis
- Horizon Year 2050 Analysis
- Access and Parking
- Vehicle Miles Traveled (VMT) Analysis
- Significance of Impacts and Mitigation Measures

2.0 PROJECT DESCRIPTION

2.1 Project Location

The project site is located just east of Interstate 15 and just north of Ted Williams Parkway in the southwestern portion of the Carmel Mountain Ranch Community. More precisely, it is located at 10211 Rancho Carmel Drive, at the northeast corner of the Rancho Carmel Drive / Provencal Place intersection.

Figure 2-1 is the Vicinity Map. **Figure 2-2** depicts the Project Area including area schools, Daycare center(s) and shopping opportunities.

2.2 Project Description

The site is currently developed with a two-level Park & Ride parking facility owned by the City of San Diego. With the re-opening of the recently expanded MTS Sabre Springs/ Penasquitos Transit Station less than a quarter of a mile away, a Park & Ride facility is no longer needed at this location. The applicant proposes to purchase the 0.46-acre property from the City and to undertake a redevelopment of the site by constructing a new 50-unit four-story apartment building atop the existing parking structure. A Community Plan Amendment (CPA) / Planned Development Permit (PDP) and Rezone are required.

The current Carmel Mountain Ranch Community Plan land use element designates the site as LM (Low Medium Residential: 6-29 DU/AC). As such, the existing designation would permit a maximum of thirteen units on the site. The proposed redevelopment of 50-units (with density bonuses for on-site affordable) would require that the property be re-classified H (High Residential: 45-74 DU/AC).

In addition, the property is currently zoned RM-1-2 and would allow up to a maximum of eight units. The proposed redevelopment also seeks to rezone the site to RM-4-10, which will accommodate the proposed 50-unit project. It should be noted that the subject site is located within a Transit Priority Area. As mentioned, the MTS Sabre Springs/ Penasquitos Transit Station, also on Rancho Carmel Drive, is located approximately one-quarter mile south of the subject site.

Land uses in the area immediately surrounding the proposed project site are predominantly multi-family attached residential. In addition, a small commercial center, Rancho Carmel Plaza, is located immediately south and across Provencal Place from the subject property. The plaza contains numerous neighborhood services and food establishments. Finally, the Carmel Mountain Ranch Community Park and Recreation Center is situated directly across Rancho Carmel Drive to the west of the project site.

2.3 Project Access

The main access to the Project site is via a driveway on the north side of Provencal Place approximately 120 feet east of the existing signalized Rancho Carmel Drive / Provencal Place intersection. A second

right-in / right-out access is located approximately 60 feet north of the intersection on Rancho Carmel Drive leading to the lower parking level.

Figure 2-3 depicts the plan of the Basement level parking (Rancho Carmel Drive access), while **Figure 2-4** depicts the Ground floor level parking.

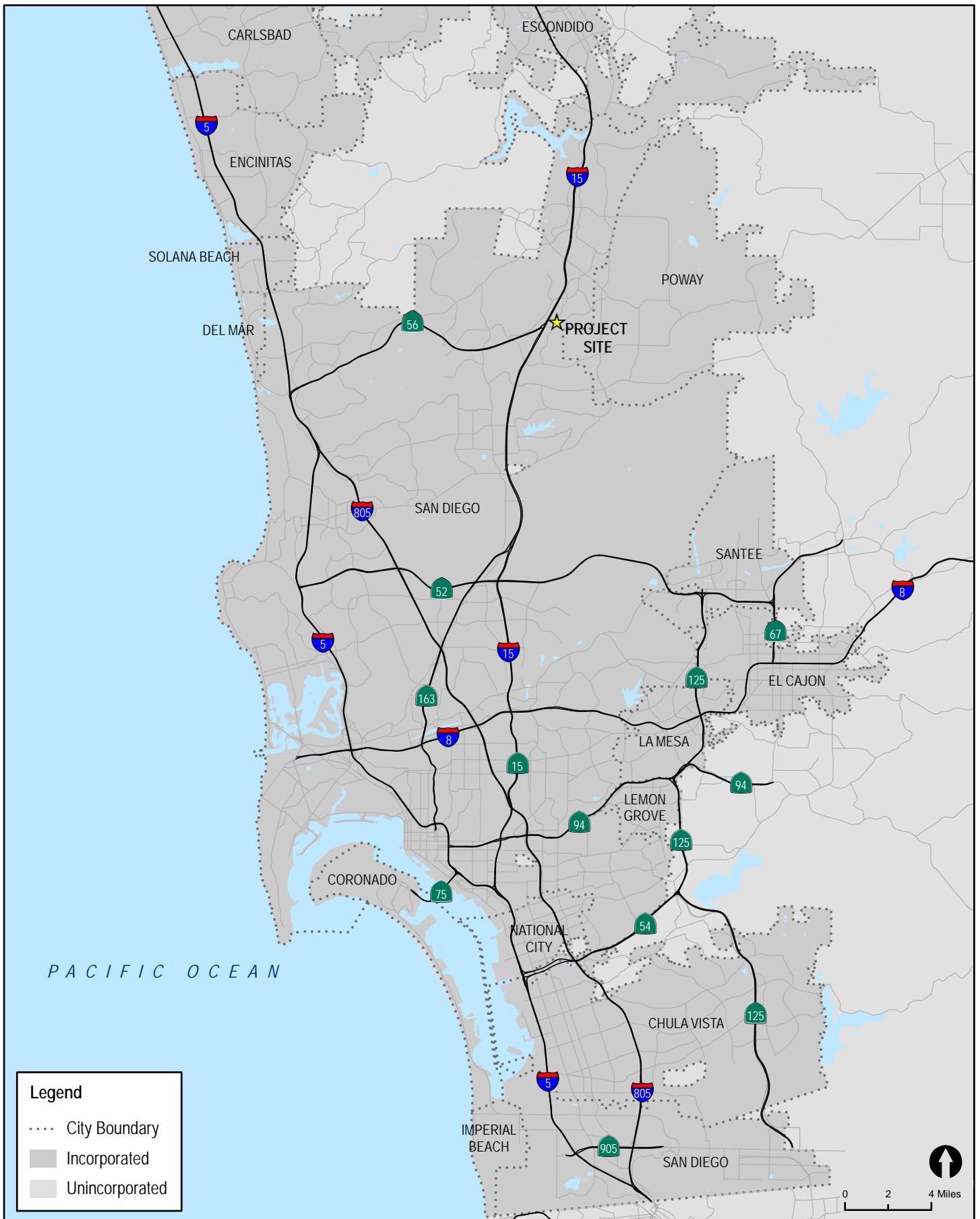
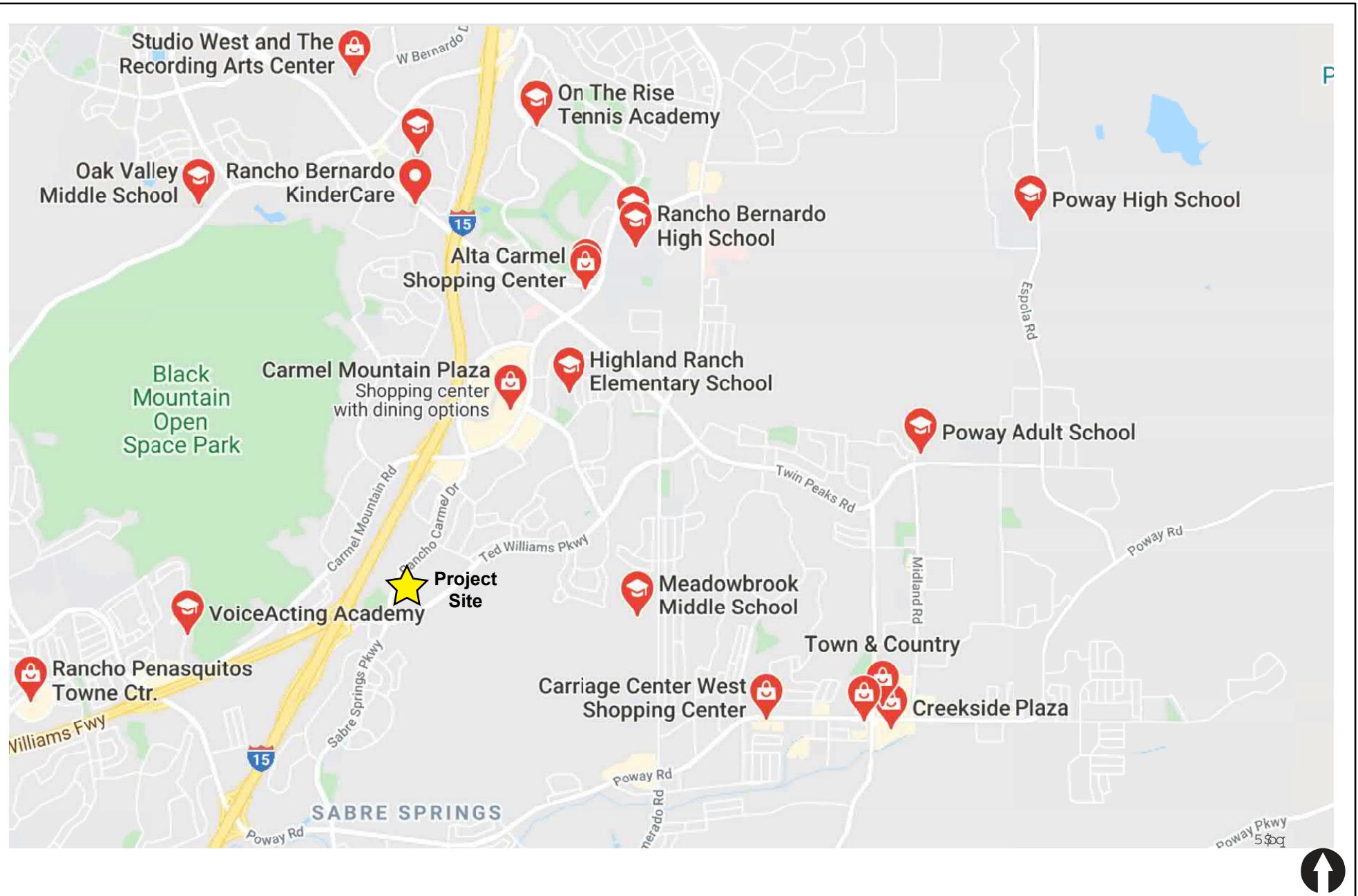
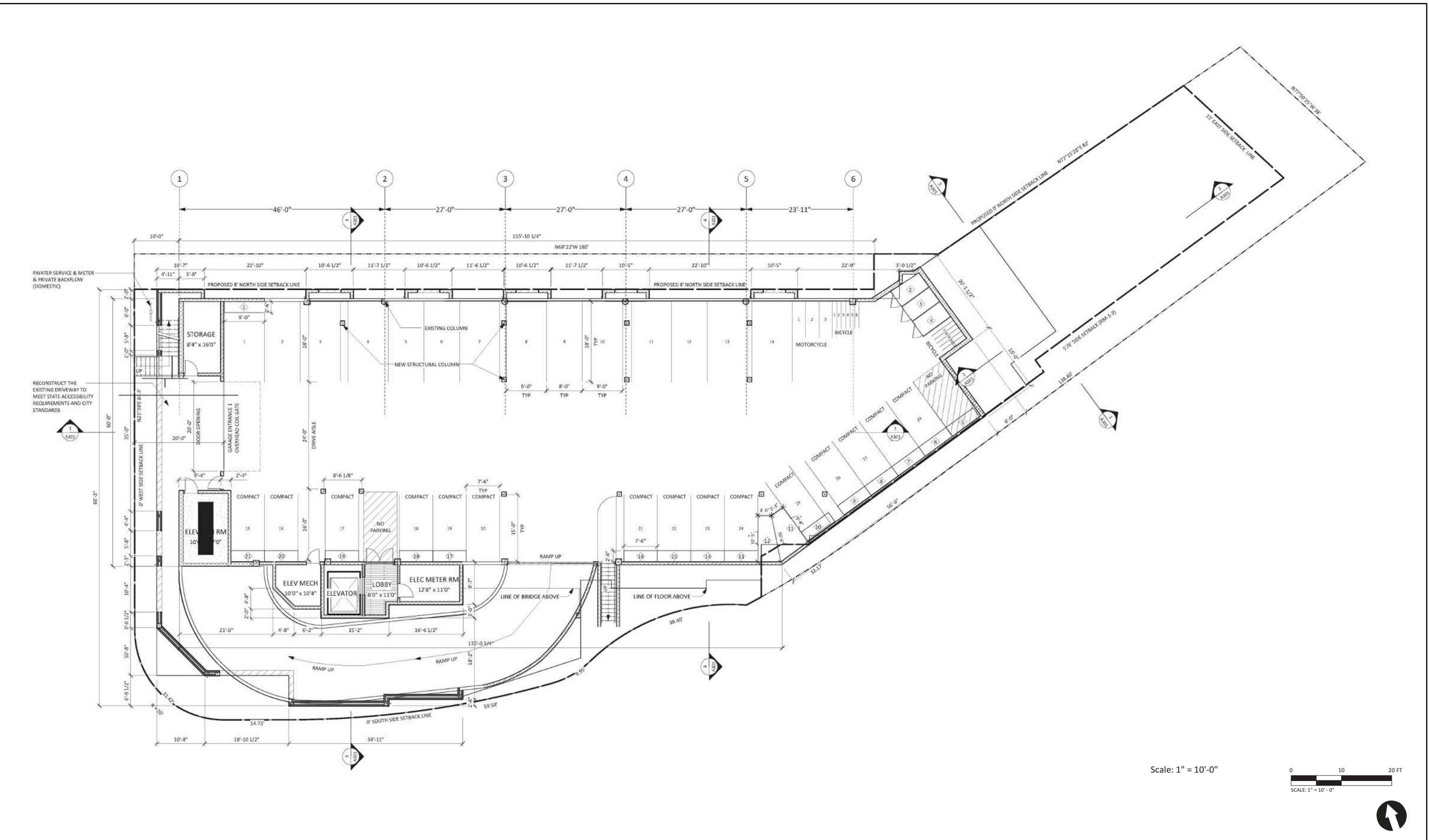
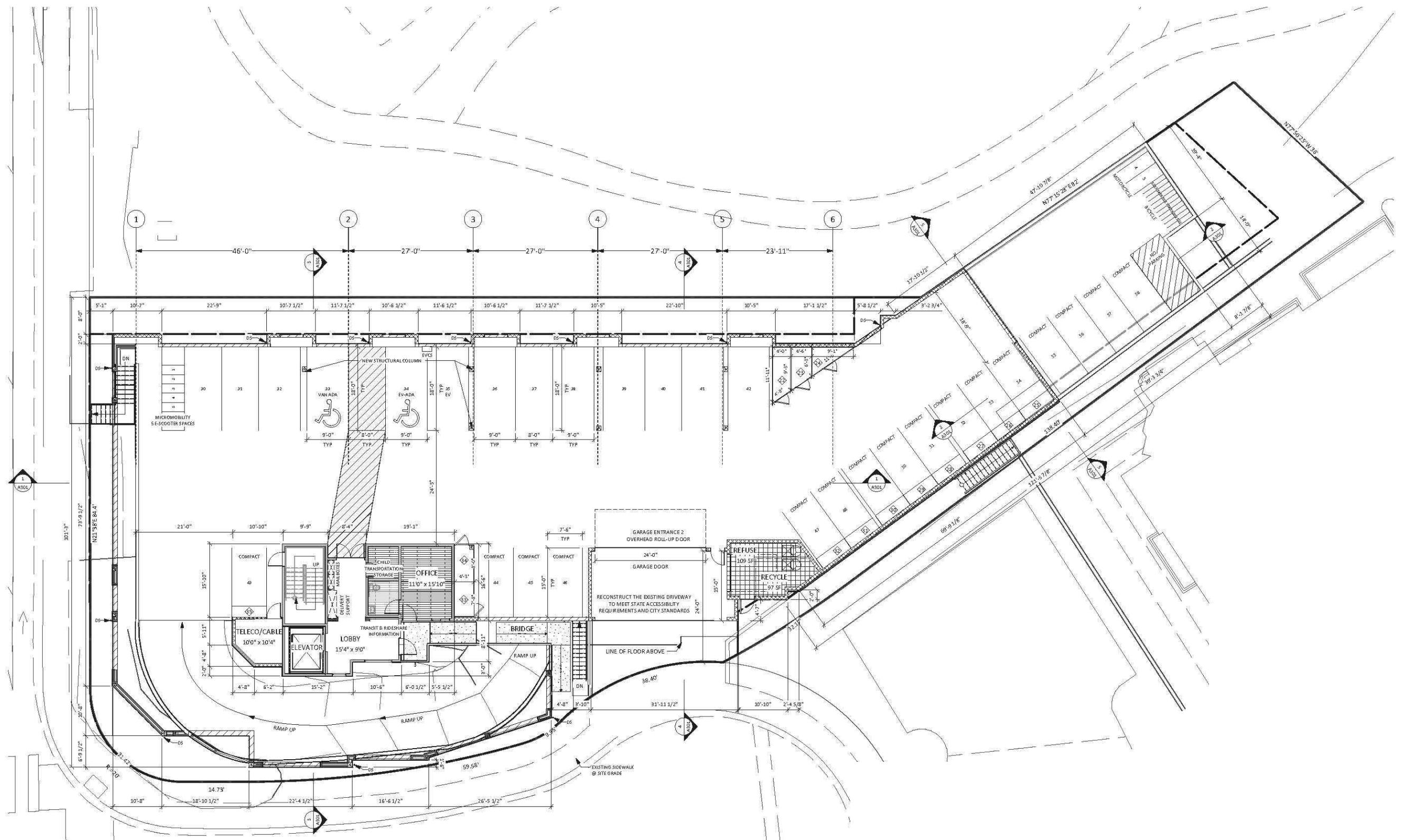


Figure 2-1

Vicinity Map







3.0 EXISTING MOBILITY CONDITIONS

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

3.1 Existing Street Network

The following is a description of the existing street network in the study area.

Ted Williams Parkway is generally an east-west facility. It is classified as a six-lane Expressway between I-15 and Rancho Carmel Drive (Sabre Springs Parkway) and a six-lane Primary Arterial east of Rancho Carmel Drive (Sabre Springs Parkway), in the Carmel Mountain Circulation Element. It is currently built as a Six-Lane Divided Road with 110 feet curb-to-curb width and a 20-foot wide landscaped median in the project vicinity. The posted speed limit is 60 mph in the eastbound direction between I-15 and Rancho Carmel Road and 50 mph in the westbound direction. Bike lanes and non-contiguous sidewalks are provided along both sides of the roadway. Parking is prohibited along the roadway. There are no bus stops on Ted Williams Parkway; in the project vicinity.

Rancho Carmel Drive is generally a north-south facility. It is classified as a four-lane major street in the Carmel Mountain Circulation Element. It is currently built as a Four-Lane Divided Road with a curb to curb width of 76 ft. The posted speed limit is 45 mph in the project vicinity. Bike lanes and contiguous sidewalks are provided along both sides of the roadway. Parking is prohibited along the roadway. There are no bus stops on Rancho Carmel Drive in the project vicinity.

Provencal Place is an east-west facility. It is a two-lane unclassified road with a cul-de-sac east and west of Rancho Carmel Drive with a curb to curb width of 64 ft. Curb, gutter and contiguous sidewalks are provided on both sides of this street. Parking is permitted along the south curb of this road, east of Rancho Carmel Drive. There are no bus stops on Provencal Place. There is a cul-de-sac at the eastern end of this roadway with two driveways, one to the east providing access to the gated community of Provencal with 162 multi-family units and the 2nd to the shopping center to the south of the site.

Sabre Springs Parkway is generally a north-south facility. It is classified as a four-lane major street in the Sabre Springs Circulation Element. Sabre Springs Parkway is the continuation of Rancho Carmel Drive, south of Ted Williams Parkway. It is currently built as a Four-Lane Divided Road with a curb to curb width of 110 feet at its northern end narrowing to 100 feet at Evening Creek Drive. The posted speed limit is 45 mph in the project vicinity. Bike lanes and contiguous sidewalks are provided along both sides of the roadway. Parking is prohibited along the roadway. There are no bus stops on Sabre Springs Parkway in the project vicinity.

3.2 Existing Bicycle Network

Currently, there is a Class II bike lane on Rancho Carmel Drive beginning at Carmel Mountain Road and ending at Ted Williams Parkway. This bike lane continues further south on Sabre Springs

Parkway. There are no other bicycle facilities provided along the street segments within the study area. No bike lanes are provided on Provencal Place.

3.3 Existing Pedestrian Conditions

Noncontiguous ~~Continuous~~ sidewalks are provided along the both sides of Ted Williams Parkway and contiguous sidewalks on both sides of Rancho Carmel Drive and both sides of Provencal Place, in the study area.

3.4 Existing Transit Conditions

The Sabre Springs Transit station is served by three (3) bus routes and is located approximately a quarter mile south of the project site. The three bus routes are briefly described below:

- Bus Route 290 runs between Rancho Bernardo, Sabre Springs and Downtown San Diego and operates from 5:00AM to 8:00AM Monday through Friday with a 15-minute frequency and in the reverse direction between 3:00 PM and 6:00PM with a 15-minute frequency and does not operate Saturday or Sunday.
- Bus Route 235 runs between India Street / C Street and West Valley Parkway via Claremont Mesa Boulevard, I-15, and Broadway. It operates from 5:00AM to 10:00PM Monday through Saturday and does not operate on Sundays. Monday through Friday, this route operates with a 15-minute frequency and on Saturday, every 30 minutes.
- Bus Route 944 runs between Sabre Springs Parkway / Wimberly Square and Hilleary Place & Hilleary Park Drive via Poway Road. It operates from 5:00AM to 7:00PM Monday through Friday, and 6:00AM to 6:00PM on Saturday. This route operates with a frequency of 30 minutes.

Schedules for all routes are provided in *Appendix A*.

3.5 Existing Traffic Volumes

Table 3–1 is a summary of the most recent available average daily traffic volumes (ADTs) from LLG counts conducted on Wednesday, May 15, 2019, when area schools were in session. Manual hand counts at the study area intersections, including bicycle and pedestrian counts, were conducted on Wednesday, May 15, 2019, when area schools were in session.

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

TABLE 3-1
EXISTING TRAFFIC VOLUMES

Street Segment	Average Daily Traffic ^a
Ted Williams Parkway	
I-15 to Sabre Springs Pkwy (Rancho Carmel Drive)	43,590
Rancho Carmel Drive	
Shoal Creek Drive to Provencal Place	11,630
Provencal Place to Ted Williams Parkway	13,700
Sabre Springs Parkway	
Ted Williams Parkway to Evening Creek Drive	16,750
Provencal Place^b	
East of Rancho Carmel Drive	2,710

Footnotes:

- a. Counts conducted on Wednesday May 15, 2019 by Count Data
- b. Counts conducted on Tuesday February 18, 2020 by Count Data.

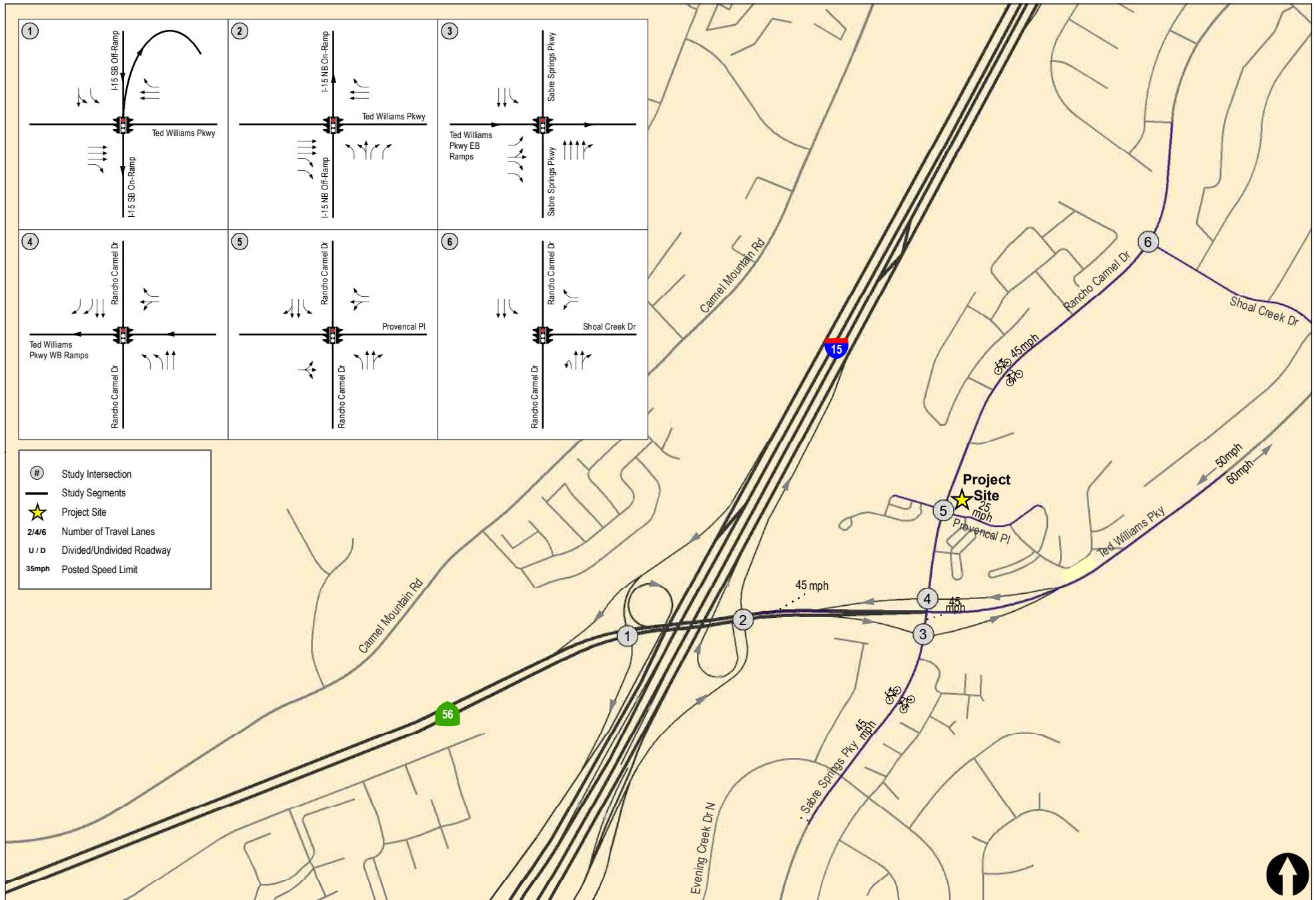


Figure 3-1
Existing Conditions Diagram

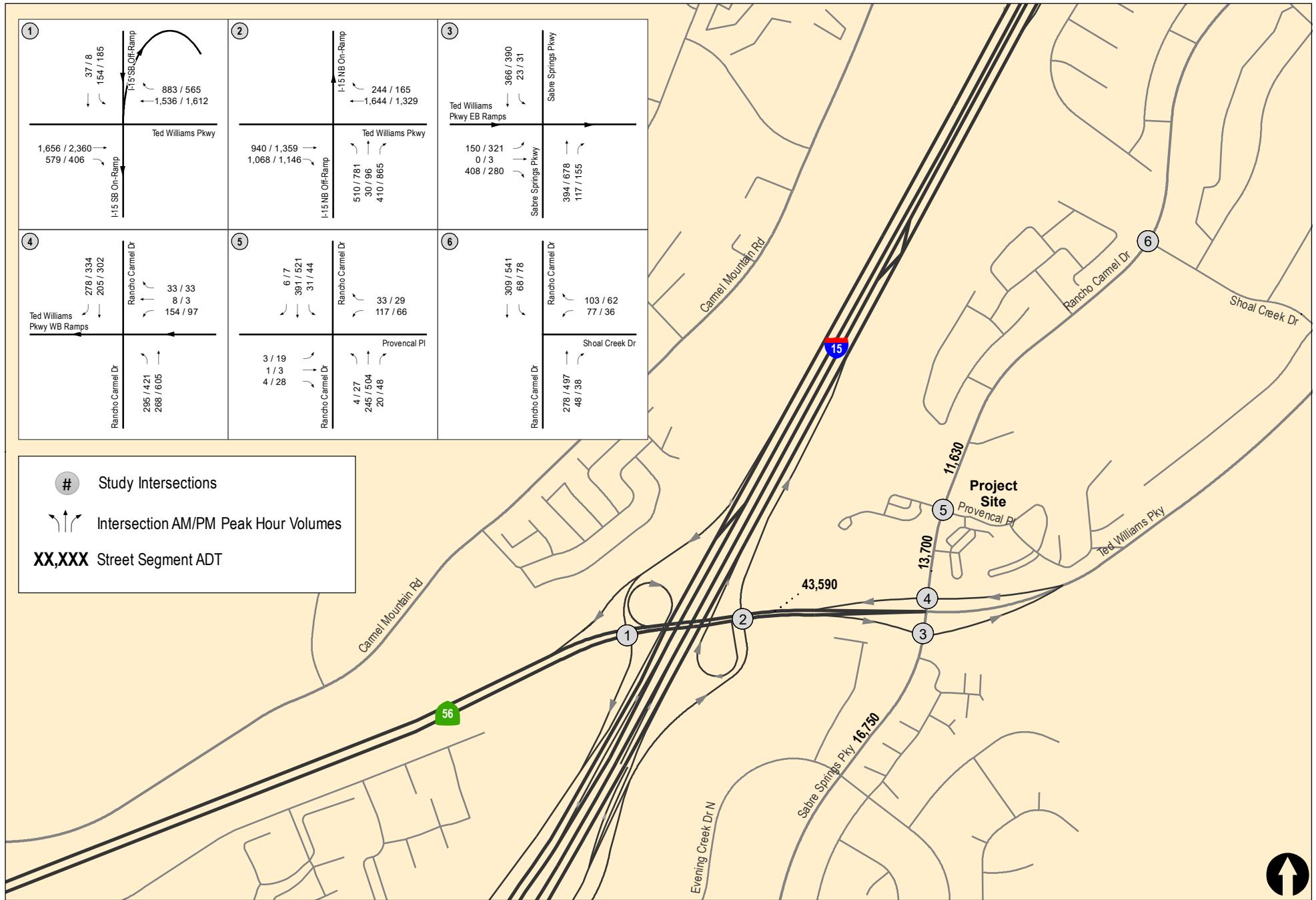


Figure 3-2
Existing Traffic Volumes

4.0 STUDY AREA, ANALYSIS SCENARIOS AND METHODOLOGY

4.1 Study Area

The study area was determined based on the City's Traffic Impact Study Manual and the SANTEC/ITE Regional Guidelines for Traffic Impact Studies which indicate that a Project study area be established as follows:

- All intersections where the Project will add 50 or more peak hour trips in either direction and known congested locations, where the Project may have an impact.
- Mainline freeway locations where the Project will add 150 or more peak hour trips in either direction.
- Metered Freeway On-Ramps where the Project will add 20 or more peak hour trips.

In this case, even though the Project does not add 50 or more trips in either direction to any intersection, the study area was selected based on the Project's trip distribution and the most likely locations to potentially be impacted by the Project. The Project study area includes the following locations:

INTERSECTIONS

1. I-15 SB Ramps / SR-56
2. I-15 NB Ramps / SR-56
3. Sabre Springs Parkway / Ted Williams Parkway EB Ramps
4. Sabre Springs Parkway / Ted Williams Parkway WB Ramps
5. Rancho Carmel Drive /Provencal Place
6. Rancho Carmel Drive / Shoal Creek Drive

SEGMENTS

1. Ted Williams Parkway, I-15 to Sabre Springs Parkway
2. Rancho Carmel Drive, Shoal Creek Drive to Provencal Place
3. Rancho Carmel Drive, Provencal Place to Ted Williams Parkway
4. Sabre Springs Parkway, Ted Williams Parkway to Evening Creek Drive
5. Provencal Place, East of Rancho Carmel Drive

The Project adds a maximum of 5 peak hour trips to either direction on the freeway (I-15) mainline and the metered freeway on-ramps and therefore, no freeway mainline or metered on-ramp analyses are required.

4.2 Analysis Scenarios

This study analyzes the above-mentioned key locations in the Project area for the following scenarios:

- Existing
- Existing with Project
- Near-Term (Opening Year 2022) without Project
- Near-Term (Opening Year 2022) with Project
- Horizon Year 2050 without Project
- Horizon Year 2050 with Project

4.3 Methodology

There are various methodologies used to analyze signalized intersections, unsignalized intersections and street segments. The measure of effectiveness for intersection and segment operations is level of service (LOS) which denotes the operating conditions which occur at a given intersection or on a given roadway segment under various traffic volume loads. It is a qualitative measure used to describe a quantitative analysis taking into account factors such as roadway geometries, signal phasing, speed, travel delay, freedom to maneuver, and safety. LOS provides an index to the operational qualities of a roadway segment or an intersection. LOS designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst. LOS designation is reported differently for signalized and unsignalized intersections, as well as for roadway segments.

In the Highway Capacity Manual (HCM 6), LOS for signalized intersections is defined in terms of delay. The LOS analysis provides results in seconds of delay expressed in terms of letters A through F. Delay is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. **Table 4-1** summarizes the signalized intersections levels of service descriptions.

4.3.1 Signalized Intersections

Table 4-2 depicts the criteria, which are based on the average control delay for any particular minor movement (unsignalized intersections) and overall intersection (signalized intersections).

For signalized intersections, LOS criteria is stated in terms of the average control delay per vehicle for a 15-minute analysis period. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

LOS A describes operations with very low delay, (i.e. less than 10.0 seconds per vehicle). This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

LOS B describes operations with delay in the range 10.1 seconds and 20.0 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of Average delay.

TABLE 4-1
INTERSECTION LEVEL OF SERVICE DESCRIPTIONS

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

TABLE 4-2
INTERSECTION LEVEL OF SERVICE (LOS) & DELAY RANGES

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

Source: Highway Capacity Manual 6.

LOS C describes operations with delay in the range 20.1 seconds and 35.0 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.

LOS D describes operations with delay in the range 35.1 seconds and 55.0 seconds per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or higher v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are frequent.

LOS E describes operations with delay in the range of 55.1 seconds to 80.0 seconds per vehicle. This is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.

LOS F describes operations with delay in excess of over 80.0 seconds per vehicle. This is considered unacceptable to most drivers. This condition often occurs with over-saturation (i.e., when arrival flow rates exceed the capacity of the intersection). It may also occur at high v/c ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

4.3.2 Unsignalized Intersections

For unsignalized intersections, LOS is determined by the computed or measured control delay and is defined for each minor movement. For All-Way-Stop-controlled (AWSC) intersections, the overall intersection delay is reported. For two-way-stop-controlled (TWSC) intersections, LOS is not defined for the intersection as a whole, but the worst-case movement (typically the minor street left-turn) delay and LOS are reported.

LOS F exists when there are insufficient gaps of suitable size to allow a side street demand to safely cross through a major street traffic stream. This LOS is generally evident from extremely long control delays experienced by side-street traffic and by queuing on the minor-street approaches. The method, however, is based on a constant critical gap size; that is, the critical gap remains constant no matter how long the side-street motorist waits.

LOS F may also appear in the form of side-street vehicles selecting smaller-than-usual gaps. In such cases, safety may be a problem, and some disruption to the major traffic stream may result. It is important to note that LOS F may not always result in long queues but may result in adjustments to normal gap acceptance behavior, which are more difficult to observe in the field than queuing.

Signal Timing plans were obtained from the City of San Diego / Caltrans as appropriate, for all signalized intersections in the Project study area and used in the intersection analysis. Copies of the signal timing plans are included in *Appendix A*.

4.3.3 Street Segments

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

TABLE 4-3
LEVEL OF SERVICE (LOS) THRESHOLDS FOR ROADWAY SEGMENTS

Classification	Lanes	Level of Service (LOS)				
		A	B	C	D	E
Freeway	8	60,000	84,000	120,000	140,000	150,000
Freeway	6	45,000	63,000	90,000	110,000	120,000
Freeway	4	30,000	42,000	60,000	70,000	80,000
Expressway	6	30,000	42,000	60,000	70,000	80,000
Prime Arterial	6	25,000	35,000	50,000	55,000	60,000
Major Arterial	6	20,000	28,000	40,000	45,000	50,000
Major Arterial	4	15,000	21,000	30,000	35,000	40,000
Collector	4	10,000	14,000	20,000	25,000	30,000
Collector (no center lane or continuous left-turn lane)	4 2	5,000	7,000	10,000	13,000	15,000
Collector (no fronting property)	2	4,000	5,500	7,500	9,000	10,000
Collector (commercial-industry fronting)	2	2,500	3,500	5,000	6,500	8,000
Collector (multi-family)	2	2,500	3,500	5,000	6,500	8,000
Local (single-family)	2	—	—	2,200	—	—

Notes:

1. The volumes and the average daily level of service listed above are only intended as a general planning guideline.
2. Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Levels of service normally apply to roads carrying through traffic between major trip generators and attractors.

Source: City of San Diego Traffic Impact Study Manual

5.0 SIGNIFICANCE CRITERIA

For the purposes of this traffic study, City of San Diego's *Significance Determination Thresholds* were used as a guide. According to the City of San Diego's *Significance Determination Thresholds* report dated July 2016, a project is considered to have a significant impact if the new project traffic has decreased the operations of surrounding roadways by a City-defined threshold. The City-defined threshold by roadway type or intersection is shown in **Table 5–1**.

The impact is designated either a “direct” or “cumulative” impact. According to the City’s *Significance Determination Thresholds*,

“*Direct* traffic impacts are those projected to occur at the time a proposed development becomes operational, including other developments not presently operational but which are anticipated to be operational at that time (near term).”

“*Cumulative* traffic impacts are those projected to occur at some point after a proposed development becomes operational, such as during subsequent phases of a project and when additional proposed developments in the area become operational (short-term cumulative) or when affected community plan area reaches full planned buildout (long-term cumulative).”

It is possible that a project’s near term (direct) impacts may be reduced in the long term, as future projects develop and provide additional roadway improvements (for instance, through implementation of traffic phasing plans). In such a case, the project may have direct impacts but not contribute considerably to a cumulative impact.”

For intersections and roadway segments affected by a project, level of service (LOS) D or better is considered acceptable under both direct and cumulative conditions.”

If the project exceeds the thresholds in *Table 5–1*, then the project is considered to have a significant “direct” or “cumulative” project impact. A significant impact can also occur if a project causes the Level of Service to degrade from D to E, even if the allowable increases in *Table 5–1* are not exceeded. A feasible mitigation measure will need to be identified to return the impact within the City thresholds, or the impact will be considered significant and unmitigated.

TABLE 5-1
CITY OF SAN DIEGO
TRAFFIC IMPACT SIGNIFICANCE THRESHOLDS

Level of Service with Project ^b	Allowable Increase Due to Project Impacts ^a					
	Freeways		Roadway Segments		Intersections	Ramp Metering ^c
	V/C	Speed (mph)	V/C	Speed (mph)	Delay (sec.)	Delay (min.)
E	0.010	1.0	0.02	1.0	2.0	2.0
F	0.005	0.5	0.01	0.5	1.0	1.0

Footnotes:

- a. If a proposed project's traffic causes the values shown in the table to be exceeded, the impacts are determined to be significant. The project applicant shall then identify feasible improvements (within the Traffic Impact Study) that will restore/and maintain the traffic facility at an acceptable LOS. If the LOS with the proposed project becomes unacceptable (see note b), or if the project adds a significant amount of peak-hour trips to cause any traffic queues to exceed on- or off-ramp storage capacities, the project applicant shall be responsible for mitigating the project's direct significant and/or cumulatively considerable traffic impacts.
- b. All LOS measurements are based upon Highway Capacity Manual procedures for peak-hour conditions. However, V/C ratios for roadway segments are estimated on an ADT/24-hour traffic volume basis (using Table 2 of the City's Traffic Impact Study Manual). The acceptable LOS for freeways, roadways, and intersections is generally "D" ("C" for undeveloped locations). For metered freeway ramps, LOS does not apply. However, ramp meter delays above 15 minutes are considered excessive.
- c. The allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS E is 2 minutes. The allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS F is 1 minute.

General Notes:

1. Delay = Average control delay per vehicle measured in seconds for intersections or minutes for ramp meters
2. LOS = Level of Service
3. V/C = Volume to Capacity ratio
4. Speed = Arterial speed measured in miles per hour

6.0 PROJECT TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

6.1 Trip Generation

The rate for Multiple Dwelling Units (Over 20 dwelling units per acre) in the City of San Diego *Trip Generation Manual*, May 2003 was used to estimate the trip generation for the Project. **Table 6-1** tabulates the total project traffic generation. The total project is calculated to generate approximately 300 ADT with 24 AM peak hour trips (5 inbound / 19 outbound) and 27 PM peak hour trips (19 inbound / 8 outbound).

Transit Reductions: As described previously, the Project is located one quarter mile from the Sabre Springs Transit Station and Park & Ride. The City's guidelines allow for a reduction in daily and peak hour traffic to account for nearby transit, but the reduction would be very small. Per the City's guidelines, the reduction in trip generation is 15 daily trips and 2 trips each during the AM and PM peak hours. Since the reduction is so nominal, no transit credit was applied.

Currently, a Park & Ride facility occupies the Project site. Vehicles are observed to utilize this facility. However, the traffic generated is minimal and therefore no credit for the current traffic was applied to the Project trip generation.

6.2 Trip Distribution/Assignment

Trip distribution is based on the locations of existing employment centers, shopping, schools, etc. shown on *Figure 2-2*, relative to the project site. It is estimated that 20% of the Project traffic will be oriented to the north on I-15, 25% to the south on I-15 and 20% to the west on SR 56. The remaining traffic is destined locally. The Project trips were assigned based on the trip distribution percentages described above.

Figure 6-1 depicts the Project trip distribution. *Figure 6-2* depicts the Project trip assignment, while *Figure 6-3* depicts the Existing + Project Traffic Volumes.

TABLE 6-1
TRIP GENERATION

Land Use	Size	Daily Trip Ends (ADTs)			AM Peak Hour					PM Peak Hour				
		Rate ^a	Volume	% of ADT	In:Out Split	Volume			% of ADT ^a	In:Out Split	Volume			
						In	Out	Total			In	Out	Total	
Apartments	50 DU	6 /DU	300	8%	20 : 80	5	19	24	9%	70 : 30	19	8	27	

Footnotes:

a. Rate for Multiple Dwelling Units (Over 20 dwelling units per acre), City of San Diego *Trip Generation Manual*, May 2003.

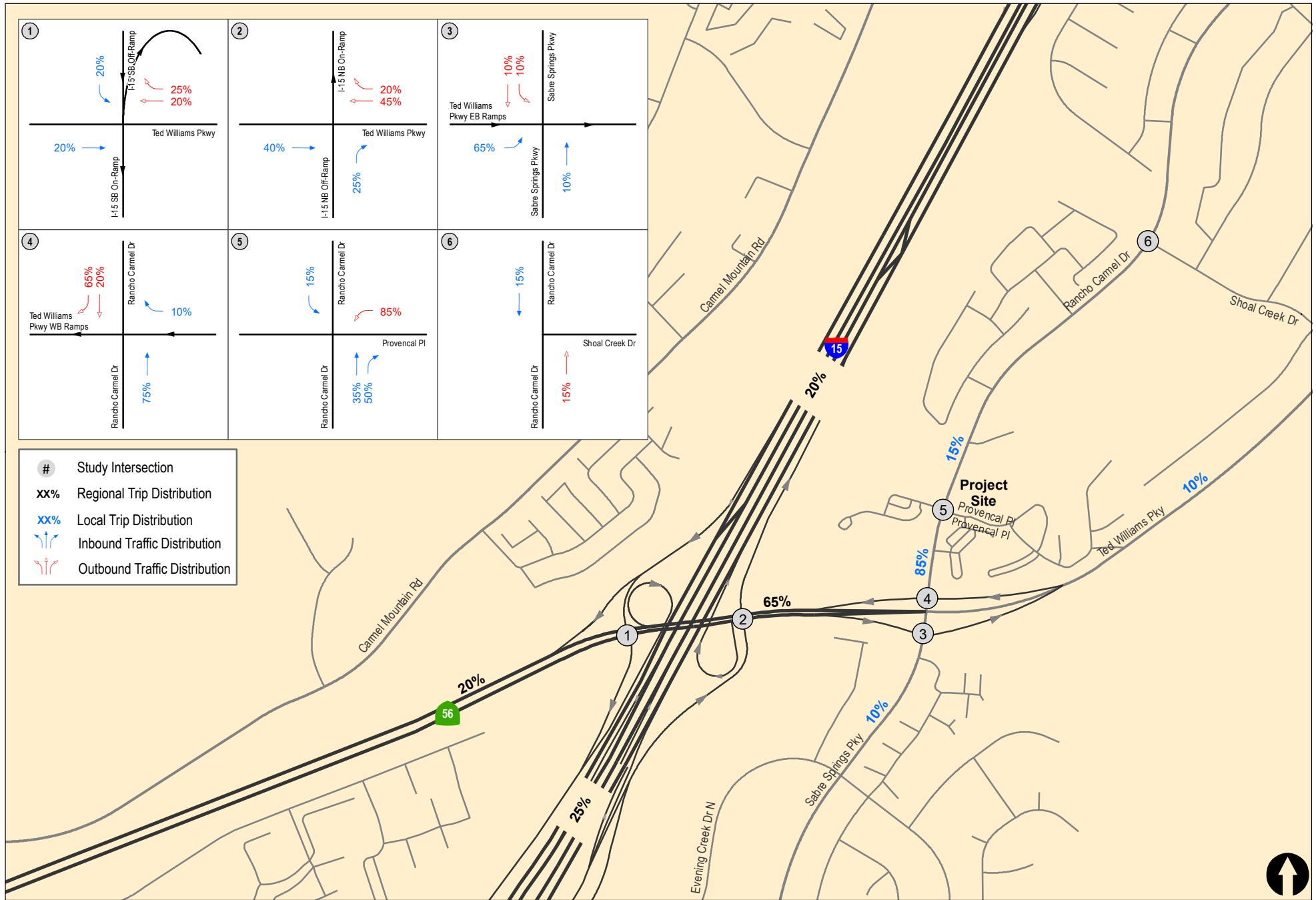


Figure 6-1
Project Traffic Distribution

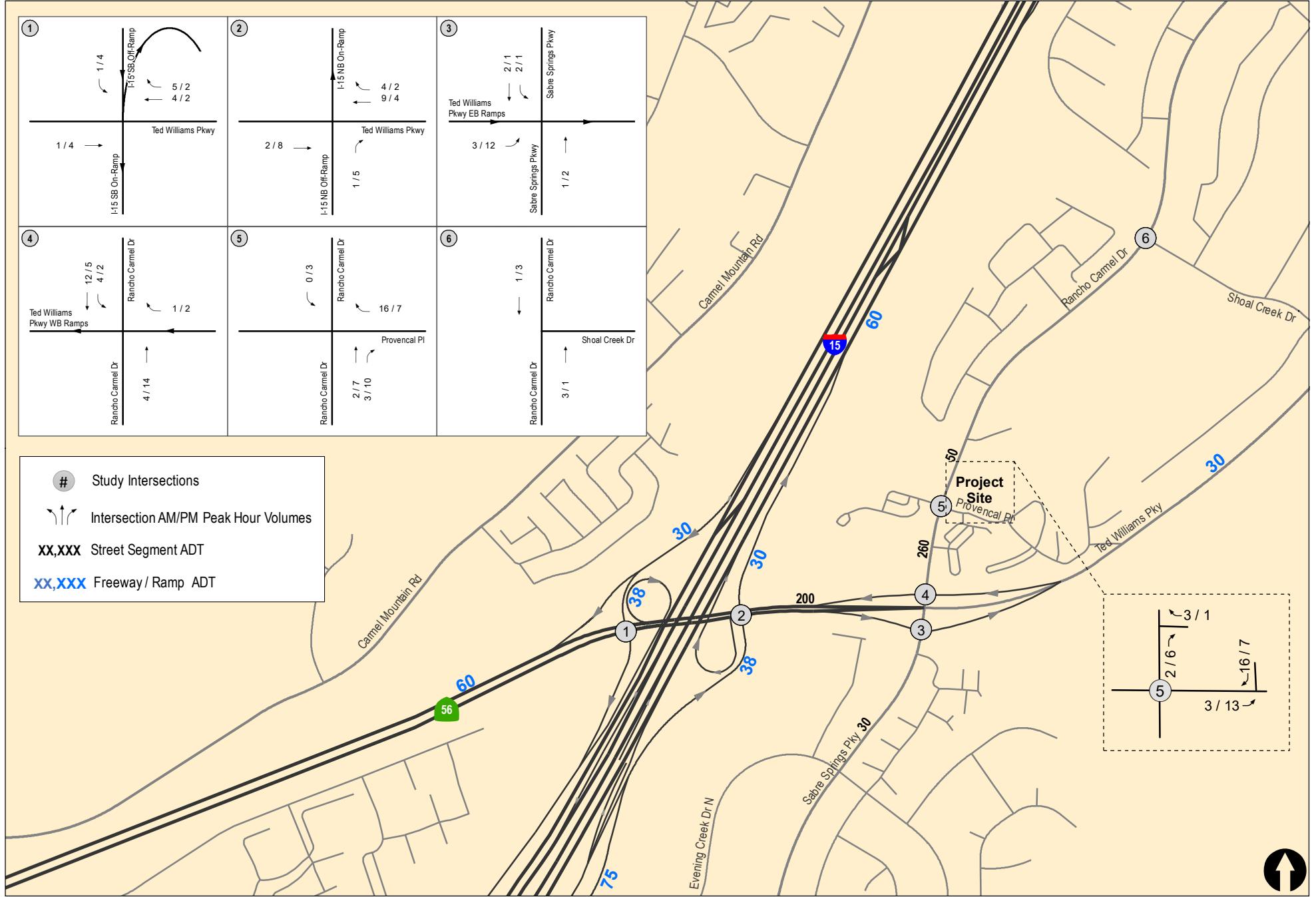


Figure 6-2

Project Traffic Volumes

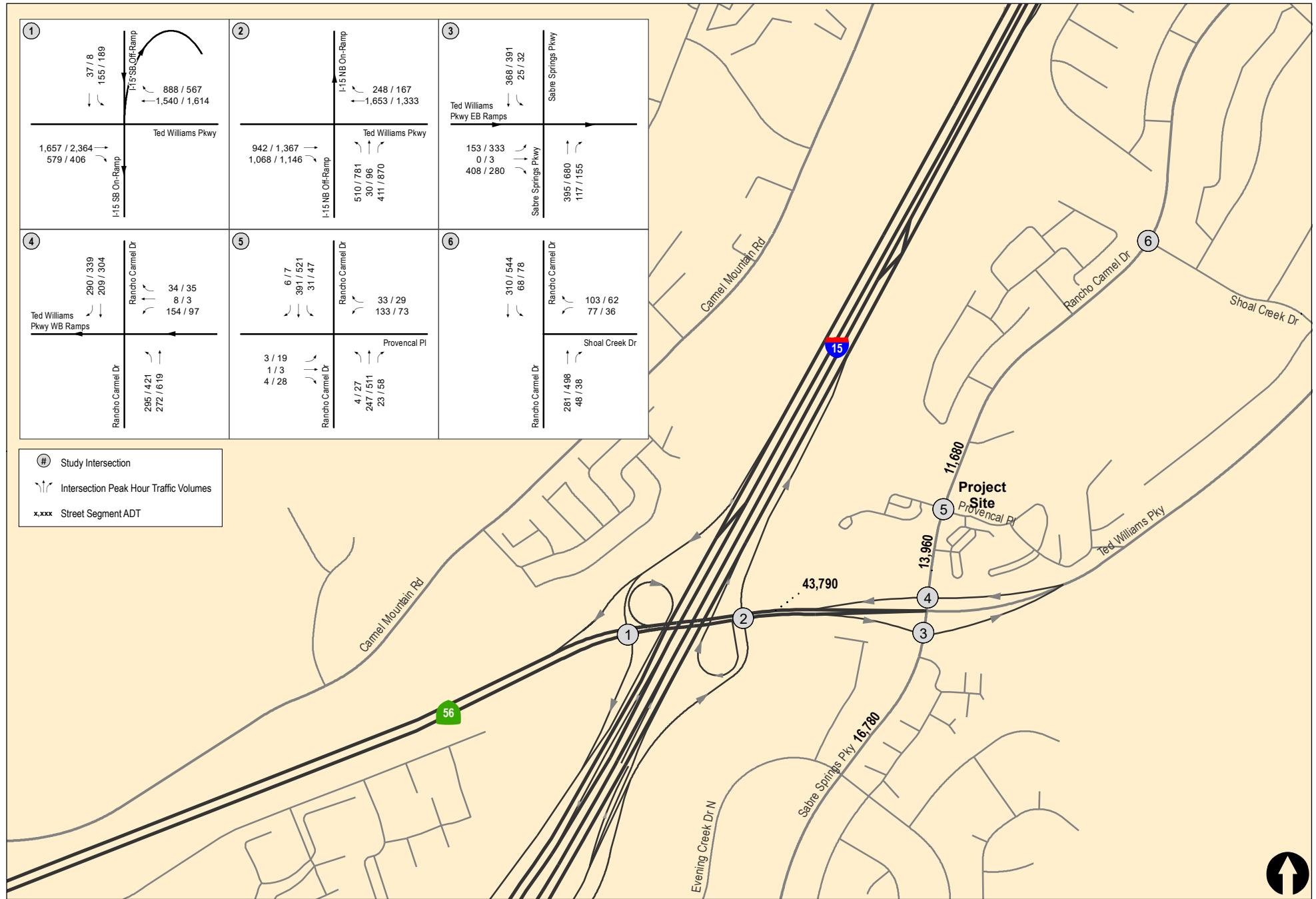


Figure 6-3
Existing + Project Traffic Volumes

7.0 EXISTING VEHICULAR ANALYSIS

7.1 Peak Hour Intersection Levels of Service

Table 7-1 summarizes the Existing peak hour intersection operations. As shown in *Table 7-1*, all study area intersections are calculated to currently operate at LOS C or better.

Appendix B contains the Existing intersection analysis worksheets.

7.2 Daily Street Segment Levels of Service

Table 7-2 summarizes the results of the Existing segment operations. As shown in *Table 7-2*, all study area segments are calculated to operate at LOS C or better.

TABLE 7-1
EXISTING INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Delay ^a	LOS ^b
1. I-15 SB Ramps / SR-56	Signal	AM	9.6	A
		PM	10.4	B
2. I-15 NB Ramps / SR-56	Signal	AM	20.8	C
		PM	27.1	C
3. Ted Williams Parkway EB Ramps / Sabre Springs Parkway	Signal	AM	14.9	B
		PM	14.2	B
4. Ted Williams Parkway WB Ramps / Rancho Carmel Drive	Signal	AM	15.0	B
		PM	20.6	C
5. Rancho Carmel Drive / Provencal Place	Signal	AM	7.7	A
		PM	6.4	A
6. Rancho Carmel Drive / Shoal Creek Drive	Signal	AM	12.4	B
		PM	10.3	B

Footnotes:

a. Average delay expressed in seconds per vehicle.

b. Level of Service.

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

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

TABLE 7-2
EXISTING STREET SEGMENT OPERATIONS

Street Segment	Classification	Capacity (LOS E) ^a	ADT ^b	LOS ^c	V/C ^d
Ted Williams Parkway I-15 to Sabre Springs Parkway (Rancho Carmel Drive)	6-Lane Expressway	80,000	43,590	C	0.545
Rancho Carmel Drive Shoal Creek Drive to Provencal Place Provencal Place to Ted Williams Parkway	4-Lane Major Rd 4-Lane Major Rd	40,000 40,000	11,630 13,700	A A	0.291 0.343
Sabre Springs Parkway Ted Williams Parkway to Evening Creek Drive	4-Lane Major Rd	40,000	16,750	B	0.419
Provencal Place East of Rancho Carmel Drive	2-Ln Local St	8,000	2,710	B	0.339

Footnotes:

- a. Capacities based on City of Sn Diego Roadway Classification Table.
- b. Average Daily Traffic Volumes.
- c. Level of Service.
- d. Volume to Capacity.

8.0 EXISTING + PROJECT ANALYSIS

8.1 Peak Hour Intersection Levels of Service

Table 8-1 summarizes the Existing + Project peak hour intersection operations. As shown in *Table 8-1*, with the addition of Project traffic, all intersections are calculated to continue to operate at LOS C or better.

Appendix C contains the Existing + Project intersection analysis worksheets.

8.2 Daily Street Segment Levels of Service

Table 8-2 summarizes the results of the Existing + Project segment operations. As shown in *Table 8-2*, with the addition of Project traffic, all study area segments are calculated to continue to operate at LOS C or better.

TABLE 8-1
EXISTING + PROJECT INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project		Δ Delay ^c	Sig? ^d
			Delay ^a	LOS ^b	Delay	LOS		
1. I-15 SB Ramps / SR-56	Signal	AM	9.6	A	9.6	A	0.0	No
		PM	10.4	B	10.5	B	0.1	No
2. I-15 NB Ramps / SR-56	Signal	AM	20.8	C	20.8	C	0.0	No
		PM	27.1	C	27.2	C	0.1	No
3. Ted Williams Parkway EB Ramps / Sabre Springs Parkway	Signal	AM	14.9	B	14.9	B	0.0	No
		PM	14.2	B	14.3	B	0.1	No
4. Ted Williams Parkway WB Ramps / Rancho Carmel Drive	Signal	AM	15.0	B	15.1	B	0.1	No
		PM	20.6	C	20.6	C	0.0	No
5. Rancho Carmel Drive / Provencal Place	Signal	AM	7.7	A	7.9	A	0.2	No
		PM	6.4	A	6.5	A	0.1	No
6. Rancho Carmel Drive / Shoal Creek Drive	Signal	AM	12.4	B	12.4	B	0.0	No
		PM	10.3	B	10.3	B	0.0	No

Footnotes:

- a. Average delay expressed in seconds per vehicle.
- b. Level of Service.
- c. Increase in delay in seconds due to Project traffic.
- d. Significant?

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

TABLE 8-2
EXISTING + PROJECT STREET SEGMENT OPERATIONS

Street Segment	Classification	Capacity (LOS E) ^a	Existing			Existing + Project			$\Delta V/C$ ^e	Sig? ^f
			ADT ^b	LOS ^c	V/C ^d	ADT	LOS	V/C		
Ted Williams Parkway										
I-15 to Sabre Springs Parkway (Rancho Carmel Drive)	6-Lane Expressway	80,000	43,590	C	0.545	43,790	C	0.547	0.002	No
Rancho Carmel Drive										
Shoal Creek Drive to Provencal Place	4-Lane Major Rd	40,000	11,630	A	0.291	11,680	A	0.292	0.001	No
Provencal Place to Ted Williams Parkway	4-Lane Major Rd	40,000	13,700	A	0.343	13,960	A	0.349	0.006	No
Sabre Springs Parkway										
Ted Williams Parkway to Evening Creek Drive	4-Lane Major Rd	40,000	16,750	B	0.419	16,780	B	0.420	0.001	No
Provencal Place										
East of Rancho Carmel Drive	2-Ln Local St	8,000	2,710	B	0.339	2,940	B	0.368	0.029	No

Footnotes:

a. Capacities based on City of San Diego Roadway Classification Table.

b. Average Daily Traffic Volumes.

c. Level of Service.

d. Volume to Capacity ratio.

e. Increase in V/C ratio due to Project traffic.

f. Significant?

9.0 NEAR-TERM OPENING DAY (YEAR 2022) TRAFFIC VOLUMES

One cumulative project, The Trails, was identified in the Project vicinity. In addition, a review of the City of San Diego Open DSD website was conducted but did not reveal any other planned cumulative projects in the Project vicinity. Traffic generated by The Trails was obtained for the traffic study currently under preparation and added to the Existing traffic to obtain the Near-Term Opening Day (Year 2022) traffic volumes.

Figure 9-1 depicts the Near-Term Opening Day (Year 2022) without Project traffic volumes, while *Figure 9-2* depicts the Near-Term Opening Day (Year 2022) With Project traffic volumes.

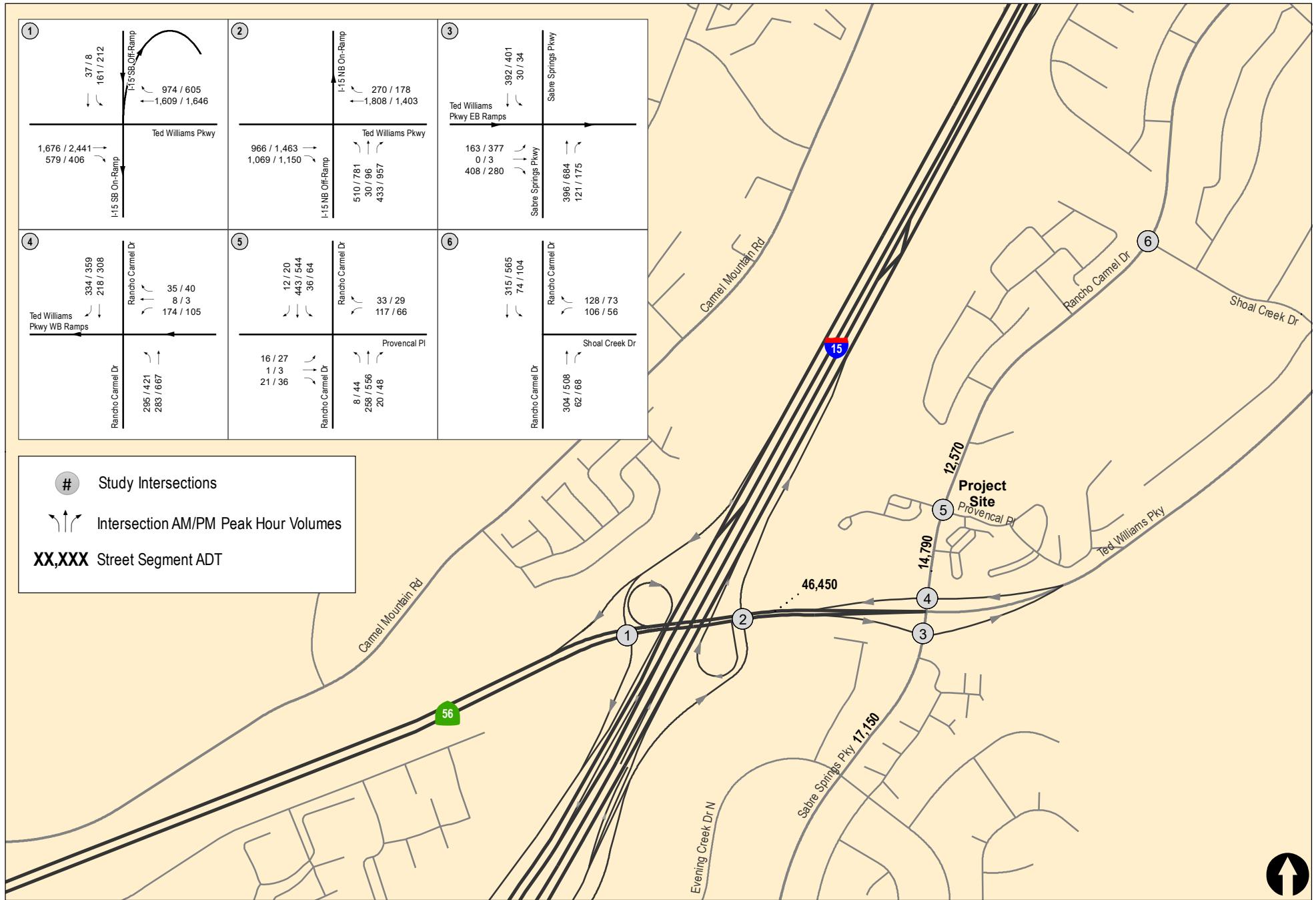


Figure 9-1

Near-Term Opening Day (Year 2022) Without Project Traffic Volumes

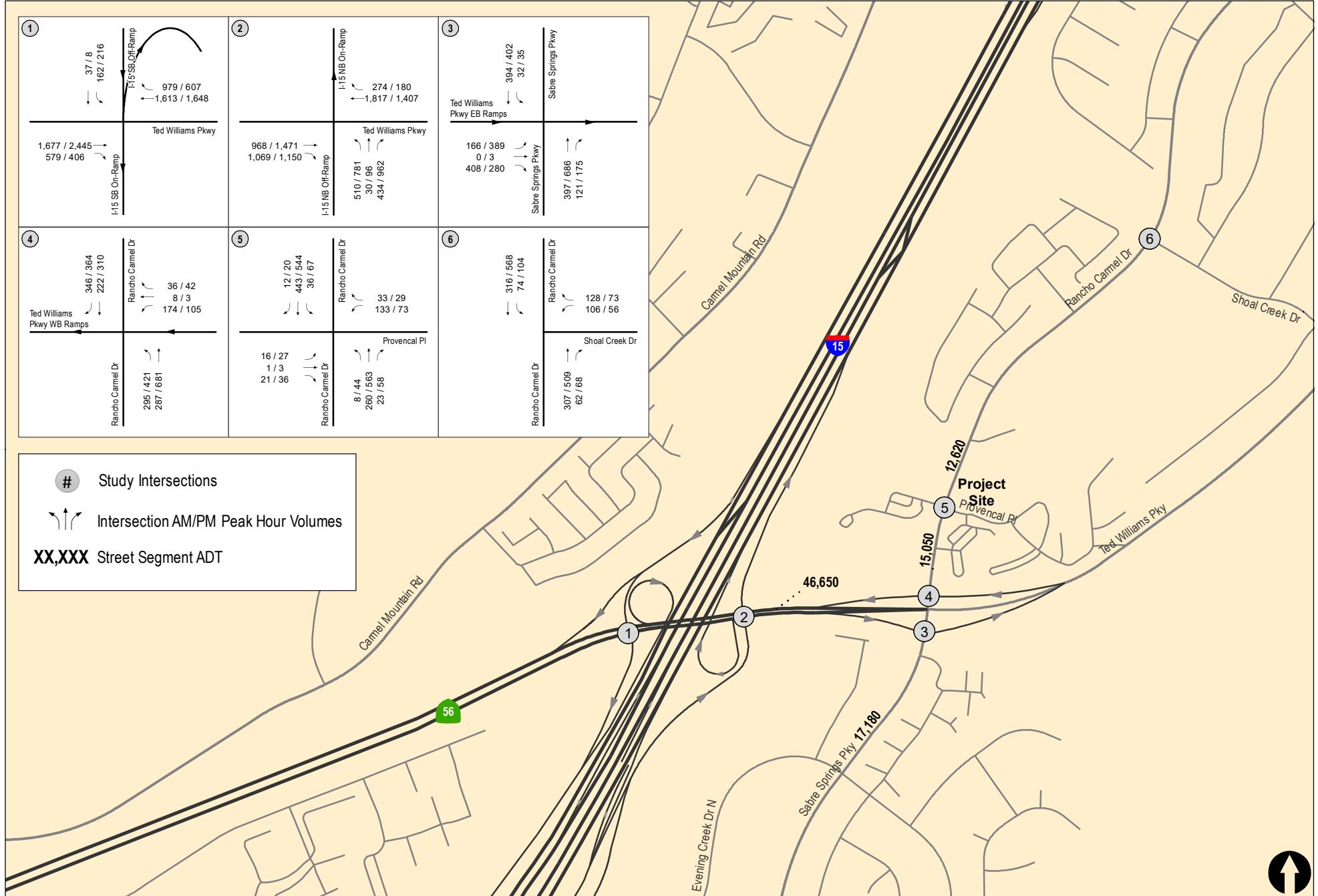


Figure 9-2

Near-Term Opening Day (Year 2022) With Project Traffic Volumes

10.0 NEAR-TERM OPENING DAY (YEAR 2022) ANALYSIS

10.1 Near-Term Opening Day (Year 2022) Without Project

10.1.1 *Intersection Analysis*

Table 10-1 summarizes the Near-Term Opening Day (Year 2022) Without Project peak hour intersection operations. As shown in **Table 10-1**, in the Near-Term Opening Day (Year 2022), all intersections are calculated to continue to operate at LOS C or better.

Appendix D contains the Near-Term Opening Day (Year 2022) Without Project intersection analysis worksheets.

10.1.2 *Daily Street Segment Levels of Service*

Table 10-2 summarizes the results of the Near-Term Opening Day (Year 2022) Without Project segment operations. As shown in **Table 10-2**, in the Near-Term Opening Day (Year 2022), all study area segments are calculated to continue to operate at LOS C or better.

10.2 Opening Year (2022) With Project

10.2.1 *Intersection Analysis*

Table 10-1 summarizes the Near-Term Opening Day (Year 2022) with Project peak hour intersection operations. As shown in **Table 10-1**, with the addition of Project traffic, all intersections are calculated to continue to operate at LOS C or better.

Appendix E contains the Near-Term Opening Day (Year 2022) with Project intersection analysis worksheets.

10.2.2 *Daily Street Segment Levels of Service*

Table 10-2 summarizes the results of the Near-Term Opening Day (Year 2022) with Project segment operations. As shown in **Table 10-2**, with the addition of Project traffic, all study area segments are calculated to continue to operate at LOS C or better.

TABLE 10-1
NEAR-TERM OPENING DAY (YEAR 2022) INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Near-Term Opening Day (Year 2022) Without Project		Near-Term Opening Day (Year 2022) + Project		Δ^c	Sig? ^d
			Delay ^a	LOS ^b	Delay	LOS		
1. I-15 SB Ramps / SR-56	Signal	AM	9.8	A	10.1	B	0.3	No
		PM	10.9	B	11.0	B	0.1	No
2. I-15 NB Ramps / SR-56	Signal	AM	22.2	C	22.3	C	0.1	No
		PM	29.4	C	29.5	C	0.1	No
3. Ted Williams Parkway EB Ramps / Sabre Springs Parkway	Signal	AM	14.9	B	14.9	B	0.0	No
		PM	14.6	B	14.7	B	0.1	No
4. Ted Williams Parkway WB Ramps / Rancho Carmel Drive	Signal	AM	14.7	B	14.9	B	0.2	No
		PM	20.5	C	20.5	C	0.0	No
5. Rancho Carmel Drive / Provencal Place	Signal	AM	8.2	A	8.4	A	0.2	No
		PM	7.2	A	7.3	A	0.1	No
6. Rancho Carmel Drive / Shoal Creek Drive	Signal	AM	13.2	B	13.2	B	0.0	No
		PM	11.4	B	11.4	B	0.0	No

Footnotes:

- a. Average delay expressed in seconds per vehicle.
- b. Level of Service.
- c. Increase in delay in seconds due to Project traffic.
- d. Significant?

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

TABLE 10-2
NEAR-TERM OPENING DAY (YEAR 2022) STREET SEGMENT OPERATIONS

Street Segment	Classification	Capacity (LOS E) ^a	Near-Term Opening Day (Year 2022) Without Project			Near-Term Opening Day (Year 2022) + Project			Δ ^e	Sig? ^f
			ADT ^b	LOS ^c	V/C ^d	ADT	LOS	V/C		
Ted Williams Parkway I-15 to Sabre Springs Parkway (Rancho Carmel Drive)	6-Lane Expressway	80,000	46,450	C	0.581	46,650	C	0.583	0.002	No
Rancho Carmel Drive Shoal Creek Drive to Provencal Place	4-Lane Major Rd	40,000	12,570	A	0.314	12,620	A	0.316	0.002	No
Provencal Place to Ted Williams Parkway	4-Lane Major Rd	40,000	14,790	A	0.370	15,050	B	0.376	0.006	No
Sabre Springs Parkway Ted Williams Parkwayto Evening Creek Drive	4-Lane Major Rd	40,000	17,150	B	0.429	17,180	B	0.430	0.001	No
Provencal Place East of Rancho Carmel Drive	2-Ln Local St	8,000	2,710	B	0.339	2,940	B	0.368	0.029	No

Footnotes:

a. Capacities based on City of San Diego Roadway Classification Table.

b. Average Daily Traffic Volumes.

c. Level of Service.

d. Volume to Capacity ratio.

e. Increase in V/C ratio due to Project traffic.

f. Significant?

11.0 HORIZON YEAR 2050 ANALYSIS

11.1 Horizon Year 2050 Traffic Volumes

The Horizon Year 2050 volumes were obtained from the SANDAG Series 12 Year 2050 forecast traffic model to forecast the roadway segment baseline traffic volumes representing the Base Year 2050 Without Project conditions.

In accordance with the City's preferred methodology for forecasting Horizon Year 2050 volumes, LLG compared the Series 12 Year 2008 (base year) volumes to the Series 12 Year 2050 forecast volumes on study area roadway segments and calculated the annual growth rate of the 42-year period for all individual roadways in the study area. The growth rates were then applied to the Existing (Year 2019) traffic volumes used in this study for a period of 31 years to arrive at Base Horizon Year (Year 2050) traffic volumes. Since *The Trails* (cumulative project) is not included in the model, the traffic generated by this project was added manually to the Base Horizon Year volumes to obtain the Horizon Year (Year 2050) Without Project traffic volumes.

The peak hour turning movement volumes at an intersection were estimated from future ADT volumes using the relationship between existing peak hour turning movements and the existing ADT volumes. This same relationship can be assumed to generally continue in the future.

The increase in traffic due to the proposed Project was then added to the baseline Horizon Year 2050 traffic volumes to arrive at Horizon Year 2050 With Project conditions.

Appendix F provides the Series 12 2050 Model and the Horizon Year 2050 traffic volume forecast methodology and calculations.

Figure 11–1 depicts the Horizon Year 2050 Without Project traffic volumes, while **Figure 11–2** depicts the Horizon Year 2050 With Project traffic volumes.

11.2 Horizon Year 2050 Without Project

11.2.1 Intersection Analysis

Table 11-1 summarizes the Horizon Year 2050 Without Project peak hour intersection operations. As shown in *Table 11-1*, in the Horizon Year 2050, all intersections are calculated to operate at LOS C or better.

Appendix F contains the Horizon Year 2050 Without Project intersection analysis worksheets.

11.2.2 Daily Street Segment Levels of Service

Table 11-2 summarizes the results of the Horizon Year 2050 Without Project segment operations. As shown in *Table 11-2*, in the Horizon Year 2050, all study area segments are calculated to operate at LOS C or better.

11.3 Year 2050 With Project

11.3.1 Intersection Analysis

Table 11-1 summarizes the Horizon Year 2050 with Project peak hour intersection operations. As shown in *Table 11-1*, with the addition of Project traffic, all intersections are calculated to operate at LOS C or better.

Appendix G contains the Year Horizon 2050 with Project intersection analysis worksheets.

11.3.2 Daily Street Segment Levels of Service

Table 11-2 summarizes the results of the Horizon Year 2050 with Project segment operations. As shown in *Table 11-2*, with the addition of Project traffic, all study area segments are calculated to operate at LOS C or better.

TABLE 11-1
HORIZON YEAR 2050 INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Horizon Year 2050 Without Project		Horizon Year 2050 + Project		Δ Delay ^c	Sig? ^d
			Delay ^a	LOS ^b	Delay	LOS		
1. I-15 SB Ramps / SR-56	Signal	AM	8.9	A	8.9	A	0.0	No
		PM	6.5	A	6.6	A	0.1	No
2. I-15 NB Ramps / SR-56	Signal	AM	32.0	C	32.5	C	0.5	No
		PM	26.9	C	27.3	C	0.4	No
3. Ted Williams Pkwy EB Ramps / Sabre Springs Parkway	Signal	AM	17.9	B	18.0	B	0.1	No
		PM	19.9	B	21.5	C	1.6	No
4. Ted Williams Parkway WB Ramps / Rancho Carmel Drive.	Signal	AM	13.8	B	13.9	B	0.1	No
		PM	24.1	C	24.1	C	0.0	No
5. Rancho Carmel Drive / Provencal Place	Signal	AM	7.7	A	7.9	A	0.2	No
		PM	5.8	A	5.9	A	0.1	No
6. Rancho Carmel Drive / Shoal Creek Drive	Signal	AM	12.9	B	13.2	B	0.3	No
		PM	12.0	B	12.0	B	0.0	No

Footnotes:

a. Average delay expressed in seconds per vehicle.

b. Level of Service.

c. Increase in delay in seconds due to Project traffic.

d. Significant?

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

TABLE 11-2
HORIZON YEAR 2050 STREET SEGMENT OPERATIONS

Street Segment	Classification	Capacity (LOS E) ^a	Horizon Year 2050 Without Project			Project Traffic	Horizon Year 2050 + Project			$\Delta V/C$ ^e	Sig? ^f
			ADT ^b	LOS ^c	V/C ^d		ADT	LOS	V/C		
Ted Williams Parkway											
I-15 to Sabre Springs Parkway (Rancho Carmel Drive)	6-Lane Expressway	80,000	58,760	C	0.735	200	58,960	C	0.737	0.002	No
Rancho Carmel Drive											
Shoal Creek Dr to Provencal Place	4-Lane Major Rd	40,000	16,640	B	0.416	50 ^g	16,690	B	0.417	0.001	No
Provencal Place to Ted Williams Parkway	4-Lane Major Rd	40,000	18,490	B	0.462	260	18,750	B	0.469	0.007	No
Sabre Springs Parkway											
Ted Williams Parkwayto Evening Creek Drive	4-Lane Major Rd	40,000	25,695	C	0.642	30	25,725	C	0.643	0.001	No
Provencal Place											
East of Rancho Carmel Drive	2-Ln Collector	8,000	2,800	B	0.350	230	3,030	B	0.379	0.029	No

Footnotes:

a. Capacities based on City of Sn Diego Roadway Classification Table.

b. Average Daily Traffic Volumes.

c. Level of Service.

d. Volume to Capacity ratio.

e. Increase in V/C ratio due to Project traffic.

f. Significant?

g. Actual Project trips are 45, rounded to 50.

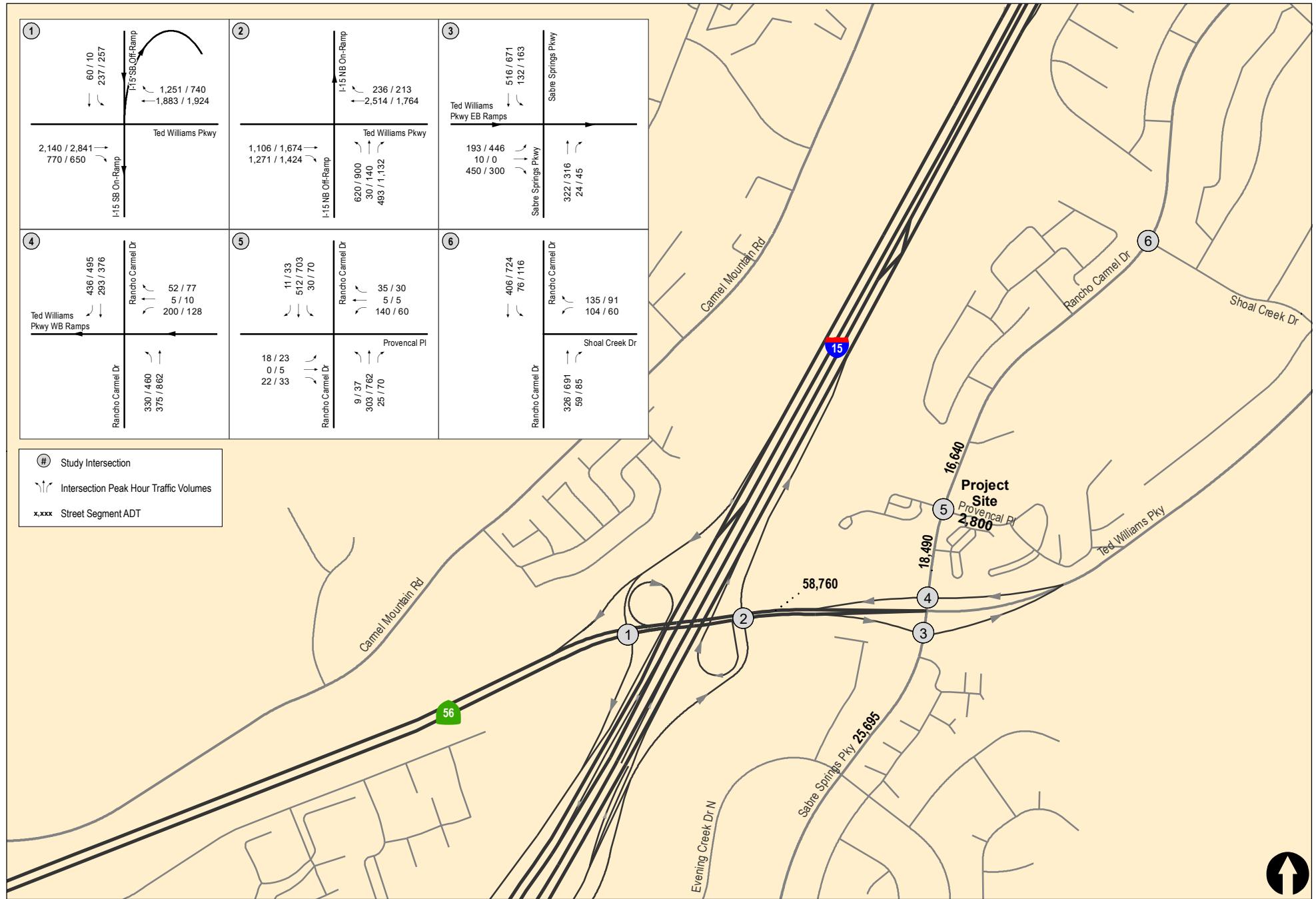


Figure 11-1

Horizon Year 2050 Traffic Volumes

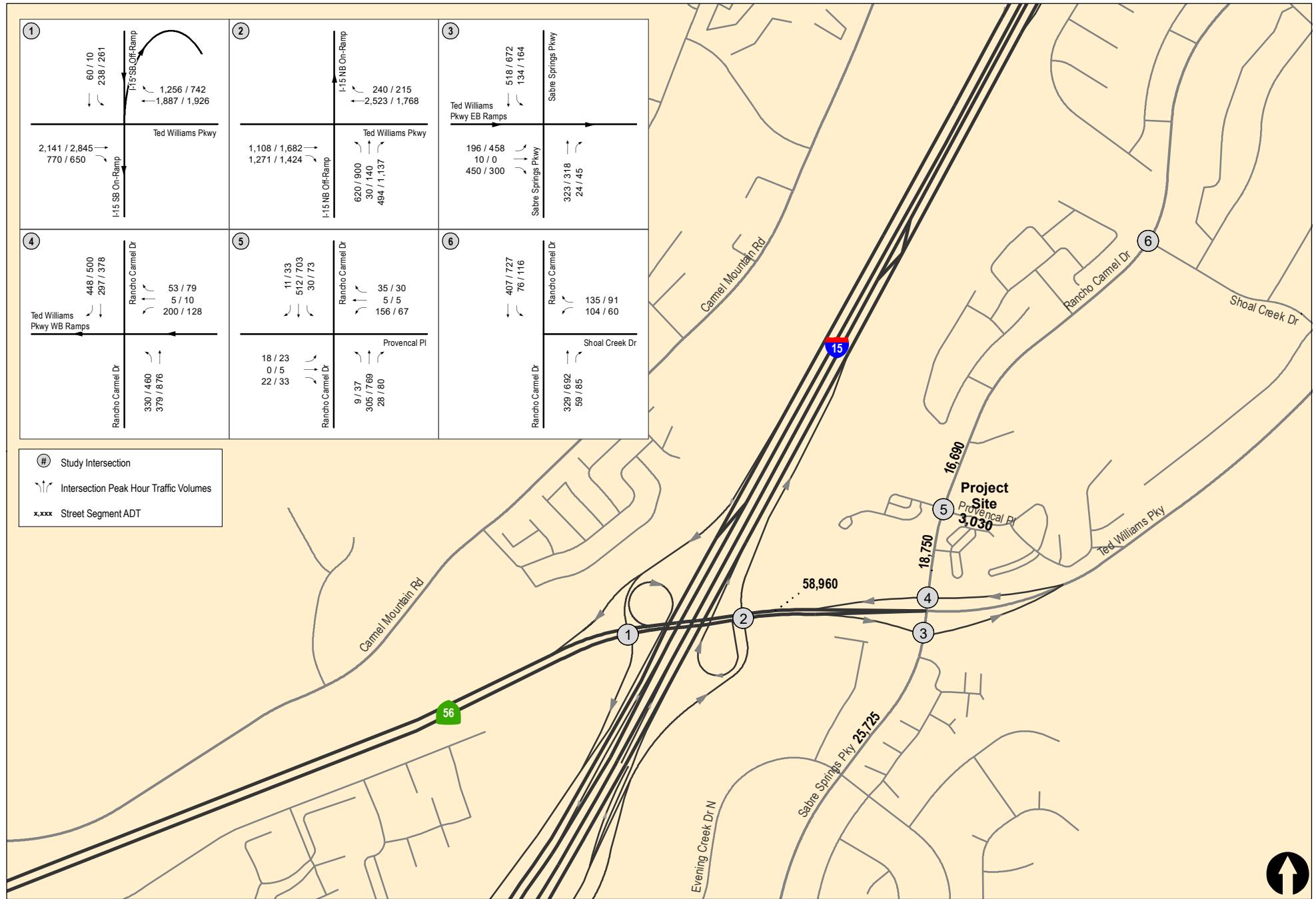


Figure 11-2

Horizon Year 2050 + Project Traffic Volumes

12.0 ACCESS AND PARKING

12.1 Vehicular Access

12.1.1 Provencal Place

The main access to the Proposed Project is on the north side of Provencal Place, approximately 100 feet east of Rancho Carmel Drive, at the signalized Rancho Carmel Drive / Provencal Place intersection. Provencal Place currently provides access to the following:

1. The Existing site
2. The gated residential community at 11101 to 11384 Provencal Place, which has 162 du and
3. The retail facilities at the northeast corner of Ted Williams Parkway and Rancho Carmel Drive.

Peak Hour and Daily Operations

As shown in the intersection and segment analysis tables in the preceding sections, the Rancho Carmel Drive / Provencal Place intersection and the Provencal Place segment, east of Rancho Carmel Drive are calculated to operate at LOS C or better in all scenarios.

Queue Analysis at the Rancho Carmel Drive / Provencal Place Intersection

Table 12-1 summarizes the calculated AM and PM peak hour queue on Provencal Place for all analysis scenarios. As shown in *Table 12-1* the maximum calculated queue in the westbound shared through / left lane is 117 feet and in the westbound right-turn lane is 33 feet. The maximum storage available in the westbound shared through / left lane is 100 feet. Thus, the storage in the westbound shared through /left lane is exceeded in the AM peak hour in the Horizon Year (Year 2050) without and with the Project by 6 feet and 17 feet during the AM / PM peak hour, respectively.

The queuing sheets for the Rancho Carmel Drive / Provencal Place intersection for all scenarios are included in *Appendix H*.

Inbound Queuing at the Garage Entrance on Rancho Carmel Drive

The following is an analysis of the potential queue at the gated entry driveway on Rancho Carmel Drive. The type of gate control is “Coded Card Operated gate”. *The City of Los Angeles Driveway Design* dated February 2003 (attached) provides the most accurate tool to conduct this analysis. It is noted that the analysis assumes random arrivals. There is no analysis tool available for non-random arrivals.

- The Average Service Rate (headway) for a card operated gate is 8.9 seconds (page 8, Parking Control Service Rate).
- This corresponds to a service rate of 405 vehicles per hour.

TABLE 12-1
CALCULATED QUEUE IN FEET AT THE RANCHO CARMEL DRIVE / PROVENCAL PLACE INTERSECTION

Peak Hour	Avail. Storage	Existing		Exist + Project		NT Opening Day (Year 2022)				Horizon Year LT (Year 2050)			
						W/O Project		W Project		W/O Project		W Project	
		WBL/ TH	WBR	WBL/T H	WBR	WBL/T H	WBR	WBL/T H	WBR	WBL/T H	WBR	WBL/T H	WBR
AM	100	86	31	96	31	87	31	97	31	106	33	117	33
PM	100	53	29	58	29	53	29	57	29	52	29	56	29

Footnotes:

- a. Calculated queue exceeds capacity

General Notes:

W/O – Without, W – With

NT – Near-Term, LT – Long-Term

WBL – Westbound Left-Turn, WBR – Westbound Right-Turn

- The queue of vehicles at the gate can be calculated using the graph, Reservoir Needs vs Traffic Intensity (page 9 of *Appendix H*).
- The traffic intensity, or the arrival rate during the peak hour is number of vehicles entering in one hour.
- The maximum number of vehicles entering the parking garage at this driveway during the peak hour is 6 vehicles during the PM peak hour.
- Applying a peak hour factor (PHF) of 0.92, this is equal to 7 vehicles.
- The arrival rate is ($7/3600 = 0.0019$).
- Per the graph referenced in the third bullet above, the corresponding forecasted queue at the gate is the minimum of 1 vehicle.

Based on the above analysis, the queue is 1 vehicle, or, 20 feet at most. This may be exceeded if arrivals are not random. Therefore, the available storage length upstream of the gate of 20 feet (approximately 1 vehicle) is expected to be adequate to accommodate the anticipated queue at this proposed gated entry.

It may be noted that even if the arrival rate increased to 5 times the above calculated rate, the anticipated queue would still be one vehicle. This is due to the fast service rate at a coded card gate.

Appendix H includes relevant pages from *The City of Los Angeles Driveway Design* dated February 2003.

12.1.2 Project Access

An access to the ground floor of the Project site is provided from Provencal Place, approximately 100 feet east of Rancho Carmel Drive. A majority of the Project traffic is expected to use this driveway since a signalized access is provided at the Rancho Carmel Drive / Provencal Place intersection, making it the only access where left turns in and out are possible.

12.1.3 Lower Garage Access

The distance between the Lower Garage Access to Provencal Place is 60 feet. The amount of traffic expected to be exiting this driveway is 3 vehicles during the AM peak hour and entering this driveway is 6 vehicles during the PM peak hour.

Sidewalks are provided on Provencal Place and Rancho Carmel Drive, adjacent to the Project site. The Rancho Carmel Drive / Provencal Place intersection is signalized and pedestrian crosswalks are provided. Pedestrian access to the building will be off of Provencal Place.

Figure 12-1 depicts the vehicle and pedestrian access to the Project site.

12.2 Parking

Table 12-2 summarizes the project's minimum parking requirements per the City of San Diego *Municipal Code* and the number of spaces provided. As shown in *Table 12-1*, the project is in the Parking Standards Transit Priority Area and there is no requirement for automobile spaces. Required Bicycle spaces are 22 and required Motorcycle spaces are 5. The required spaces are provided and also 58 automobile spaces (2 EV and 1 Van ADA included).

Amazon lockers are provided for delivery support. All of the other transportation amenities are shown on the plan sheet A101 and co working space is shown on A102. All these add to 8 points. The Transportation amenity requirement for the project is 2 points and the project provides 8 points. The worksheets are included in *Appendix H*.

TABLE 12-2
MINIMUM REQUIRED PARKING

Description	Quantity	Rate	Parking Spaces	
			Required	Provided
TPA Residential (Table 143-05C)				
1 Bedroom	26	0 Spaces per Unit	0	
2 Bedroom	24	0 Spaces per Unit	0	
Total			0	58
Motorcycle Spaces				
1 Bedroom	26	0.1 Spaces per Unit	2.6	
2 Bedroom	24	0.1 Spaces per Unit	2.4	
Total			5	5
Bicycle Spaces				
1 Bedroom	26	0.4 Spaces per Unit	10.4	
2 Bedroom	24	0.5 Spaces per Unit	12.0	
Total			22	22
EV Spaces			2	2
ADA Spaces			1	2
Van ADA Spaces			1	1

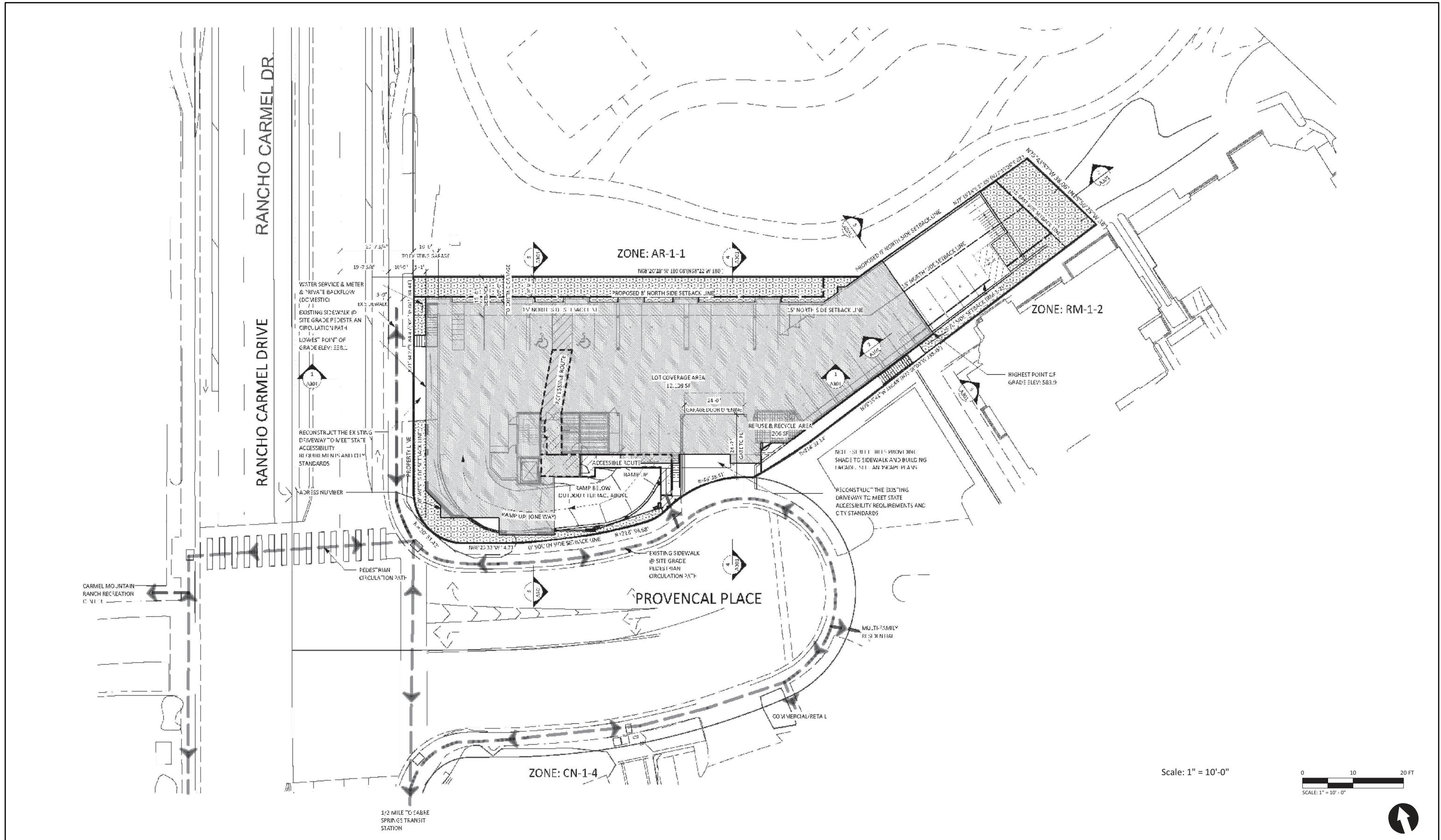


Figure 12-1

Project Vehicular & Pedestrian Access

13.0 VEHICLE MILES TRAVELED (VMT) ANALYSIS

13.1 Statewide VMT Guidelines

This section provides an introduction to evaluating potential transportation impacts of a project as proposed by the California Governor's Office of Planning and Research (OPR) to implement California State Law Senate Bill (SB) 743. OPR proposes that metrics based on Vehicle Miles Traveled (VMT) be used to evaluate a project's transportation effects, and that projects in proximity to transit are presumed to result in less-than-significant impacts. OPR also suggests thresholds of significance and technical methodologies to calculate VMT.

13.1.1 *VMT Background*

VMT is defined as a measurement of miles traveled by vehicles within a specified region and for a specified time period. VMT is a measure of the use and efficiency of the transportation network. VMT's are calculated based on individual vehicle trips generated and their associated trip lengths. VMT accounts for two-way (round trip) travel and is often estimated for a typical weekday for the purposes of measuring transportation impacts.

13.1.2 *Senate Bill 743*

In September 2013, the Governor's Office signed SB 743 into law, starting a process that fundamentally changes the way transportation impact analysis is conducted under CEQA. Within the State's CEQA Guidelines, these changes include the elimination of Auto Delay, level of service (LOS), and similar measurements of vehicular roadway capacity and traffic congestion as the basis for determining significant impacts. The guidance identifies VMT as the most appropriate CEQA transportation metric, along with the elimination of Auto Delay/LOS for CEQA purposes statewide. The justification for this paradigm shift is that Auto Delay/LOS impacts lead to improvements that increase roadway capacity and therefore induce more traffic and greenhouse gas emissions.

In January 2016, the OPR issued Draft Guidance, which provided recommendations for updating the State's CEQA Guidelines in response to SB 743 and recommended practice for VMT analysis in an accompanying *Technical Advisory on Evaluating Transportation Impacts in CEQA*. OPR released an update to the CEQA Guidelines and Technical Advisory in December 2018. The technical advisory is publicly available on the state's website¹.

Per OPR's proposed revisions to the CEQA guidelines, a lead agency may elect to be governed by the VMT guidelines immediately. However, beginning July 1, 2020, the VMT guidelines shall apply statewide.

¹*Technical Advisory on Evaluating Transportation Impacts in CEQA, December 2018.* http://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf

13.1.3 Revised CEQA Guidelines

The following is an excerpt from the *New Section 15064.3 Determining the Significance of Transportation Impacts*, Update 2018. This represents regulatory CEQA guidelines on evaluating transportation impacts using VMT.

Subdivision (a): Purpose

This section describes specific considerations for evaluating a project's transportation impacts. Generally, vehicle miles traveled is the most appropriate measure of transportation impacts. For the purposes of this section, "vehicle miles traveled" refers to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-motorized travel. Except as provided in subdivision (b)(2) below (regarding roadway capacity), a project's effect on automobile delay does not constitute a significant environmental impact.

Subdivision (b): Criteria for Analyzing Transportation Impacts

While subdivision (a) sets forth general principles related to transportation analysis, subdivision (b) focuses on specific criteria for determining the significance of transportation impacts. It is further divided into four subdivisions: (1) land use projects, (2) transportation projects, (3) qualitative analysis, and (4) methodology.

Subdivision (b)(1): Land Use Projects

Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high-quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be considered to have a less than significant transportation impact.

Subdivision (b)(2): Transportation Projects

Transportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact. For roadway capacity projects, agencies have discretion to determine the appropriate measure of transportation impact consistent with CEQA and other applicable requirements. To the extent that such impacts have already been adequately addressed at a programmatic level, a lead agency may tier from that analysis as provided in Section 15152.

Subdivision (b)(3): Qualitative Analysis

If existing models or methods are not available to estimate the vehicle miles traveled for the particular project being considered, a lead agency may analyze the project's vehicle miles traveled qualitatively. Such a qualitative analysis would evaluate factors such as the availability of transit, proximity to other destinations, etc. For many projects, a qualitative analysis of construction traffic may be appropriate.

Subdivision (b)(4): Methodology

A lead agency has discretion to choose the most appropriate methodology to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure. A lead agency may use models to estimate a project's vehicle miles traveled and may revise those estimates to reflect professional judgment based on substantial evidence. Any assumptions used to estimate vehicle miles traveled and any revisions to model outputs should be documented and explained in the environmental document prepared for the project. The standard of adequacy in Section 15151 shall apply to the analysis described in this section.

Subdivision (c): Applicability

The provisions of this section shall apply prospectively as described in Section 15007. A lead agency may elect to be governed by the provisions of this section immediately. Beginning on July 1, 2020, the provisions of this section shall apply statewide.

13.1.4 Technical Guidance: Recommended Methodology, Significance Thresholds, Mitigation, and Alternatives

The following information is sourced from the *Technical Advisory on Evaluating Transportation Impacts in CEQA*. This represents a non-regulatory technical advisory on evaluating transportation impacts using VMT, with emphasis on larger-scale land development projects.

RECOMMENDATIONS REGARDING METHODOLOGY

The following section provides methodology recommendations to evaluate VMT for various technical areas and project types.

Using Models to Estimate VMT

Travel demand models, sketch models, spreadsheet models, research, and data can all be used to calculate and estimate VMT. To the extent possible, lead agencies should choose models that have sensitivity to features of the project that affect VMT. Those tools and resources can also assist in establishing thresholds of significance and estimating VMT reduction attributable to mitigation measures and project alternatives.

Trip and Tour Based VMT

Trip-based assessment of a project's effect on travel behavior counts VMT from individual trips to and from the project. It is the most basic, and traditionally the most common, method of counting VMT. For residential projects, the sum of home-based trips is called *home-based* VMT.

A *Tour-based* assessment counts the entire home-back-to-home tour that includes the project and any trips within the tour. Examples include Tour 1: Home → Coffee Shop → Work → Home; Tour 2: Home → Store → Home. Together, all tours comprise *household* VMT. A tour-based assessment of VMT is a more complete characterization of a project's effect on VMT. In many cases, a project affects travel behavior beyond the first destination. The location and characteristics of the home and workplace will often be the main drivers of VMT. For example, a residential or office development

located near high quality transit will likely lead to some commute trips utilizing transit, affecting mode choice on the rest of the tour.

Vehicle Types

Vehicle Miles Traveled refers to on-road passenger vehicles, specifically cars and light trucks. Heavy-duty truck VMT could be included for modeling convenience and ease of calculation.

Residential and Office Projects

Tour- and trip-based approaches offer the best methods for assessing VMT from residential/office projects and for comparing those assessments to VMT thresholds. When available, tour-based assessment is ideal because it captures travel behavior more comprehensively. But where tour-based tools or data are not available for all components of an analysis, a trip-based assessment of VMT serves as a reasonable proxy.

When a trip-based method is used to analyze a residential project, the focus can be on home-based trips. Similarly, when a trip-based method is used to analyze an office project, the focus can be on home-based work trips. When tour-based models are used to analyze an office project, either employee work tour VMT or VMT from all employee tours may be attributed to the project. This is because workplace location influences overall travel.

For office projects that feature a customer component, such as a government office that serves the public, a lead agency can analyze the customer VMT component of the project using the methodology for retail development (see below).

Considerations for All Projects

Lead agencies should not truncate any VMT analysis because of jurisdictional or other boundaries. Thus, where methodologies exist that can estimate the full extent of vehicle travel from a project, the lead agency should apply them to do so. Analyses should also consider a project's both short- and long-term effects on VMT.

RECOMMENDATIONS REGARDING SIGNIFICANCE THRESHOLDS

Lead agencies have the discretion to set or apply their own thresholds of significance. However, the criteria for determining the significance of transportation impacts should promote:

- Reduction of greenhouse gas emissions;
- Development of multimodal transportation networks; and
- A diversity of land uses.

The OPR Advisory describes the analysis for the following circumstances which may or may not be applicable to the Project.

PRESUMPTION OF LESS THAN SIGNIFICANT IMPACT NEAR TRANSIT STOPS

CEQA Guideline Section 15064.3, subdivision (b)(1), states that lead agencies generally should presume that certain projects (including residential, retail, and office projects, as well as projects that are a mix of these uses) proposed within ½ mile of an existing major transit stop or an existing stop along a high-quality transit corridor will have a less-than-significant impact on VMT.

Major Transit Stop refers to an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.

A High-Quality Transit Corridor refers to a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.

This presumption would not apply, however, if project-specific or location-specific information indicates that the project will still generate significant levels of VMT. One key indicator may be inconsistency with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Metropolitan Planning Organization). If any of these exceptions to the presumption might apply, the lead agency should conduct a detailed VMT analysis to determine whether the project would exceed VMT thresholds.

RECOMMENDED NUMERIC THRESHOLDS FOR RESIDENTIAL PROJECTS

Residential Projects: Per the OPR guidelines, a proposed project exceeding a level of 15 percent below existing Resident VMT per capita may indicate a significant transportation impact. Existing VMT per capita may be measured as Regional VMT per capita or as City VMT per capita.

13.2 Local/Regional VMT Guidelines

13.2.1 Transition to SB 743 Guidelines

Local and regional agencies, as well as transportation professionals, have already begun transitioning to SB 743. To date, like most cities, the City of San Diego has not yet adopted significance criteria or technical methodologies for VMT analysis. However, the methodology used here is based on the City's Draft Traffic Study Manual (TSM) dated February 20, 2020.

Adherence to OPR Guidelines

The existing baseline VMT analysis was based on the OPR's Technical Advisory that have been detailed in the preceding sections.

The proposed Project is a Multi-Residential Unit project that is consistent with the City of San Diego General Plan and generates 300 ADT. The Project is located within a Transit Priority Area (TPA).

13.2.2 VMT Project Context Screening

Since the proposed Project generates 300 ADT, the “screening thresholds” to help identify if a project is expected to result in a less-than-significant impact recommended in the draft San Diego TSM, applies. Currently, the project site is occupied by a previously functioning park and ride facility. However, no credit has been applied in the analysis for the trips generated by the existing use. Therefore, the net trips added by the proposed project is likely slightly less than 300 ADT. Therefore, the Project’s impact would be presumed less than significant and a VMT analysis would not be required.

Table 13–1 summarizes the key elements relative to the Alante Project.

TABLE 13–1
VMT PROJECT CONTEXT SCREENING

Project Context Elements	Notes
Surrounding Area Land Use Mix	Adjacent retail and nearby employment centers provide good land use mix and may promote a lower VMT than the regional average.
Mobility Options	The Sabre Springs / Penasquitos Transit center is located 1,450 feet walking distance(less than a ½ mile) from the Project site. Sidewalks and pedestrian crossings at intersections are provided along the route to the transit center.
Project-Specific Design Elements	Sidewalks and pedestrian crossings at intersections are provided along the route to the transit center.

13.2.3 Proximity to Transit

Public transportation improves mobility and reduces congestion in the community and the region. Per the significance criteria, if a project is within ½ mile of an existing major transit stop or an existing stop along a high-quality transit corridor, it should be presumed to have a less-than-significant impact on VMT. This presumption would not apply, however, if project-specific or location-specific information indicates that the project will still generate significant levels of VMT.

Major transit stop refers to a location containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.

A High-Quality transit corridor means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.

The Project is located 1,450 feet walking distance (less than a ½ mile) of the Sabre Springs / Penasquitos transit center.

Bike lanes are provided on Rancho Carmel Drive and Sabre Springs Parkway between the Project site and the Sabre Springs / Penasquitos transit center

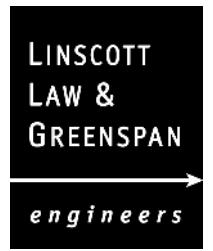
Thus, the proposed Project is well served by transit, trolley, pedestrian and bicycle facilities.

13.2.4 Conclusion

Based on the above, the Project is estimated to generate less than 300 ADT and is located 1,450 feet from a Major Transit Stop (within ½ mile) and therefore the Project is screened out from conducting a VMT analysis and would be presumed to not have a significant VMT impact.

15.0 SIGNIFICANCE OF IMPACTS AND MITIGATION MEASURES

Based on the analysis in this report, the Project does not have any significant impacts and hence no mitigation measures are required.



TECHNICAL APPENDICES

ALANTE

San Diego, California
April 21, 2020

LLG Ref. 3-19-3102

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APPENDICES

APPENDIX

- A. Intersection and Segment Manual Count Sheets
- B. Peak Hour Intersection Analysis Worksheets - Existing
- C. Peak Hour Intersection Analysis Worksheets – Existing + Project
- D. Peak Hour Intersection Analysis Worksheets – Opening Year 2022 Without Project
- E. Peak Hour Intersection Analysis Worksheets – Opening Year 2022 With Project
- F. Horizon Year Volume Forecast and Peak Hour Intersection Analysis Worksheets – Year 2050 Without Project
- G. Peak Hour Intersection Analysis Worksheets – Year 2050 With Project
- H. Queuing Worksheets for the Rancho Carmel Drive / Provencal Place intersection for all Scenarios And Parking Calculations and pages from *The City of Los Angeles Driveway Design* dated February 2003

APPENDIX A

INTERSECTION AND SEGMENT MANUAL COUNT SHEETS

Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers	Location: #01 Intersection: I-15 Southbound Ramps & SR-56 Date of Count: Wednesday, May 15, 2019	File Name: ITM-19-057-01 Project: LLG Ref. 3-19-3102 San Diego
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AM	I-15 SB Off Ramp			SR-56			I-15 SB On Ramp			SR-56			Total
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	45	2	0	0	538	214	0	0	0	0	324	136	1259
7:15	31	11	0	0	368	208	0	0	0	0	379	143	1140
7:30	36	13	0	0	280	257	0	0	0	0	462	145	1193
7:45	42	11	0	0	350	204	0	0	0	0	491	155	1253
8:00	63	8	0	0	382	198	0	0	0	0	434	107	1192
8:15	29	14	0	0	437	199	0	0	0	0	394	130	1203
8:30	43	11	0	0	367	185	0	0	0	0	342	77	1025
8:45	44	11	0	0	398	265	0	0	0	0	402	106	1226
Total	333	81	0	0	3120	1730	0	0	0	0	3228	999	9491
Approach%	80.4	19.6	-	-	64.3	35.7	-	-	-	-	76.4	23.6	
Total%	3.5	0.9	-	-	32.9	18.2	-	-	-	-	34.0	10.5	

AM Intersection Peak Hour: 07:00 to 08:00

Volume	154	37	-	-	1,536	883	-	-	-	-	1,656	579	4,845
Approach%	80.6	19.4	-	-	63.5	36.5	-	-	-	-	74.1	25.9	
Total%	3.2	0.8	-	-	31.7	18.2	-	-	-	-	34.2	12.0	
PHF			0.90			0.80			#DIV/0!			0.86	0.96

PM	I-15 SB Off Ramp			SR-56			I-15 SB On Ramp			SR-56			Total
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	36	2	0	0	319	155	0	0	0	0	605	115	1232
16:15	35	0	0	0	284	136	0	0	0	0	561	90	1106
16:30	33	0	0	0	369	150	0	0	0	0	579	113	1244
16:45	54	6	0	0	335	128	0	0	0	0	606	106	1235
17:00	42	1	0	0	421	164	0	0	0	0	658	125	1411
17:15	53	3	0	0	425	123	0	0	0	0	511	90	1205
17:30	41	1	0	0	375	131	0	0	0	0	587	97	1232
17:45	49	3	0	0	391	147	0	0	0	0	604	94	1288
Total	343	16	0	0	2919	1134	0	0	0	0	4711	830	9953
Approach%	95.5	4.5	-	-	72.0	28.0	-	-	-	-	85.0	15.0	
Total%	3.4	0.2	-	-	29.3	11.4	-	-	-	-	47.3	8.3	

PM Intersection Peak Hour: 17:00 to 18:00

Volume	185	8	-	-	1,612	565	-	-	-	-	2,360	406	5,136
Approach%	95.9	4.1	-	-	74.0	26.0	-	-	-	-	85.3	14.7	
Total%	3.6	0.2	-	-	31.4	11.0	-	-	-	-	46.0	7.9	
PHF			0.86			0.93			#DIV/0!			0.88	0.91

Intersection Turning Movement - Bicycle & Pedestrian Count

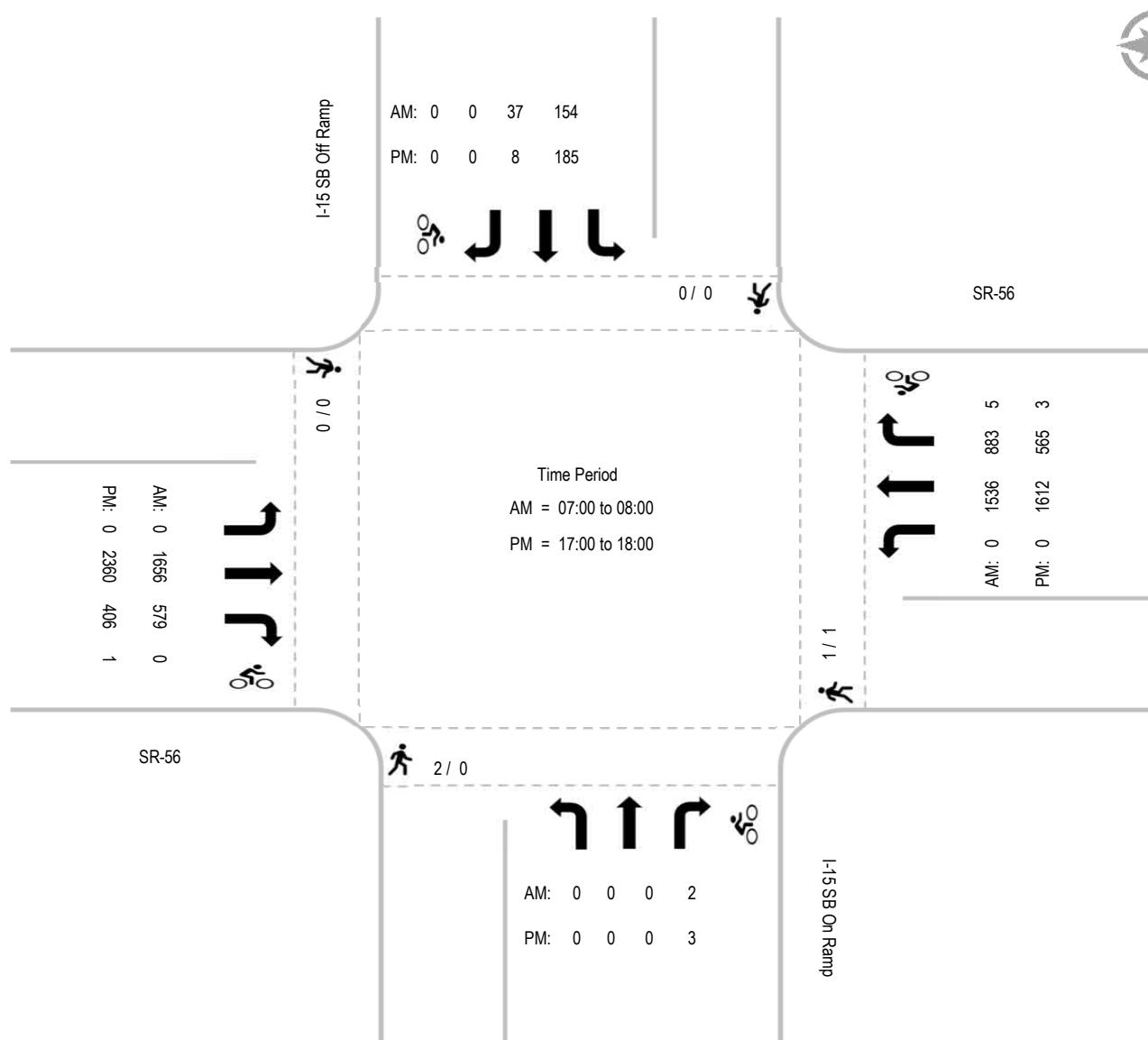
LINSCOTT LAW & GREENSPAN engineers	Location: #01 Intersection: I-15 Southbound Ramps & SR-56 Date of Count: Wednesday, May 15, 2019	File Name: ITM-19-057-01 Project: LLG Ref. 3-19-3102 San Diego
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AM	I-15 SB Off Ramp Southbound				SR-56 Westbound				I-15 SB On Ramp Northbound				SR-56 Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
	7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1	1
7:45	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
8:00	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	2	1
8:15	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	4
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				1				2				0				3	
Bike Total	0	0	0		0	5	0		1	0	1		0	0	0		7	

PM	I-15 SB Off Ramp Southbound				SR-56 Westbound				I-15 SB On Ramp Northbound				SR-56 Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
	16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	2
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
16:45	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
17:00	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
17:15	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
17:30	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				1				0				0				1	
Bike Total	0	0	0		0	3	0		1	0	2		0	1	0		7	

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Intersection Turning Movement - Peak Hour Summary



Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers	Location: #02 Intersection: I-15 Northbound Ramps & SR-56 Date of Count: Wednesday, May 15, 2019	File Name: ITM-19-057-02 Project: LLG Ref. 3-19-3102 San Diego
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AM	I-15 NB On Ramp			SR-56			I-15 NB Off Ramp			SR-56			Total
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	0	0	0	0	519	34	186	3	100	1	178	199	1220
7:15	0	0	0	0	447	47	104	8	94	0	213	199	1112
7:30	0	0	0	0	347	101	103	6	89	0	242	268	1156
7:45	0	0	0	0	384	39	156	8	100	0	217	297	1201
8:00	0	0	0	0	466	57	147	8	127	0	268	304	1377
8:15	0	0	0	0	342	38	131	7	84	0	124	182	908
8:30	0	0	0	0	388	45	191	5	87	0	198	248	1162
8:45	0	0	0	0	326	43	164	5	109	1	216	246	1110
Total	0	0	0	0	3219	404	1182	50	790	2	1656	1943	9246
Approach%	-	-	-	-	88.8	11.2	58.5	2.5	39.1	0.1	46.0	54.0	
Total%	-	-	-	-	34.8	4.4	12.8	0.5	8.5	0.0	17.9	21.0	

AM Intersection Peak Hour: 07:15 to 08:15

Volume	-	-	-	-	1,644	244	510	30	410	-	940	1,068	4,846
Approach%	-	-	-	-	87.1	12.9	53.7	3.2	43.2	-	46.8	53.2	
Total%	-	-	-	-	33.9	5.0	10.5	0.6	8.5	-	19.4	22.0	
PHF	#DIV/0!				0.90					0.84		0.88	0.88

PM	I-15 NB On Ramp			SR-56			I-15 NB Off Ramp			SR-56			Total
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	0	0	0	0	209	88	146	10	212	0	309	347	1321
16:15	0	0	0	0	250	74	191	19	213	0	330	263	1340
16:30	0	0	0	0	390	50	194	17	234	0	300	323	1508
16:45	0	0	0	0	262	26	152	30	183	0	383	254	1290
17:00	0	0	0	0	370	42	221	27	205	0	358	335	1558
17:15	0	0	0	0	307	47	214	22	243	0	318	234	1385
17:30	0	0	0	0	257	33	196	26	191	0	372	249	1324
17:45	0	0	0	0	288	51	213	20	229	0	320	336	1457
Total	0	0	0	0	2333	411	1527	171	1710	0	2690	2341	11183
Approach%	-	-	-	-	85.0	15.0	44.8	5.0	50.2	-	53.5	46.5	
Total%	-	-	-	-	20.9	3.7	13.7	1.5	15.3	-	24.1	20.9	

PM Intersection Peak Hour: 16:30 to 17:30

Volume	-	-	-	-	1,329	165	781	96	865	-	1,359	1,146	5,741
Approach%	-	-	-	-	89.0	11.0	44.8	5.5	49.7	-	54.3	45.7	
Total%	-	-	-	-	23.1	2.9	13.6	1.7	15.1	-	23.7	20.0	
PHF	#DIV/0!				0.85					0.91		0.90	0.92

Intersection Turning Movement - Bicycle & Pedestrian Count

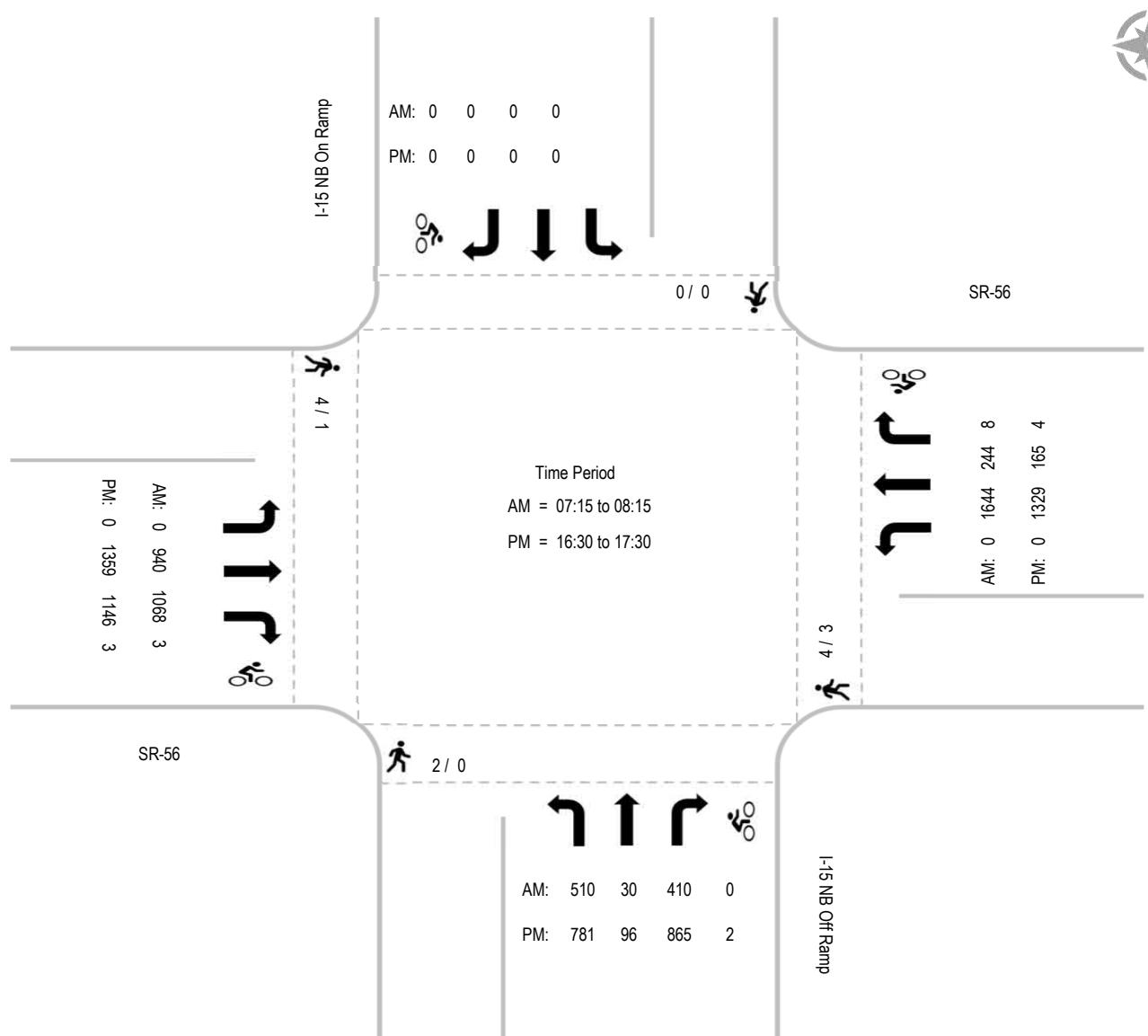
 Location: #02 Intersection: I-15 Northbound Ramps & SR-56 Date of Count: Wednesday, May 15, 2019	File Name: ITM-19-057-02 Project: LLG Ref. 3-19-3102 San Diego
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AM	I-15 NB On Ramp				SR-56				I-15 NB Off Ramp				SR-56				Totals	
	Southbound				Westbound				Northbound				Eastbound					
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	1	0	1	0	0	0	0	0	2	0	0	0	3	1
7:15	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
7:30	0	0	0	0	2	0	2	0	0	0	0	0	1	0	0	0	3	2
7:45	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
8:00	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	2	1
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	4	0	1	0	0	0	0	0	0	1	1	5
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Ped Total	0				4				2				4				10	
Bike Total	0	0	0		0	8	0		0	0	0		0	0	3	0		11

PM	I-15 NB On Ramp				SR-56				I-15 NB Off Ramp				SR-56				Totals	
	Southbound				Westbound				Northbound				Eastbound					
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
16:15	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	2	1
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	1
17:15	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0	3
17:30	0	0	0	0	0	0	1	0	0	0	0	0	1	0	2	0	1	3
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				3				0				1				4	
Bike Total	0	0	0		0	4	0		0	0	2		0	0	3	0		9

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Intersection Turning Movement - Peak Hour Summary



Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers	Location: #03 Intersection: Sabre Springs Road & Ted Williams Parkway EB Ramps Date of Count: Wednesday, May 15, 2019	File Name: ITM-19-057-03 Project: LLG Ref. 3-19-3102 San Diego
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AM	Sabre Springs Road			Ted Williams EB On Ramp			Sabre Springs Road			Ted Williams EB Off Ramp			Total	
	Southbound			Westbound			Northbound			Eastbound				
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
7:00	4	62	0	0	0	0	0	141	39	25	1	77	349	
7:15	8	92	0	0	0	0	0	113	37	34	0	101	385	
7:30	2	93	0	0	0	0	0	78	30	37	0	90	330	
7:45	3	96	0	0	0	0	0	99	27	41	0	123	389	
8:00	10	85	0	0	0	0	0	104	23	38	0	94	354	
8:15	5	82	0	0	0	0	0	125	19	47	0	84	362	
8:30	9	77	0	0	0	0	0	119	31	22	0	83	341	
8:45	2	74	0	0	0	0	0	103	17	29	0	104	329	
Total	43	661	0	0	0	0	0	882	223	273	1	756	2839	
Approach%	6.1	93.9	-	-	-	-	-	79.8	20.2	26.5	0.1	73.4		
Total%	1.5	23.3	-	-	-	-	-	31.1	7.9	9.6	0.0	26.6		

AM Intersection Peak Hour: 07:15 to 08:15

Volume	23	366	-	-	-	-	394	117	150	-	408	1,458
Approach%	5.9	94.1	-	-	-	-	77.1	22.9	26.9	-	73.1	
Total%	1.6	25.1	-	-	-	-	27.0	8.0	10.3	-	28.0	
PHF		0.97			#DIV/0!			0.85			0.85	0.94

PM	Sabre Springs Road			Ted Williams EB On Ramp			Sabre Springs Road			Ted Williams EB Off Ramp			Total	
	Southbound			Westbound			Northbound			Eastbound				
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
16:00	8	87	0	0	0	0	0	155	39	38	0	94	421	
16:15	3	89	0	0	0	0	0	140	30	47	0	84	393	
16:30	9	88	0	0	0	0	0	142	37	22	0	83	381	
16:45	3	100	0	0	0	0	0	169	32	84	2	66	456	
17:00	9	90	0	0	0	0	0	185	40	83	1	74	482	
17:15	6	87	0	0	0	0	0	164	37	82	0	79	455	
17:30	13	113	0	0	0	0	0	160	46	72	0	61	465	
17:45	6	85	0	0	0	0	0	161	36	70	0	71	429	
Total	57	739	0	0	0	0	0	1276	297	498	3	612	3482	
Approach%	7.2	92.8	-	-	-	-	-	81.1	18.9	44.7	0.3	55.0		
Total%	1.6	21.2	-	-	-	-	-	36.6	8.5	14.3	0.1	17.6		

PM Intersection Peak Hour: 16:45 to 17:45

Volume	31	390	-	-	-	-	678	155	321	3	280	1,858
Approach%	7.4	92.6	-	-	-	-	81.4	18.6	53.1	0.5	46.4	
Total%	1.7	21.0	-	-	-	-	36.5	8.3	17.3	0.2	15.1	
PHF		0.84			#DIV/0!			0.93			0.94	0.96

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers	Location: #03 Intersection: Sabre Springs Road & Ted Williams Parkway EB Ramps Date of Count: Wednesday, May 15, 2019	File Name: ITM-19-057-03 Project: LLG Ref. 3-19-3102 San Diego
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AM	Sabre Sprngs Road Southbound				Ted Williams EB On Ramp Westbound				Sabre Sprngs Road Northbound				Ted Williams EB Off Ramp Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
	7:00	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	2	1
7:15	1	0	3	0	2	0	0	0	0	0	0	0	0	0	0	0	3	3
7:30	0	0	0	1	0	0	0	0	0	0	0	0	3	0	0	0	3	1
7:45	1	0	0	0	2	0	0	0	0	0	0	0	1	0	1	0	4	1
8:00	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	2	2
8:15	0	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	2	2
8:30	0	0	0	4	0	0	0	0	1	0	1	0	0	0	1	0	1	6
8:45	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	2	1
Ped Total	4				8				2				5				19	
Bike Total		0	3	5		0	0	0		1	5	0		0	3	0		17

PM	Sabre Sprngs Road Southbound				Ted Williams EB On Ramp Westbound				Sabre Sprngs Road Northbound				Ted Williams EB Off Ramp Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
	16:00	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	4	0
16:45	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	4	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	1	0	1	0	0	0	0	0	1	1	0	0	2	0	1	5
17:30	1	0	0	0	1	0	0	0	0	0	0	0	13	0	0	0	15	0
17:45	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	4	0
Ped Total	4				8				0				17				29	
Bike Total		0	1	0		0	0	0		0	1	1		0	2	0		5

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Intersection Turning Movement - Peak Hour Summary

LINSCOTT
LAW &
GREENSPAN
engineers

Location: #03

Intersection: Sabre Springs Road & Ted Williams Parkway EB Ramps

Date of Count: Wednesday, May 15, 2019

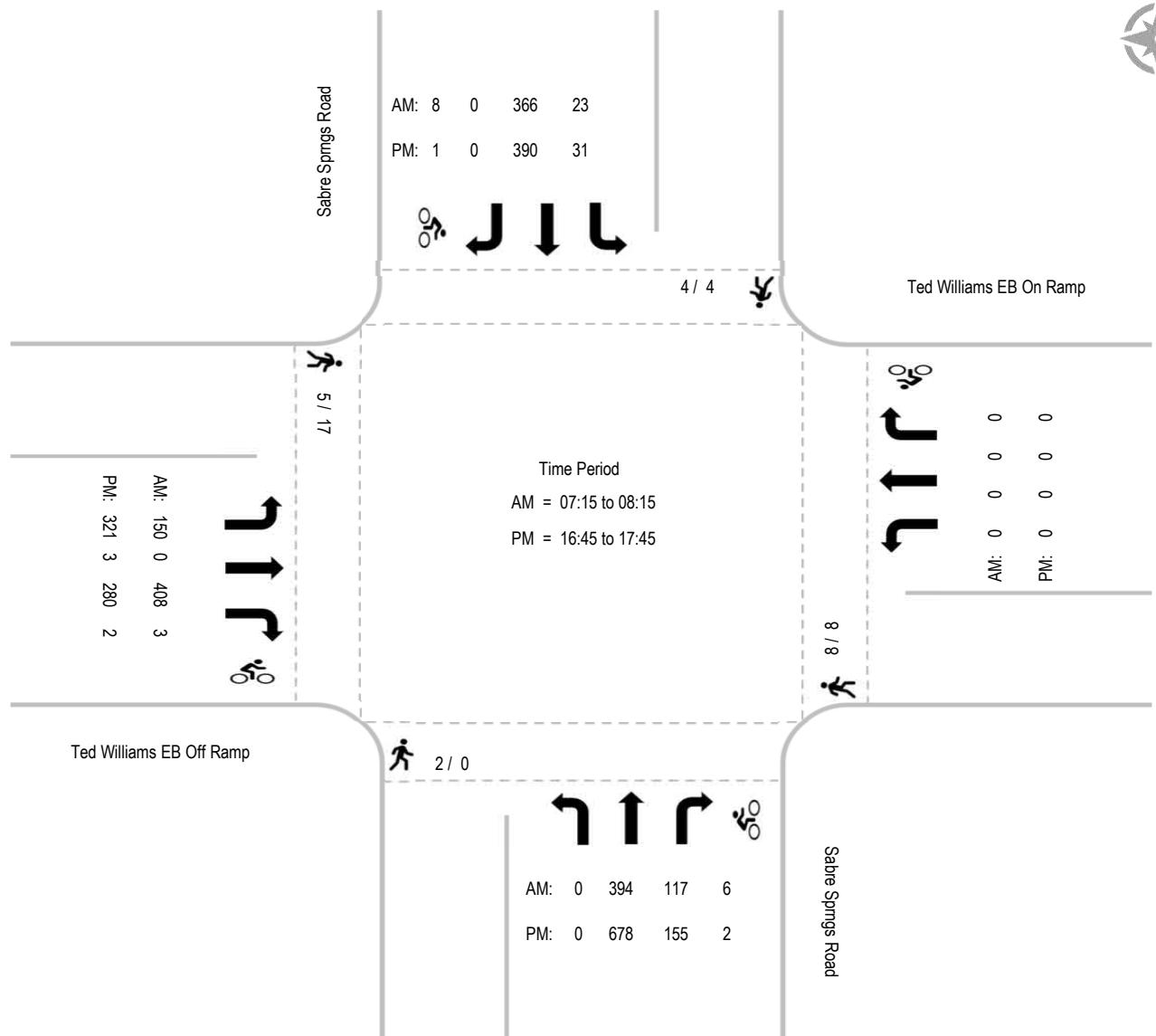
File Name:

ITM-19-057-03

Project:

LLG Ref. 3-19-3102

San Diego



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Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers	Location: #04 Intersection: Sabre Springs Road & Ted Williams Parkway WB Ramps Date of Count: Wednesday, May 15, 2019	File Name: ITM-19-057-04 Project: LLG Ref. 3-19-3102 San Diego
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AM	Sabre Springs Road Southbound			Ted Williams WB Off Ramp Westbound			Sabre Springs Road Northbound			Ted Williams WB On Ramp Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	0	40	86	33	3	9	100	69	0	0	0	0	340
7:15	0	45	55	43	1	8	74	62	0	0	0	0	288
7:30	0	48	71	43	2	5	53	68	0	0	0	0	290
7:45	0	72	66	35	2	11	68	69	0	0	0	0	323
8:00	0	67	53	22	0	6	63	76	0	0	0	0	287
8:15	0	52	53	32	2	16	78	87	0	0	0	0	320
8:30	0	70	62	22	0	10	73	65	0	0	0	0	302
8:45	0	53	54	23	0	15	61	73	0	0	0	0	279
Total	0	447	500	253	10	80	570	569	0	0	0	0	2429
Approach%	-	47.2	52.8	73.8	2.9	23.3	50.0	50.0	-	-	-	-	
Total%	-	18.4	20.6	10.4	0.4	3.3	23.5	23.4	-	-	-	-	

AM Intersection Peak Hour: 07:00 to 08:00

Volume	-	205	278	154	8	33	295	268	-	-	-	-	1,241
Approach%	-	42.4	57.6	79.0	4.1	16.9	52.4	47.6	-	-	-	-	
Total%	-	16.5	22.4	12.4	0.6	2.7	23.8	21.6	-	-	-	-	
PHF		0.88			0.94			0.83		#DIV/0!		0.91	

PM	Sabre Springs Road Southbound			Ted Williams WB Off Ramp Westbound			Sabre Springs Road Northbound			Ted Williams WB On Ramp Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	0	67	77	30	0	11	88	136	0	0	0	0	409
16:15	0	75	73	27	0	4	76	150	0	0	0	0	405
16:30	0	82	76	21	0	9	120	137	0	0	0	0	445
16:45	0	79	68	20	0	6	77	156	0	0	0	0	406
17:00	0	71	91	27	1	10	125	161	0	0	0	0	486
17:15	0	70	99	29	2	8	99	151	0	0	0	0	458
17:30	0	75	76	38	0	10	91	129	0	0	0	0	419
17:45	0	69	91	24	1	7	91	143	0	0	0	0	426
Total	0	588	651	216	4	65	767	1163	0	0	0	0	3454
Approach%	-	47.5	52.5	75.8	1.4	22.8	39.7	60.3	-	-	-	-	
Total%	-	17.0	18.8	6.3	0.1	1.9	22.2	33.7	-	-	-	-	

PM Intersection Peak Hour: 16:30 to 17:30

Volume	-	302	334	97	3	33	421	605	-	-	-	-	1,795
Approach%	-	47.5	52.5	72.9	2.3	24.8	41.0	59.0	-	-	-	-	
Total%	-	16.8	18.6	5.4	0.2	1.8	23.5	33.7	-	-	-	-	
PHF		0.94			0.85			0.90		#DIV/0!		0.92	

Intersection Turning Movement - Bicycle & Pedestrian Count

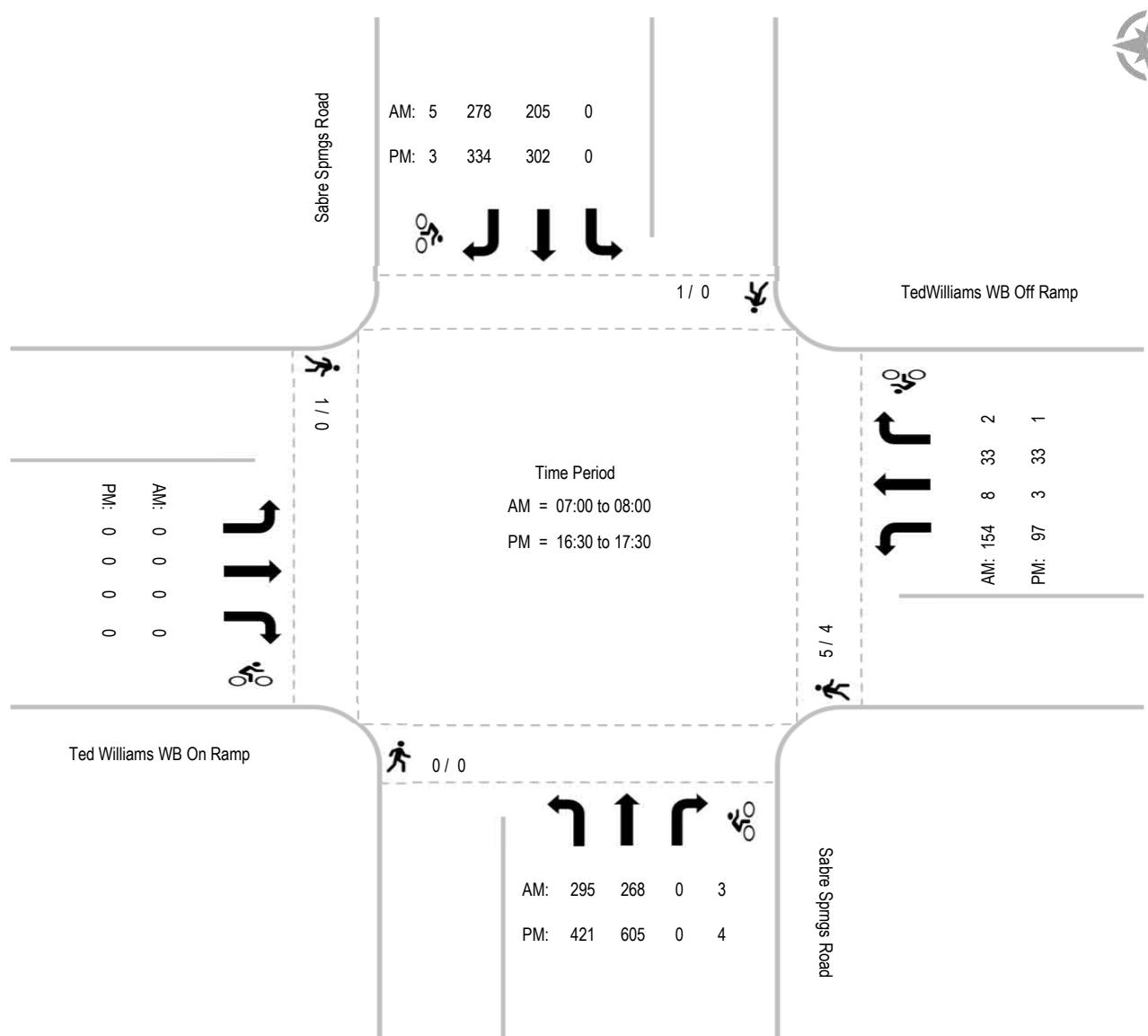
LINSCOTT LAW & GREENSPAN engineers	Location: #04 Intersection: Sabre Springs Road & Ted Williams Parkway WB Ramps Date of Count: Wednesday, May 15, 2019	File Name: ITM-19-057-04 Project: LLG Ref. 3-19-3102 San Diego
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AM	Sabre Sprngs Road Southbound				TedWilliams WB Off Ramp Westbound				Sabre Sprngs Road Northbound				Ted Williams WB On Ramp Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
	7:00	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1
7:15	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1
7:30	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	2	0
8:15	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
8:30	0	0	4	0	1	0	0	0	0	0	0	0	0	0	0	0	1	4
8:45	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	2	1
Ped Total	1				5				0				1				7	
Bike Total	0	5	0		2	0	0		0	3	0		0	0	0		10	

PM	Sabre Sprngs Road Southbound				TedWilliams WB Off Ramp Westbound				Sabre Sprngs Road Northbound				Ted Williams WB On Ramp Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
	16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	1	2
16:45	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	1
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	2	0	1	1	0	0	0	0	2	0	0	0	0	0	1	5
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
Ped Total	0				4				0				0				4	
Bike Total	0	3	0		1	0	0		0	4	0		0	0	0		8	

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Intersection Turning Movement - Peak Hour Summary



Intersection Turning Movement - Peak Hour Vehicle Count

	Location: #05 Intersection: Rancho Carmel Drive & Provencal Place Date of Count: Wednesday, May 15, 2019	File Name: ITM-19-057-05 Project: LLG Ref. 3-19-3102 San Diego
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AM	Rancho Carmel Drive			Provencal Place			Rancho Carmel Drive			Provencal Place			Total	
	Southbound			Westbound			Northbound			Eastbound				
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
7:00	6	92	3	27	0	10	0	41	0	2	0	0	181	
7:15	3	77	2	38	0	8	1	61	8	1	0	1	200	
7:30	9	91	0	27	0	3	0	51	4	1	0	0	186	
7:45	4	110	1	25	0	9	1	64	5	1	0	0	220	
8:00	9	104	1	28	0	7	1	57	3	0	0	1	211	
8:15	11	78	3	34	0	11	0	72	8	0	1	2	220	
8:30	7	99	1	30	0	6	2	52	4	2	0	1	204	
8:45	7	73	2	31	0	6	2	59	5	0	0	0	185	
Total	56	724	13	240	0	60	7	457	37	7	1	5	1607	
Approach%	7.1	91.3	1.6	80.0	-	20.0	1.4	91.2	7.4	53.8	7.7	38.5		
Total%	3.5	45.1	0.8	14.9	-	3.7	0.4	28.4	2.3	0.4	0.1	0.3		

AM Intersection Peak Hour: 07:45 to 08:45

Volume	31	391	6	117	-	33	4	245	20	3	1	4	855
Approach%	7.2	91.4	1.4	78.0	-	22.0	1.5	91.1	7.4	37.5	12.5	50.0	
Total%	3.6	45.7	0.7	13.7	-	3.9	0.5	28.7	2.3	0.4	0.1	0.5	
PHF			0.93			0.83			0.84			0.67	0.97

PM	Rancho Carmel Drive			Provencal Place			Rancho Carmel Drive			Provencal Place			Total	
	Southbound			Westbound			Northbound			Eastbound				
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
16:00	9	118	3	9	1	8	7	104	9	2	0	3	273	
16:15	8	111	3	20	1	4	8	111	10	2	0	7	285	
16:30	9	140	2	12	1	7	4	118	15	2	0	8	318	
16:45	11	123	2	18	0	7	5	138	17	5	0	8	334	
17:00	8	135	3	17	0	7	7	123	9	3	2	4	318	
17:15	13	128	1	12	0	7	9	132	6	6	0	6	320	
17:30	12	135	1	19	0	8	6	111	16	5	1	10	324	
17:45	16	127	3	23	1	9	8	128	8	2	0	0	325	
Total	86	1017	18	130	4	57	54	965	90	27	3	46	2497	
Approach%	7.7	90.7	1.6	68.1	2.1	29.8	4.9	87.0	8.1	35.5	3.9	60.5		
Total%	3.4	40.7	0.7	5.2	0.2	2.3	2.2	38.6	3.6	1.1	0.1	1.8		

PM Intersection Peak Hour: 16:45 to 17:45

Volume	44	521	7	66	-	29	27	504	48	19	3	28	1,296
Approach%	7.7	91.1	1.2	69.5	-	30.5	4.7	87.0	8.3	38.0	6.0	56.0	
Total%	3.4	40.2	0.5	5.1	-	2.2	2.1	38.9	3.7	1.5	0.2	2.2	
PHF			0.97			0.88			0.90			0.78	0.97

Intersection Turning Movement - Bicycle & Pedestrian Count

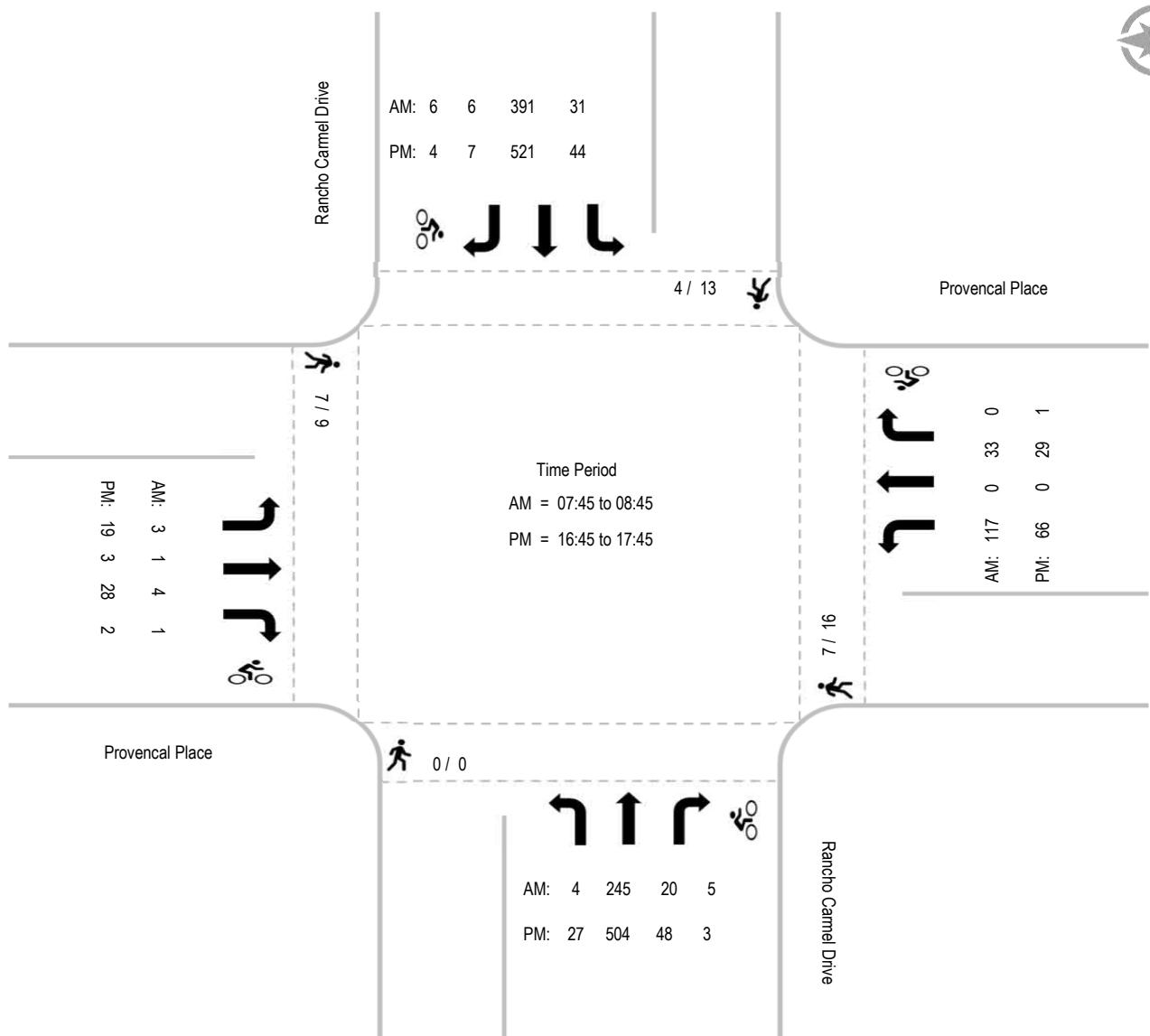
LINSCOTT LAW & GREENSPAN engineers	Location: #05 Intersection: Rancho Carmel Drive & Provencal Place Date of Count: Wednesday, May 15, 2019	File Name: ITM-19-057-05 Project: LLG Ref. 3-19-3102 San Diego
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AM	Rancho Carmel Drive Southbound				Provencal Place Westbound				Rancho Carmel Drive Northbound				Provencal Place Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
	7:00	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	3	0
7:15	1	0	2	0	0	0	0	0	0	0	0	0	1	1	0	0	2	3
7:30	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	3	0
7:45	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	1	2
8:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
8:15	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	1
8:30	2	0	3	0	2	0	0	0	0	0	3	0	1	0	0	0	5	6
8:45	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0
Ped Total	4				7				0				7				18	
Bike Total	0	6	0		0	0	0		0	5	0		1	0	0		12	

PM	Rancho Carmel Drive Southbound				Provencal Place Westbound				Rancho Carmel Drive Northbound				Provencal Place Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
	16:00	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1
16:15	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0
16:30	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	4	0
16:45	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0
17:00	0	0	0	1	1	0	0	0	0	0	0	0	2	0	0	0	3	1
17:15	2	0	2	0	5	0	0	0	0	0	2	0	2	0	0	0	9	4
17:30	4	0	0	1	3	0	0	0	0	0	0	0	4	1	0	0	11	2
17:45	3	0	0	0	3	0	0	0	0	0	1	0	0	1	0	0	6	2
Ped Total	13				16				0				9				38	
Bike Total	0	2	2		0	0	1		0	3	0		2	0	0		10	

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Intersection Turning Movement - Peak Hour Summary



Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers	Location: #06 Intersection: Rancho Carmel Drive & Shoal Creek Drive Date of Count: Wednesday, May 15, 2019	File Name: ITM-19-057-06 Project: LLG Ref. 3-19-3102 San Diego
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AM	Rancho Carmel Drive			Shoal Creek Drive			Rancho Carmel Drive			-			Total	
	Southbound			Westbound			Northbound			Eastbound				
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
7:00	9	61	0	16	0	13	0	48	9	0	0	0	156	
7:15	12	64	0	12	0	15	0	72	7	0	0	0	182	
7:30	12	73	0	10	0	19	0	46	11	0	0	0	171	
7:45	25	85	0	14	0	18	0	69	10	0	0	0	221	
8:00	20	76	0	28	0	35	0	70	19	0	0	0	248	
8:15	13	68	0	21	0	32	0	79	10	0	0	0	223	
8:30	10	80	0	14	0	18	0	60	9	0	0	0	191	
8:45	19	67	0	8	0	10	0	59	4	0	0	0	167	
Total	120	574	0	123	0	160	0	503	79	0	0	0	1559	
Approach%	17.3	82.7	-	43.5	-	56.5	-	86.4	13.6	-	-	-		
Total%	7.7	36.8	-	7.9	-	10.3	-	32.3	5.1	-	-	-		

AM Intersection Peak Hour: 07:45 to 08:45

Volume	68	309	-	77	-	103	-	278	48	-	-	-	883
Approach%	18.0	82.0	-	42.8	-	57.2	-	85.3	14.7	-	-	-	
Total%	7.7	35.0	-	8.7	-	11.7	-	31.5	5.4	-	-	-	
PHF			0.86			0.71			0.92		#DIV/0!		0.89

PM	Rancho Carmel Drive			Shoal Creek Drive			Rancho Carmel Drive			-			Total	
	Southbound			Westbound			Northbound			Eastbound				
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
16:00	8	136	0	6	0	18	0	108	10	0	0	0	286	
16:15	21	116	0	8	0	18	0	100	9	0	0	0	272	
16:30	20	143	0	13	0	10	0	118	11	0	0	0	315	
16:45	18	114	0	9	0	17	0	132	8	0	0	0	298	
17:00	25	137	0	8	0	17	0	126	8	0	0	0	321	
17:15	15	147	0	6	0	18	0	121	11	0	0	0	318	
17:30	13	131	0	8	0	19	0	99	14	0	0	0	284	
17:45	22	126	0	15	0	16	0	107	15	0	0	0	301	
Total	142	1050	0	73	0	133	0	911	86	0	0	0	2395	
Approach%	11.9	88.1	-	35.4	-	64.6	-	91.4	8.6	-	-	-		
Total%	5.9	43.8	-	3.0	-	5.6	-	38.0	3.6	-	-	-		

PM Intersection Peak Hour: 16:30 to 17:30

Volume	78	541	-	36	-	62	-	497	38	-	-	-	1,252
Approach%	12.6	87.4	-	36.7	-	63.3	-	92.9	7.1	-	-	-	
Total%	6.2	43.2	-	2.9	-	5.0	-	39.7	3.0	-	-	-	
PHF			0.95			0.94			0.96		#DIV/0!		0.98

Intersection Turning Movement - Bicycle & Pedestrian Count

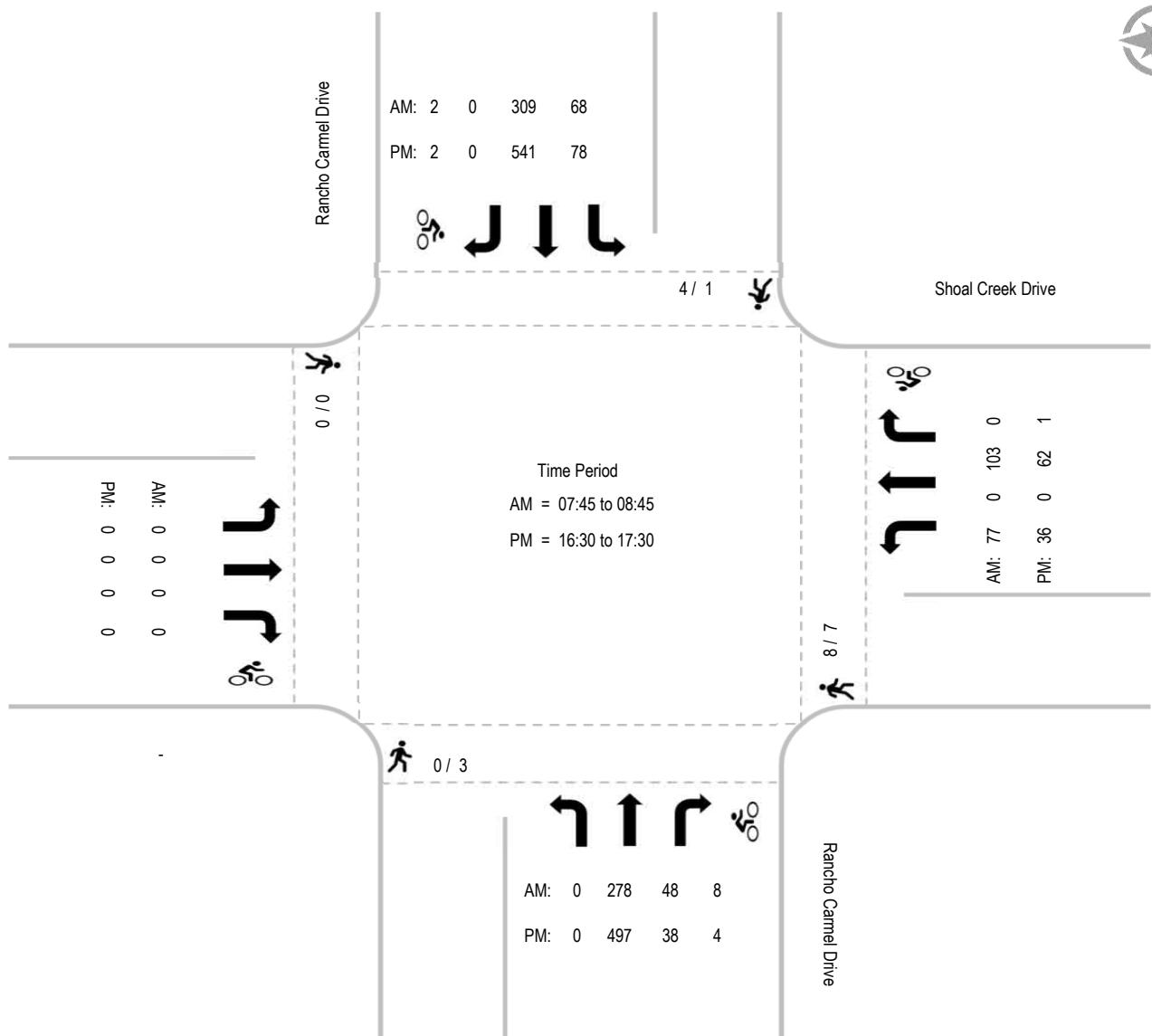
LINSCOTT LAW & GREENSPAN engineers	Location: #06 Intersection: Rancho Carmel Drive & Shoal Creek Drive Date of Count: Wednesday, May 15, 2019	File Name: ITM-19-057-06 Project: LLG Ref. 3-19-3102 San Diego
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AM	Rancho Carmel Drive Southbound				Shoal Creek Drive Westbound				Rancho Carmel Drive Northbound				- Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
	7:00	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3	0
7:15	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2	1
7:30	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
7:45	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	0	1	0	1	0	0	0	0	0	5	0	0	0	0	0	1	6
8:30	0	0	0	0	3	0	0	0	0	0	2	0	0	0	0	0	3	2
8:45	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
Ped Total	4				8				0				0				12	
Bike Total	0	2	0		0	0	0		0	8	0		0	0	0		10	

PM	Rancho Carmel Drive Southbound				Shoal Creek Drive Westbound				Rancho Carmel Drive Northbound				- Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
	16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	0	3	1
17:00	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	3	0
17:15	1	0	2	0	2	0	0	0	0	0	2	0	0	0	0	0	3	4
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	2	0	0	0	0	0	1	1	0	0	0	0	2	2
Ped Total	1				7				3				0				11	
Bike Total	0	2	0		1	0	0		0	1	3		0	0	0		7	

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Intersection Turning Movement - Peak Hour Summary



Linscott, Law & Greenspan, Engineers

4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **Ted Williams Pkwy, between I-15 and Sabre Springs Pkwy**

Date: Wednesday, May 15, 2019												Total Daily Volume: 43592												Description: Total Volume											
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00												
224	134	75	126	366	923	2219	3371	3168	2448	2106	2033	2191	2306	2988	3323	3673	3892	2768	2024	1440	956	553	285												
66	26	17	15	42	131	364	820	839	703	521	468	524	554	626	798	880	982	805	553	387	303	171	90												
43	32	15	19	69	205	521	902	813	610	527	488	528	554	685	788	895	1002	746	572	368	253	147	51												
72	40	24	39	110	297	602	849	758	612	536	536	550	584	877	877	980	940	674	449	349	235	119	77												
43	36	19	53	145	290	732	800	758	523	522	541	589	614	800	860	918	968	543	450	336	165	116	67												

Date: Wednesday, May 15, 2019												Total Daily Volume: 21821												Description: Eastbound Volume											
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00												
104	67	43	66	195	326	654	1240	1204	1046	930	990	1066	1225	1565	1947	2167	2300	1592	1190	817	576	337	174												
35	16	11	3	20	52	111	241	339	305	228	234	230	300	316	442	528	580	458	324	209	178	101	54												
25	14	12	7	34	77	147	317	284	261	230	246	259	302	391	465	528	591	423	345	217	158	91	30												
23	16	9	23	56	85	182	337	268	247	236	239	274	279	411	522	557	570	398	252	195	144	69	50												
21	21	11	33	85	112	214	345	313	233	236	271	303	344	447	518	554	559	313	269	196	96	76	40												

Date: Wednesday, May 15, 2019												Total Daily Volume: 21771												Description: Westbound Volume											
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00												
120	67	32	60	171	597	1565	2131	1964	1402	1176	1043	1125	1081	1423	1376	1506	1592	1176	834	623	380	216	111												
31	10	6	12	22	79	253	579	500	398	293	234	294	254	310	356	352	402	347	229	178	125	70	36												
18	18	3	12	35	128	374	585	529	349	297	242	269	252	294	323	367	411	323	227	151	95	56	21												
49	24	15	16	54	212	420	512	490	365	300	297	276	305	466	355	423	370	276	197	154	91	50	27												
22	15	8	20	60	178	518	455	445	290	286	270	286	270	353	342	364	409	230	181	140	69	40	27												

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4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **Sabre Springs Pkwy, between Evening Creek Dr N. and Ted Williams Pkwy**

Date: Wednesday, May 15, 2019												Total Daily Volume: 16754												Description: Total Volume	
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00		
120	72	44	73	188	297	721	1333	1269	787	715	856	978	925	1190	1314	1440	1563	1028	777	511	290	176	87		
27	15	14	9	23	43	130	331	331	224	166	190	244	240	252	291	350	412	309	214	139	100	55	29		
21	13	8	9	29	61	150	341	311	203	178	215	251	240	225	344	339	401	278	177	126	68	42	14		
50	25	16	27	57	86	206	304	326	175	187	197	228	222	367	353	365	379	243	206	131	62	38	18		
22	19	6	28	79	107	235	357	301	185	184	254	255	223	346	326	386	371	198	180	115	60	41	26		

Date: Wednesday, May 15, 2019												Total Daily Volume: 8163												Description: Northbound Volume	
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00		
90	50	27	20	33	98	336	581	566	375	384	447	464	444	582	685	793	866	525	355	225	99	70	48		
17	10	6	3	8	11	48	178	130	95	87	103	118	120	128	143	196	247	163	98	71	30	24	19		
16	11	7	3	5	19	54	153	150	92	97	116	134	115	101	187	180	223	148	82	51	24	18	6		
42	20	12	10	9	35	112	117	160	83	99	103	99	106	196	185	214	190	125	96	57	21	13	9		
15	9	2	4	11	33	122	133	126	105	101	125	113	103	157	170	203	206	89	79	46	24	15	14		

Date: Wednesday, May 15, 2019												Total Daily Volume: 8591												Description: Southbound Volume	
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00		
30	22	17	53	155	199	385	752	703	412	331	409	514	481	608	629	647	697	503	422	286	191	106	39		
10	5	8	6	15	32	82	153	201	129	79	87	126	120	124	148	154	165	146	116	68	70	31	10		
5	2	1	6	24	42	96	188	161	111	81	99	117	125	124	157	159	178	130	95	75	44	24	8		
8	5	4	17	48	51	94	187	166	92	88	94	129	116	171	168	151	189	118	110	74	41	25	9		
7	10	4	24	68	74	113	224	175	80	83	129	142	120	189	156	183	165	109	101	69	36	26	12		

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4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **Rancho Carmel Dr, between Ted Williams Pkwy and Provencal Pl**

Date: Wednesday, May 15, 2019												Total Daily Volume: 13701												Description: Total Volume											
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00												
39	33	18	31	52	160	432	800	844	634	658	778	939	840	917	1206	1238	1337	1071	788	437	259	133	57												
10	11	3	6	9	22	70	181	230	150	146	170	235	207	216	286	293	352	317	212	137	88	45	21												
10	8	7	5	10	38	90	204	207	175	156	193	252	208	191	312	300	355	303	180	112	55	29	15												
10	7	7	10	8	47	113	196	212	162	176	182	229	214	238	308	306	300	230	193	104	58	32	10												
9	7	1	10	25	53	159	219	195	147	180	233	223	211	272	300	339	330	221	203	84	58	27	11												

Date: Wednesday, May 15, 2019												Total Daily Volume: 6099												Description: Northbound Volume											
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00												
24	21	14	16	18	35	132	263	299	271	306	369	432	375	427	624	596	636	500	353	204	97	58	29												
7	8	2	3	2	4	26	47	70	63	66	88	105	102	97	145	136	163	162	105	65	31	16	13												
7	6	7	3	5	9	21	76	86	66	75	83	131	99	91	175	147	179	146	72	53	21	15	7												
6	4	4	5	0	6	37	62	67	70	75	87	97	86	102	151	137	134	98	83	49	21	14	5												
4	3	1	5	11	16	48	78	76	72	90	111	99	88	137	153	176	160	94	93	37	24	13	4												

Date: Wednesday, May 15, 2019												Total Daily Volume: 7602												Description: Southbound Volume											
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00												
15	12	4	15	34	125	300	537	545	363	352	409	507	465	490	582	642	701	571	435	233	162	75	28												
3	3	1	3	7	18	44	134	160	87	80	82	130	105	119	141	157	189	155	107	72	57	29	8												
3	2	0	2	5	29	69	128	121	109	81	110	121	109	100	137	153	176	157	108	59	34	14	8												
4	3	3	5	8	41	76	134	145	92	101	95	132	128	136	157	169	166	132	110	55	37	18	5												
5	4	0	5	14	37	111	141	119	75	90	122	124	123	135	147	163	170	127	110	47	34	14	7												

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4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **Rancho Carmel Dr, between Provencal Pl and Shoal Creek Dr**

Date: Wednesday, May 15, 2019												Total Daily Volume: 11625												Description: Total Volume											
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00												
33	32	17	27	48	147	363	680	699	515	548	682	798	730	815	990	1091	1134	869	637	386	221	111	52												
7	8	1	5	8	14	65	157	189	134	128	144	200	183	184	224	264	293	248	165	124	73	40	23												
9	9	7	7	12	31	70	159	182	123	124	166	216	183	180	246	247	294	254	160	97	48	25	13												
8	6	7	6	8	47	106	163	178	134	150	168	202	172	216	258	286	263	201	151	92	52	26	10												
9	9	2	9	20	55	122	201	150	124	146	204	180	192	235	262	294	284	166	161	73	48	20	6												

Date: Wednesday, May 15, 2019												Total Daily Volume: 5447												Description: Northbound Volume											
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00												
19	22	12	15	14	48	142	277	304	240	279	344	379	345	391	504	529	540	416	291	184	74	52	26												
4	7	0	3	1	3	31	55	74	64	67	79	95	97	89	107	118	143	127	84	65	20	16	14												
7	6	7	4	6	7	20	76	91	55	63	76	119	93	90	137	124	141	117	66	50	16	13	6												
4	4	4	3	1	11	43	61	72	59	72	91	86	76	94	127	136	123	91	64	36	17	11	4												
4	5	1	5	6	27	48	85	67	62	77	98	79	79	118	133	151	133	81	77	33	21	12	2												

Date: Wednesday, May 15, 2019												Total Daily Volume: 6178												Description: Southbound Volume											
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00												
14	10	5	12	34	99	221	403	395	275	269	338	419	385	424	486	562	594	453	346	202	147	59	26												
3	1	1	2	7	11	34	102	115	70	61	65	105	86	95	117	146	150	121	81	59	53	24	9												
2	3	0	3	6	24	50	83	91	68	61	90	97	90	90	109	123	153	137	94	47	32	12	7												
4	2	3	3	7	36	63	102	106	75	78	77	116	96	122	131	150	140	110	87	56	35	15	6												
5	4	1	4	14	28	74	116	83	62	69	106	101	113	117	129	143	151	85	84	40	27	8	4												

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ONE-WAY FARES / Tarifas Sencillas

Exact fare, please / Favor de pagar la cantidad exacta

Adult / Adulto	\$2.50
Senior/Disabled/Medicare* Personas Mayores/con Discapacidades/Medicare*	\$1.25
Youth (ages 6-18)* Jóvenes (edades 6-18)*	\$2.50

DAY PASS (Regional) / Pase diario (Regional)

Adult / Adulto	\$6.00
Senior/Disabled/Medicare* Personas Mayores/con Discapacidades/Medicare*	\$3.00
Youth (ages 6-18)* Jóvenes (edades 6-18)*	\$3.00

MONTHLY PASSES / Pases mensual

Adult / Adulto	\$72.00
Senior/Disabled/Medicare* Personas Mayores/con Discapacidades/Medicare*	\$23.00
Youth (ages 6-18)* Jóvenes (edades 6-18)*	\$23.00

*Proof of eligibility required. Senior Eligibility: Age 65+ or born on or before September 1, 1959.
*Se requiere verificación de elegibilidad. Elegibilidad para Personas Mayores: Edad 65+ o nacido en o antes del 1 de septiembre, 1959.

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Effective SEPTEMBER 1, 2019

Rapid**235****Escondido – Downtown San Diego**

via I-15

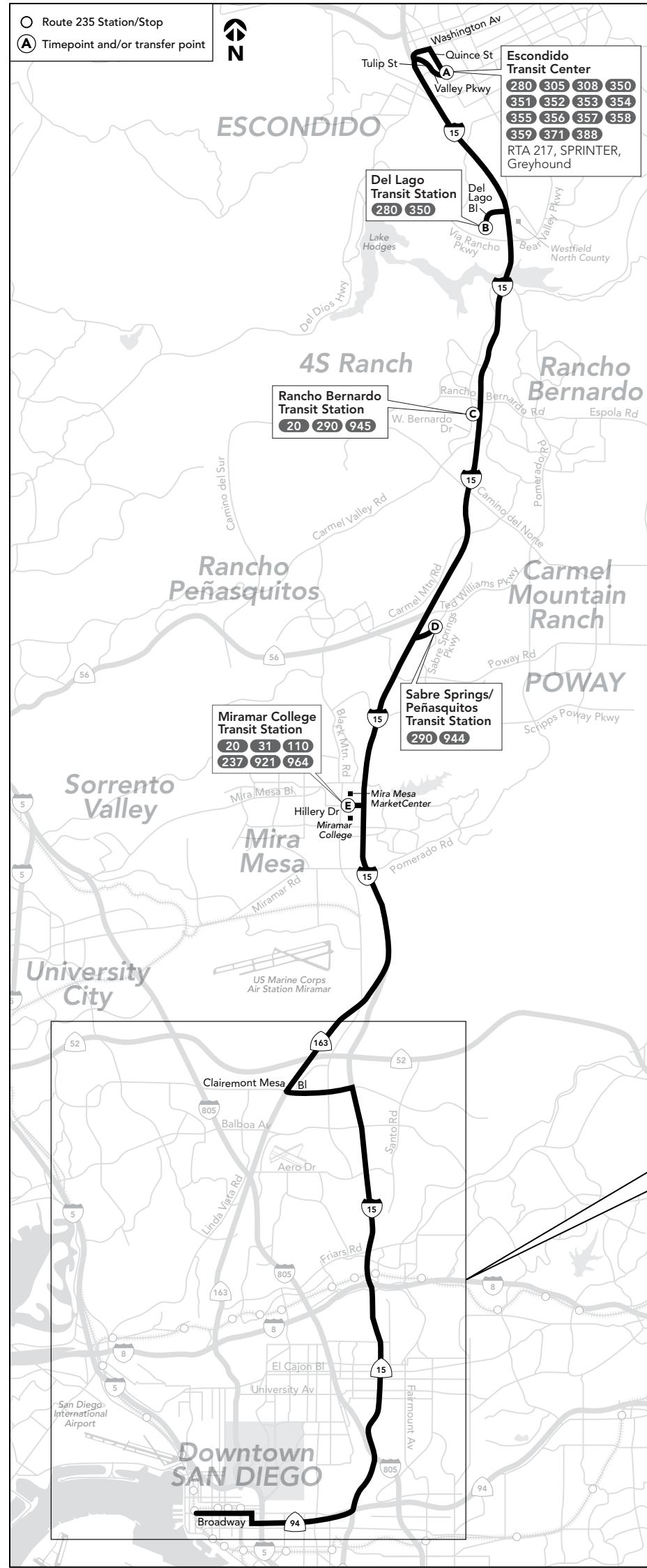
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- City College
- America Plaza
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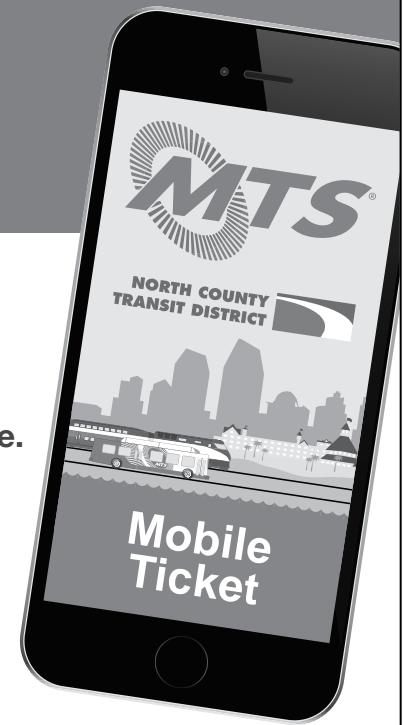
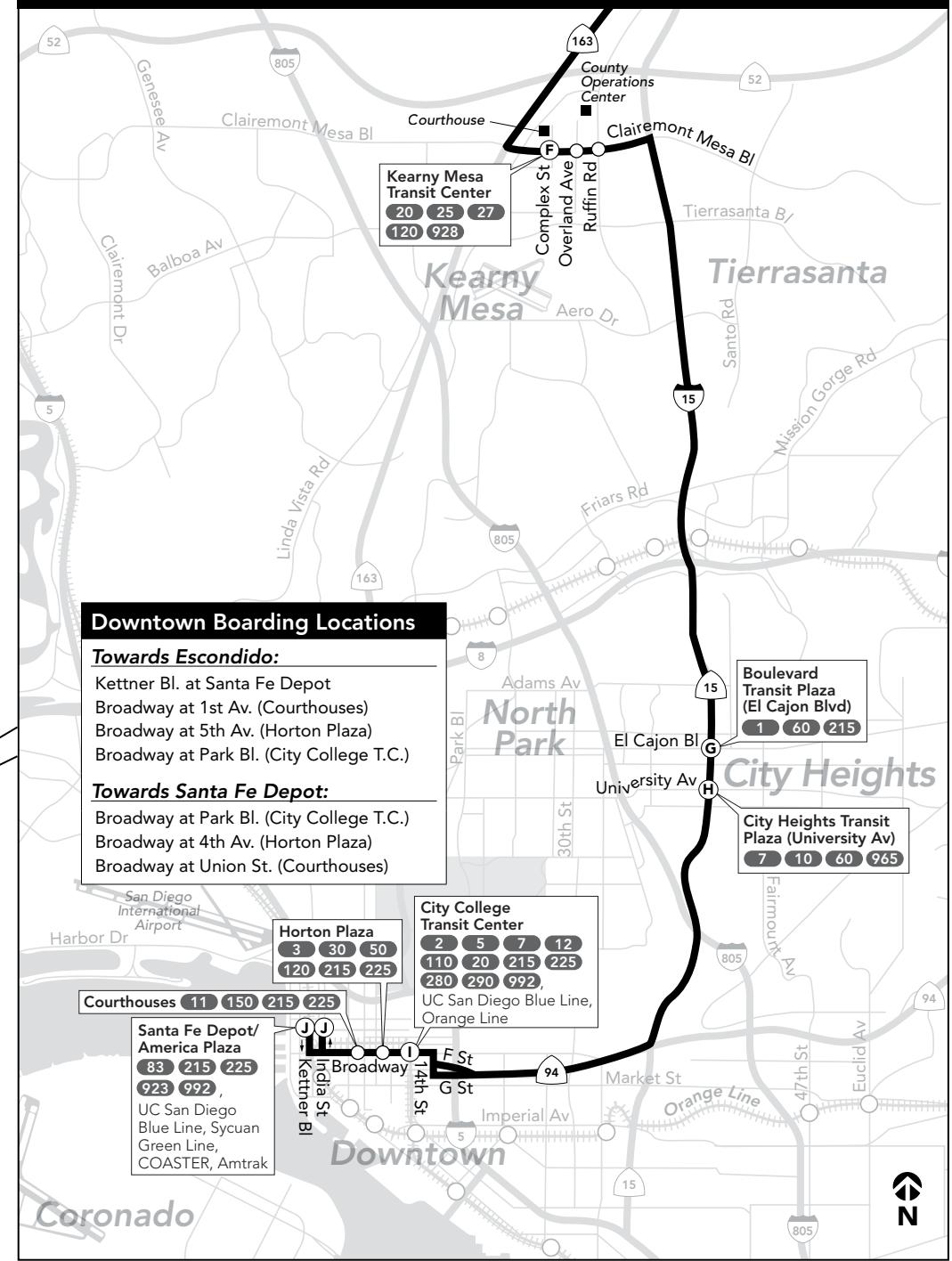
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**Southern Area Detail**

The schedules and other information shown in this timetable are subject to change. MTS does not assume responsibility for errors in timetables nor for any inconvenience caused by delayed buses.

Los horarios e información que se indican en este itinerario están sujetos a cambios. MTS no asume responsabilidad por errores en los itinerarios, ni por ningún perjuicio que se origine por los autobuses demorados.

Route 235 – Monday through Friday / lunes a viernes

Escondido ➔ Downtown San Diego

A Escondido Transit Center DEPART	B Del Lago Transit Station	C Rancho Bernardo Transit Station	D Sabre Springs/ Peñasquitos T.S.	E Miramar College Transit Station	F Kearny Mesa Transit Center	G Boulevard Transit Plaza (El Cajon Bl.)	H City Heights Transit Plaza (Univ. Av.)	I City College Transit Station (Broadway)	J America Plaza Trolley Station	ARRIVE
—	—	—	—	—	4:58a	5:08a	5:10a	5:19a	5:26a	
—	—	—	—	—	5:13	5:23	5:25	5:34	5:41	
—	—	—	—	5:18a	5:28	5:38	5:40	5:49	5:56	
5:00a	5:09a	5:17a	5:24a	5:33	5:43	5:53	5:55	6:04	6:11	
5:33	5:42	5:50	5:57	6:06	6:17	6:27	6:29	6:40	6:47	
—	—	—	—	—	6:21	6:32	6:43	6:45	6:57	7:05
6:03	6:12	6:20	6:27	6:36	6:47	6:58	7:00	7:12	7:20	
6:18	6:27	6:35	6:42	6:51	7:02	7:13	7:15	7:27	7:35	
6:30	6:40	6:48	6:55	7:04	7:15	7:26	7:28	7:41	7:50	
6:46	6:56	7:04	7:11	7:20	7:31	7:42	7:44	7:57	8:06	
7:01	7:11	7:19	7:26	7:35	7:46	7:57	7:59	8:12	8:21	
7:16	7:26	7:34	7:41	7:50	8:01	8:12	8:14	8:27	8:36	
7:31	7:41	7:49	7:56	8:05	8:16	8:27	8:29	8:42	8:51	
7:46	7:56	8:04	8:11	8:20	8:31	8:42	8:44	8:57	9:06	
8:01	8:11	8:19	8:26	8:35	8:46	8:57	8:59	9:11	9:20	
8:17	8:26	8:34	8:41	8:50	9:01	9:12	9:14	9:26	9:35	
8:33	8:42	8:50	8:57	9:06	9:17	9:28	9:30	9:41	9:50	
8:48	8:57	9:05	9:12	9:21	9:32	9:43	9:45	9:56	10:05	
9:03	9:12	9:20	9:27	9:36	9:47	9:58	10:00	10:11	10:20	
9:18	9:27	9:35	9:42	9:51	10:02	10:13	10:15	10:26	10:35	
9:33	9:42	9:50	9:57	10:06	10:17	10:28	10:30	10:41	10:50	
9:48	9:57	10:05	10:12	10:21	10:32	10:43	10:45	10:56	11:05	
10:03	10:12	10:20	10:27	10:36	10:47	10:58	11:00	11:11	11:20	
10:18	10:27	10:35	10:42	10:51	11:02	11:13	11:15	11:26	11:35	
10:33	10:42	10:50	10:57	11:06	11:17	11:29	11:31	11:42	11:51	
10:48	10:57	11:05	11:12	11:21	11:32	11:44	11:46	11:57	12:06p	
11:03	11:12	11:20	11:27	11:36	11:47	11:59	12:01p	12:12p	12:21	
11:18	11:27	11:35	11:42	11:51	12:02p	12:14p	12:16	12:27	12:36	
11:33	11:42	11:50	11:57	12:06p	12:17	12:29	12:31	12:42	12:51	
11:48	11:57	12:05p	12:12p	12:21	12:32	12:44	12:46	12:57	1:06	
12:03p	12:12p	12:20	12:27	12:36	12:47	12:59	1:01	1:12	1:21	
12:19	12:28	12:36	12:43	12:52	1:03	1:15	1:17	1:28	1:37	
12:34	12:43	12:51	12:58	1:07	1:18	1:30	1:32	1:43	1:52	
12:49	12:58	1:06	1:13	1:22	1:33	1:45	1:47	1:58	2:07	
1:03	1:12	1:20	1:27	1:36	1:47	1:59	2:01	2:12	2:21	
1:18	1:27	1:35	1:42	1:51	2:02	2:14	2:16	2:27	2:36	
1:33	1:42	1:50	1:57	2:06	2:17	2:29	2:31	2:42	2:51	
1:47	1:56	2:04	2:11	2:20	2:31	2:43	2:45	2:56	3:05	
2:00	2:09	2:17	2:24	2:33	2:44	2:56	2:58	3:09	3:18	
2:13	2:22	2:30	2:37	2:46	2:57	3:09	3:11	3:22	3:31	
2:28	2:37	2:45	2:52	3:01	3:12	3:25	3:27	3:39	3:48	
2:42	2:52	3:00	3:07	3:16	3:28	3:42	3:44	3:57	4:06	
2:55	3:05	3:13	3:20	3:29	3:41	3:56	3:58	4:12	4:21	
3:10	3:20	3:28	3:35	3:44	3:56	4:11	4:13	4:27	4:36	
3:23	3:33	3:41	3:48	3:57	4:10	4:26	4:28	4:43	4:52	
3:39	3:49	3:57	4:04	4:13	4:26	4:42	4:44	4:59	5:08	
3:54	4:04	4:12	4:19	4:28	4:41	4:58	5:00	5:15	5:24	
4:09	4:19	4:27	4:34	4:43	4:56	5:13	5:15	5:30	5:39	
4:24	4:34	4:42	4:49	4:58	5:11	5:28	5:30	5:45	5:54	
4:39	4:49	4:57	5:04	5:13	5:26	5:43	5:45	6:00	6:09	
4:54	5:04	5:12	5:19	5:28	5:41	5:58	6:00	6:15	6:23	
5:10	5:20	5:28	5:35	5:44	5:57	6:12	6:14	6:29	6:37	
5:27	5:37	5:45	5:52	6:01	6:13	6:27	6:29	6:43	6:51	
5:45	5:54	6:02	6:09	6:18	6:29	6:42	6:44	6:57	7:05	
6:02	6:11	6:19	6:26	6:35	6:46	6:58	7:00	7:11	7:19	
6:17	6:26	6:34	6:41	6:50	7:01	7:13	7:15	7:26	7:34	
6:32	6:41	6:49	6:56	7:05	7:16	7:28	7:30	7:41	7:49	
6:47	6:56	7:04	7:11	7:20	7:31	7:43	7:45	7:56	8:04	
7:06	7:15	7:23	7:30	7:39	7:49	8:00	8:02	8:12	8:20	
7:36	7:45	7:53	8:00	8:09	8:19	8:30	8:32	8:42	8:50	
8:05	8:14	8:22	8:29	8:38	8:48	8:59	9:01	9:11	9:19	
8:35	8:44	8:52	8:59	9:08	9:18	9:29	9:31	9:40	9:47	
9:05	9:14	9:22	9:29	9:38	9:48	9:59	10:01	10:10	10:17	
9:35	9:44	9:52	9:59	10:08	10:18	10:29	10:31	10:40	10:47	
10:05	10:14	10:22	10:29	10:38	10:48	10:58	11:00	11:09	11:16	
10:35	10:44	10:52	10:59	11:08	11:18	11:28	11:30	11:39	11:46	

Downtown San Diego ➔ Escondido

J Santa Fe Depot Transit Ctr. DEPART	I City College Transit Station (Broadway)	H City Heights Transit Plaza (Univ. Av.)	G Boulevard Transit Plaza (El Cajon Bl.)	F Kearny Mesa Transit Center	E Miramar College Transit Station	D Sabre Springs/ Peñasquitos T.S.	C Rancho Bernardo Transit Station	B Del Lago Transit Station	A Escondido Transit Center ARRIVE

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ONE-WAY FARES / Tarifas Sencillas

Exact fare, please / Favor de pagar la cantidad exacta

Adult / Adulto	\$5.00
Senior/Disabled/Medicare* Personas Mayores/con Discapacidades/Medicare*	\$2.50
Youth (ages 6-18)* Jóvenes (edades 6-18)*	\$5.00

DAY PASS (Regional) / Pase diario (Regional)

Adult / Adulto	\$12.00
Senior/Disabled/Medicare* Personas Mayores/con Discapacidades/Medicare*	\$6.00
Youth (ages 6-18)* Jóvenes (edades 6-18)*	\$6.00

MONTHLY PASSES / Pases mensual

Adult / Adulto	\$100.00
Senior/Disabled/Medicare* Personas Mayores/con Discapacidades/Medicare*	\$32.00
Youth (ages 6-18)* Jóvenes (edades 6-18)*	\$32.00

*Proof of eligibility required. Senior Eligibility: Age 65+ or born on or before September 1, 1959.
*Se requiere verificación de elegibilidad. Elegibilidad para Personas Mayores: Edad 65+ o nacido en o antes del 1 de septiembre, 1959.

COMPASS CARDS / Tarjeta Compass

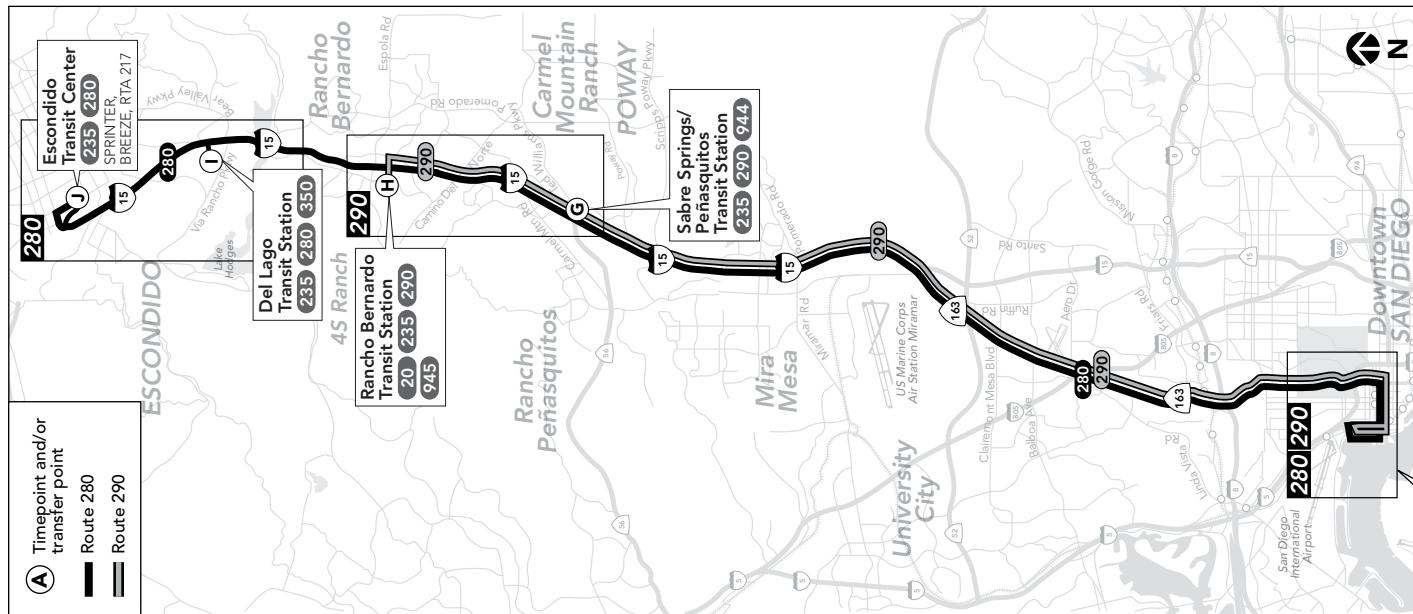
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Effective SEPTEMBER 1, 2019

280

Escondido /
Del Lago –
Downtown

290

Rancho Bernardo /
Sabre Springs –
Downtown

I-15 SERVICE

Rapid
Express

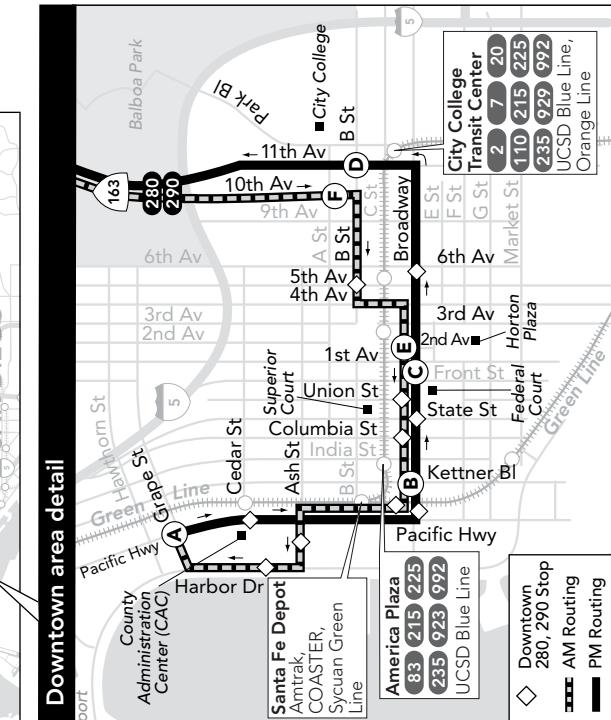


09/19

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Routes 280 and 290 do not operate on weekends or on the observation of the following holidays: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving, and Christmas. A limited schedule may be operated the day after Thanksgiving. Information will be provided on buses and www.sdmts.com.

Las rutas 280 y 290 no ofrecen servicio durante el fin de semana ó durante los siguientes días festivos: Año Nuevo, Presidents' Day, Memorial Day, Día de la Independencia (E.E.U.U.), Labor Day, Día de Acción de Gracias y Navidad. Se podría operar un horario limitado el día después del Día de Acción de Gracias. Se proporcionará información en los autobuses y www.sdmts.com.

Route 280 – Monday through Friday / lunes a viernes



Escondido ➔ Downtown San Diego

J Escondido Transit Center DEPART	I Del Lago Transit Station	F 10th Ave. & B St.	E Broadway & 2nd Ave.	B Broadway & Kettner Blvd.	A Grape St. & Pacific Hwy. ARRIVE
5:00a	5:11a	5:40a	5:45a	5:50a	5:55a
5:30	5:41	6:10	6:15	6:20	6:25
6:00	6:11	6:40	6:45	6:50	6:55
6:15	6:27	6:57	7:03	7:08	7:13
6:30	6:42	7:12	7:18	7:23	7:28
6:45	6:58	7:30	7:36	7:42	7:48
7:00	7:13	7:45	7:51	7:57	8:03
7:15	7:28	8:00	8:06	8:12	8:18
7:30	7:43	8:15	8:21	8:27	8:33
8:00	8:13	8:45	8:51	8:57	9:03

Downtown San Diego ➔ Escondido

A Pacific Hwy. & Grape St. DEPART	B Broadway & Kettner Blvd.	C Broadway & 1st Ave.	D 11th Ave. & B St.	I Del Lago Transit Station	J Escondido Transit Center ARRIVE
2:57p	3:03p	3:07p	3:15p	3:46p	3:57p
3:27	3:33	3:37	3:45	4:16	4:27
3:42	3:48	3:52	4:00	4:31	4:42
3:57	4:03	4:07	4:15	4:47	4:59
4:12	4:18	4:22	4:30	5:02	5:14
4:27	4:33	4:37	4:45	5:17	5:29
4:42	4:48	4:52	5:00	5:32	5:44
4:57	5:03	5:07	5:15	5:47	5:59
5:12	5:18	5:22	5:30	6:02	6:14
5:29	5:35	5:39	5:47	6:18	6:29
5:57	6:03	6:07	6:15	6:46	6:57

Shaded times are approximate; trip may run earlier than scheduled.

Los tiempos sombreados son aproximados; los viajes pueden operar más temprano de lo que se indica.

Route 290 – Monday through Friday / lunes a viernes



Rancho Bernardo ➔ Sabre Springs ➔ Downtown San Diego

H Rancho Bernardo Transit Station DEPART	G Sabre Springs/ Peñas. Transit Station	F 10th Ave. & B St.	E Broadway & 2nd Ave.	B Broadway & Kettner Blvd.	A Grape St. & Pacific Hwy. ARRIVE
5:15a	5:22a	5:44a	5:49a	5:54a	5:59a
5:45	5:52	6:14	6:19	6:24	6:29
6:05	6:12	6:34	6:39	6:44	6:49
6:20	6:27	6:49	6:55	7:00	7:05
6:35	6:42	7:04	7:10	7:15	7:20
6:45	6:52	7:14	7:20	7:25	7:30
6:55	7:02	7:26	7:32	7:38	7:44
7:05	7:12	7:36	7:42	7:48	7:54
7:15	7:22	7:46	7:52	7:58	8:04
7:25	7:32	7:58	8:04	8:10	8:16
7:40	7:47	8:13	8:19	8:25	8:31
7:55	8:02	8:28	8:34	8:40	8:46
8:10	8:17	8:43	8:49	8:55	9:01

Downtown San Diego ➔ Sabre Springs ➔ Rancho Bernardo

A Pacific Hwy. & Grape St. DEPART	B Broadway & Kettner Blvd.	C Broadway & 1st Ave.	D 11th Ave. & B St.	G Sabre Springs/ Peñas. Transit Station	H Rancho Bernardo Transit Station ARRIVE
2:54p	3:00p	3:04p	3:12p	3:35p	3:42p
3:24	3:30	3:34	3:42	4:05	4:12
3:39	3:45	3:49	3:57	4:20	4:27
3:54	4:00	4:04	4:12	4:35	4:42
4:09	4:15	4:19	4:27	4:50	4:57
4:19	4:25	4:29	4:37	5:00	5:07
4:29	4:35	4:39	4:47	5:10	5:17
4:39	4:45	4:49	4:57	5:20	5:27
4:49	4:55	4:59	5:07	5:30	5:37
4:59	5:05	5:09	5:17	5:40	5:47
5:09	5:15	5:19	5:27	5:50	5:57
5:24	5:30	5:34	5:42	6:05	6:12
5:54	6:00	6:04	6:12	6:35	6:42

Shaded times are approximate; trip may run earlier than scheduled.

Los tiempos sombreados son aproximados; los viajes pueden operar más temprano de lo que se indica.

Guaranteed Ride Home

Commuters who ride Rapid Express have a safety net with the SANDAG iCommute Guaranteed Ride Home Program (GRH). Participants must pre-register online in order to redeem up to three rides per fiscal year in the event of an emergency and other qualifying situations. For more information, including full eligibility details, visit 511sd.com/iCommute or call 511 and say "iCommute."

Transporte Garantizado a Casa

Los viajeros frecuentes que se trasladan en Rapid Express cuentan con la seguridad que les brinda el Programa de Transporte Garantizado a Casa de SANDAG (GRH, por sus siglas en inglés). Los participantes deben estar previamente inscritos en línea para poder canjear hasta tres viajes por año fiscal en caso de emergencia y de otras situaciones que reúnan los requisitos. Para obtener más información, incluidos todos los detalles de elegibilidad, visite 511sd.com/iCommute o llame al 511 y diga "iCommute".

ONE-WAY FARES / Tarifas Sencillas

Exact fare, please / Favor de pagar la cantidad exacta

Adult / Adulto	\$2.50
Senior/Disabled/Medicare*	\$1.25
Personas Mayores/con Discapacidades/Medicare*	
Youth (ages 6-18)* Jóvenes (edades 6-18)*	
	\$2.50
DAY PASS (Regional) / Pase diario (Regional)	
Adult / Adulto	\$6.00
Senior/Disabled/Medicare*	\$3.00
Personas Mayores/con Discapacidades/Medicare*	
Youth (ages 6-18)* Jóvenes (edades 6-18)*	\$3.00
MONTHLY PASSES / Pases mensual	
Adult / Adulto	\$72.00
Senior/Disabled/Medicare*	\$23.00
Personas Mayores/con Discapacidades/Medicare*	
Youth (ages 6-18)* Jóvenes (edades 6-18)*	\$23.00

*Proof of eligibility required. Senior Eligibility: Age 65+ or born on or before September 1, 1959.
Se requiere verificación de elegibilidad. Elegibilidad para Personas Mayores: Edad 65+ o nacido en o antes del 1 de septiembre, 1959.**COMPASS CARDS / Tarjeta Compass**
There is a \$2 charge for Compass Cards, which can be reloaded for future use.
Hay un costo de \$2 por la tarjeta Compass Card, la cual puede ser recargada para usos futuros.**COMPASS CLOUD**
Download the free Compass Cloud app on your Apple or Android phone.
Descargue la aplicación gratis Compass Cloud en su teléfono Apple o Android.Visit sdmts.com/fares for more info. Visite sdmts.com/fares para más información.**DIRECTORY / Directorio**

MTS Information & Trip Planning MTS Información y planeo de viaje	511 or/ó (619) 233-3004
TTY/TDD (teletype for hearing impaired) Teletipo para sordos	(619) 234-5005 or/ó (888) 722-4889
InfoExpress (24-hour info via Touch-Tone phone) Información las 24 horas (via teléfono de teclas)	(619) 685-4900
Customer Service / Suggestions Servicio al cliente / Sugerencias	(619) 557-4555
MTS Security MTS Seguridad	(619) 595-4960
Lost & Found Objetos extraviados	(619) 557-4555
Transit Store	(619) 234-1060 12th & Imperial Transit Center M-F 8am-5pm

For MTS online trip planning
Planificación de viajes por Internetsdmts.comFor more information on riding MTS services, pick up a Rider's Guide on a bus or at the Transit Store, or visit sdmts.com.Para obtener más información sobre el uso de los servicios de MTS, recoja un 'Rider's Guide' en un autobús o en la Transit Store, o visita a sdmts.com.

Thank you for riding MTS! ¡Gracias por viajar con MTS!

Effective JANUARY 26, 2020

944**Sabre Springs – Poway**

via Poway Rd.

945**Rancho Bernardo – Old Poway Park**

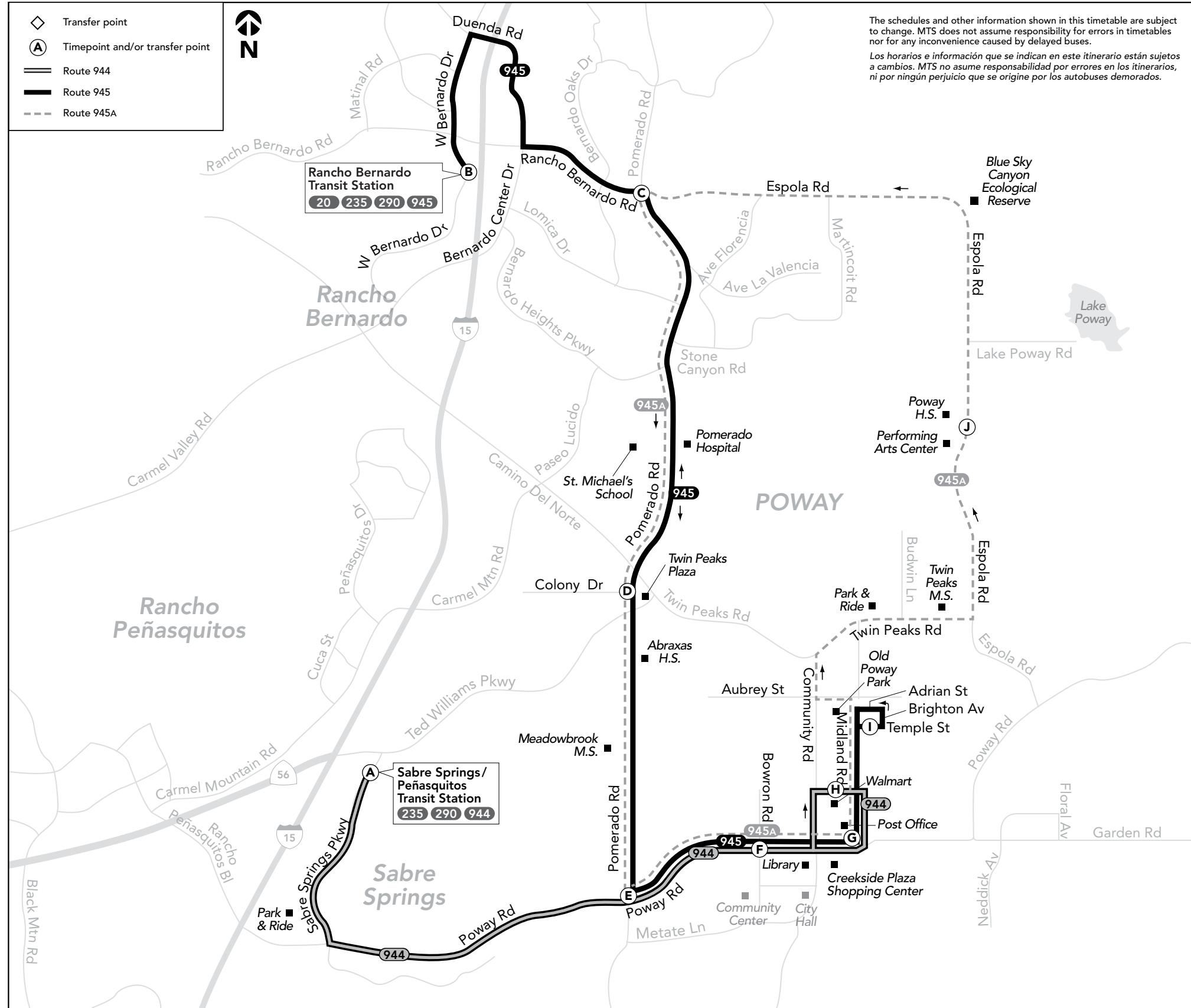
via Pomerado Rd. / Poway Rd.

DESTINATIONS

- Abraxas High School (945)
- Meadowbrook Middle School (945)
- Pomerado Hospital (945)
- Poway Library
- Poway High School (945A)
- Rancho Bernardo Transit Station (945)
- Twin Peaks Plaza (945)
- Sabre Springs / Peñasquitos Transit Station (944)



01/20

sdmts.comRoute Alerts, Updated Schedules,
Connections & More

Alternative formats available upon request. Please call: (619) 557-4555 / Formato alternativo disponible al preguntar. Favor de llamar: (619) 557-4555

Route 945A – Monday through Friday / lunes a viernes**Morning only****Pomerado ➔ Poway ➔ Espola Loop**

C Pomerado Rd. & R. Bernardo Rd. DEPART	D Pomerado Rd. & Colony Dr.	E Poway Rd. & Pomerado Rd.	G Midland Rd. & Poway Rd.	J Poway High School	C Pomerado Rd. & R. Bernardo Rd. ARRIVE
6:30a 7:38	6:37a 7:45	6:44a 7:53	6:53a 8:03	7:10a 8:16	7:20a 8:26

Afternoon only**Poway ➔ Espola ➔ Pomerado Loop**

G Midland Rd. & Poway Rd. DEPART	J Poway High School	C Pomerado Rd. & R. Bernardo Rd. ARRIVE	D Pomerado Rd. & Colony Dr.	E Poway Rd. & Pomerado Rd.	G Midland Rd. & Poway Rd. ARRIVE
2:31p 3:48	2:45p 4:00	2:54p 4:09	3:03p 4:17	3:12p 4:25	3:21p 4:33

Route 945A does not operate on weekends or on the following holidays and observed holidays

La ruta 945A no ofrece servicio durante el fin de semana ó durante los siguientes días festivos y feriados observados

>>>

New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving, Christmas

Route 944 – Monday through Friday / lunes a viernes

Sabre Springs ➡ Poway

A Sabre Springs/Peñasquitos Transit Station DEPART	E Poway Rd. & Pomerado Rd.	F Poway Rd. & Bowron Rd.	H Hilleary Pl. (Walmart) ARRIVE
5:34a	5:42a	5:46a	5:50a
6:00	6:08	6:12	6:16
6:31	6:39	6:43	6:47
7:07	7:16	7:20	7:25
7:39	7:48	7:52	7:57
8:09	8:18	8:22	8:27
8:39	8:48	8:52	8:57
9:09	9:18	9:22	9:27
9:39	9:48	9:52	9:57
10:09	10:18	10:22	10:27
10:34	10:43	10:47	10:52
11:04	11:13	11:17	11:22
11:34	11:43	11:47	11:52
12:19p	12:28p	12:32p	12:37p
12:49	12:58	1:02	1:07
1:19	1:28	1:32	1:37
1:49	1:59	2:04	2:09
2:19	2:29	2:34	2:39
2:48	2:58	3:03	3:08
3:12	3:22	3:27	3:32
3:42	3:52	3:57	4:02
4:12	4:22	4:27	4:32
4:42	4:52	4:57	5:02
5:12	5:22	5:27	5:32
5:42	5:52	5:57	6:02
6:12	6:21	6:25	6:30
6:45	6:53	6:57	7:01
7:15	7:23	7:27	7:31

Poway ➡ Sabre Springs

H Hilleary Pl. (Walmart) DEPART	F Poway Rd. & Bowron Rd.	E Poway Rd. & Pomerado Rd.	A Sabre Springs/Peñasquitos Transit Station ARRIVE
5:04a	5:07a	5:10a	5:19a
5:34	5:37	5:40	5:49
6:04	6:07	6:10	6:19
6:37	6:40	6:43	6:52
7:04	7:08	7:12	7:22
7:34	7:38	7:42	7:52
8:05	8:09	8:13	8:23
8:35	8:39	8:43	8:53
9:04	9:08	9:12	9:22
9:34	9:38	9:42	9:52
10:04	10:08	10:12	10:22
10:34	10:38	10:42	10:52
11:04	11:08	11:12	11:22
11:34	11:38	11:42	11:52
12:19p	12:23p	12:27p	12:37p
12:49	12:53	12:57	1:07
1:19	1:23	1:27	1:37
1:49	1:53	1:57	2:07
2:15	2:19	2:24	2:35
2:45	2:49	2:54	3:05
3:12	3:16	3:21	3:32
3:38	3:42	3:47	3:58
4:08	4:12	4:17	4:28
4:41	4:45	4:50	5:01
5:11	5:15	5:20	5:31
5:43	5:47	5:51	6:01
6:15	6:19	6:23	6:33
6:44	6:48	6:52	7:02

Route 944 – Saturday / sábado

Sabre Springs ➡ Poway

A Sabre Springs/Peñasquitos Transit Station DEPART	E Poway Rd. & Pomerado Rd.	F Poway Rd. & Bowron Rd.	H Hilleary Pl. (Walmart) ARRIVE
6:34a	6:42a	6:45a	6:49a
7:34	7:43	7:47	7:51
8:35	8:44	8:48	8:52
9:35	9:44	9:48	9:52
10:35	10:44	10:48	10:52
11:35	11:44	11:48	11:52
12:35p	12:44p	12:48p	12:52p
1:35	1:44	1:48	1:52
2:35	2:44	2:48	2:52
3:36	3:45	3:49	3:53
4:36	4:45	4:49	4:53
5:36	5:45	5:49	5:53
6:36	6:44	6:47	6:51

Poway ➡ Sabre Springs

H Hilleary Pl. (Walmart) DEPART	F Poway Rd. & Bowron Rd.	E Poway Rd. & Pomerado Rd.	A Sabre Springs/Peñasquitos Transit Station ARRIVE
6:03a	6:06a	6:09a	6:18a
7:00	7:04	7:08	7:18
8:00	8:04	8:08	8:18
9:00	9:04	9:08	9:18
10:02	10:06	10:10	10:20
11:02	11:06	11:10	11:20
12:02p	12:06p	12:10p	12:20p
1:02	1:06	1:10	1:20
2:02	2:06	2:10	2:20
3:02	3:06	3:10	3:20
4:02	4:06	4:10	4:20
5:02	5:06	5:10	5:20
6:04	6:07	6:11	6:20

Routes 944 and 945 do not operate on Sundays or on holidays that run a Sunday schedule. To determine which holidays run on a Sunday schedule, visit www.sdmts.com or call 511. / Las rutas 944 ni 945 no ofrecen servicio en los domingos ó los días festivos que operan con servicio de domingo. Para detalles sobre los días festivos que operan con servicio de domingo, visite www.sdmts.com o llame 511.

Route 945 – Monday through Friday / lunes a viernes

Rancho Bernardo ➡ Old Poway

B Rancho Bernardo Transit Station DEPART	C Pomerado Rd. & R. Bernardo Rd.	D Pomerado Rd. & Colony Dr.	E Poway Rd. & Pomerado Rd.	G Midland Rd. & Poway Rd.	I Temple St. & Midland Rd. ARRIVE
5:52a	6:01a	6:08a	6:15a	6:24a	6:27a
6:22	6:31	6:38	6:45	6:54	6:57
6:51	7:00	7:07	7:14	7:23	7:26
7:21	7:31	7:38	7:46	7:56	7:59
7:51	8:01	8:08	8:16	8:26	8:29
8:21	8:31	8:38	8:46	8:56	8:59
8:52	9:02	9:09	9:17	9:27	9:30
9:22	9:32	9:39	9:47	9:57	10:00
9:57	10:07	10:14	10:22	10:32	10:35
10:27	10:37	10:44	10:52	11:02	11:05
10:56	11:06	11:13	11:21	11:31	11:34
11:26	11:36	11:43	11:51	12:01p	12:04p
11:56	12:06p	12:13p	12:21p	12:31	12:34
12:26p	12:36	12:43	12:51	1:01	1:04
12:57	1:07	1:14	1:22	1:32	1:35
1:27	1:37	1:44	1:52	2:02	2:05
1:57	2:07	2:14	2:22	2:32	2:35
2:27	2:37	2:44	2:52	3:02	3:05
3:02	3:12	3:19	3:27	3:37	3:40
3:32	3:42	3:49	3:57	4:07	4:10
4:02	4:12	4:19	4:27	4:37	4:40
4:34	4:44	4:51	4:59	5:09	5:12
5:04	5:14	5:21	5:29	5:39	5:42
5:34	5:44	5:51	5:59	6:09	6:12
6:04	6:14	6:21	6:29	6:39	6:42
6:37	6:47	6:54	7:02	7:12	7:15
7:07	7:16	7:23	7:30	7:39	7:42
7:47	7:56	8:03	8:10	8:19	8:22

Old Poway ➡ Rancho Bernardo

RA

IO CARMEL Dr/SABRE SPRINGS Pkwy & TED WILLIS IS Pkwy EB

233 Program

Group Assignment:
Field Master Assignment:
System Reference Number:

N/S Street: RCH CARMEL/SABRE SPRINGS Last Database Change:
E/W Street: TED WILLIAMS Pkwy

Timing sheets by:

WXW

Approved by:

EFF

Timing implemented on: 1/18/05

		SABRE SPRINGS	TED WILLIAMS	RANCHO CARMEL					
Phase Numbers-->		1	2	3	4	5	6	7	8
Row									
0	Ped Walk		7		7		7		
1	Ped FDW		5		19		12		
2	Min Green	4	10		4		10		
3	Type 3 Disconnect								
4	Added per Vehicle								
5	Veh Extension	2.0	4.0		3.0		2.2		
6	Max Gap	2.0	4.0		3.0		2.2		
7	Min Gap	2.0	0.2		3.0		0.2		
8	Max Limit	30	60		50		60		
9	Max Limit 2								
A	Adv. / Delay Walk				10				
B	PE Min Ped FDW								
C	Cond Serv Check								
D	Reduce Every		0.8				1.5		
E	Yellow Change	3.4	4.6		3.9		4.7		
F	Red Clear	1.0	1.0		1.0		1.0		

Phase Timing - Bank 1 <F/1+Phase+Row>

Preempt Timing <F/1+E+Row>

Phase Functions <F/1+F+Row>

Current Calculated Cycle Length: C/0 + B + F

	9	A	B	C	D
Phase 1	---	---	---	---	---
Phase 2					
Phase 3					
Phase 4					
Phase 5					
Phase 6					
Phase 7					
Phase 8					
Max Initial					
Alternate Walk					
Alternate FDW					
Alternate Initial					
Alternate Extension					

Alternate Timing <F/1+Column+Phase>

Free Lag || 2 4 6 <C/1+F+0>

How to Set Page Access Code:
F/1 - C + 0 + F = 1

Drop Number	9	<C/0+0+0>
Zone Number	9	<C/0+0+1>
Area Number	1	<C/0+0+2>
Area Address	108	<C/0+0+3>
QuicNet Channel	59	(QuicNet)

Communication Addresses

Flash Start	0	<F/1+0+E>
Red Revert	5.0	<F/1+0+F>
All Red Start	0.0	<F/1+C+0>

Start / Revert Times

(Outputs specified in Assignable Outputs at E/127+A+E & F)

Exclusive Walk	0	<F/1+0+0>
Exclusive FDW	0	<F/1+0+1>
All Red Clear	0.0	<F/1+0+2>

Exclusive Ped Phase

Manual Plan	0	<C/0+A+1>
Manual Offset	0	<C/0+B+1>
All Red Start	0.0	<C/0+C+1>

Manual Selection

Notes: 233 PROGRAM IMPLEMENTED TO ALLOW FOR LEAD WALK INTERVAL

Row	Overlap							
	1	2	3	4	5	6	7	8
0	Load Switch Number							
1	Veh Set 1 - Phases							
2	Veh Set 2 - Phases							
3	Veh Set 3 - Phases							
4	Neg Veh Phases							
5	Neg Ped Phases							
6	Green Omit Phases							
7	Green Clear Omit Phs.							
8								
9								
A								
B								
C								
D	Green Clear							
E	Yellow Change							
F	Red Clear							

Overlap Assignments

<E/29+Column+Row>

Row	F
0	Fast Green Flash Phase
1	Green Flash Phases
2	Flashing Walk Phases
3	Guaranteed Passage
4	Simultaneous Gap Term
5	Sequential Timing
6	Advance Walk Phases
7	Delay Walk Phases
8	External Recall
9	Start-up Overlap Green
A	Max Extension
B	Inhibit Ped Reservice
C	Semi-Actuated
D	Start-up Overlap Yellow
E	Start-up Vehicle Calls
F	Start-up Ped Calls

Specials

<F/2+F+Row>

Row	E
0	Exclusive Phases
1	RR-1 Clear Phases
2	RR-2 Clear Phases
3	RR-2 Limited Service
4	Prot / Perm Phases
5	Flash to PE Circuits
6	Flash Entry Phases
7	Disable Yellow Range
8	Disable Ovp Yel Range
9	Overlap Yellow Flash
A	EV-A Phases
B	EV-B Phases
C	EV-C Phases
D	EV-D Phases
E	Extra 1 Config. Bits
F	IC Select (Interconnect)

Configuration

<E/125+E+Row>

Row	F
0	Ext. Permit 1 Phases
1	Ext. Permit 2 Phases
2	Exclusive Ped Assign
3	Preempt Non-Lock
4	12345678
5	Ped for 2P Output
6	2
7	Ped for 6P Output
8	6
9	Ped for 4P Output
10	4
11	Ped for 8P Output
12	
13	Yellow Flash Phases
14	Low Priority A Phases
15	Low Priority B Phases
16	Low Priority C Phases
17	Low Priority D Phases
18	Restricted Phases
19	Extra 2 Config. Bits

Configuration

<E/125+F+Row>

Row	C
0	EV-A
1	EV-B
2	EV-C
3	EV-D
4	RR-1 *
5	RR-2 *
6	SE-1
7	SE-2

<E/125+C+Row>

Preemption Priority

(* RR-1 is always Highest, and RR-2 is always Second Highest)

Row	2
0	Phase 1
1	Phase 2
2	Phase 3
3	Phase 4
4	Phase 5
5	Phase 6
6	Phase 7
7	Phase 8

Row	2
0	Phase 1
1	Phase 2
2	Phase 3
3	Phase 4
4	Phase 5
5	Phase 6
6	Phase 7
7	Phase 8

Coordination Transition Minimums

<C/5+2+Row>

Begin Month	0
Begin Week	0
End Month	0
End Week	0

<C/5+2+A>

<C/5+2+B>

<C/5+2+C>

<C/5+2+D>

Daylight Savings Time

Daylight Savings Date:

If set to all zeros, standard dates will be used.

Row		0	1	2	3	1	3
	Detector Name	C1 Pin Number	Attributes	Phase(s)	Assign	Delay	Carry-Over
0							
1	2I2U						
2	2I2L						1.8
3	2I3U						
4	2I3L						
5	2I4						
6	3I5						
7	4I6U					10.0	
8	4I6L						
9	4I7U						
A	4I7L						
B							
C							
D							
E							
F							

Row		4	5	6	7	2	4
	Detector Name	C1 Pin Number	Attributes	Phase(s)	Assign	Delay	Carry-Over
0							
1	6J2U						
2	6J2L						1.8
3	6J3U						
4	6J3L						
5	6J4						
6	7J5						
7	8J6U						
8	8J6L						
9	8J7U						
A	8J7L						
B							
C							
D							
E							
F							

Detector Assignments

<E/126+Column+Row>

<D/0+Column+Row>

Program Type:

Ped / Phase / Overlap							
1	2	3	4	5	6	7	8
Walk							
Don't Walk							
Phase Green							
Phase Yellow							
Phase Red							
Overlap Green							
Overlap Yellow							
Overlap Red							

Redirect Phase Outputs

<E/127+Column+Row>

Cabinet Type

<E/125+D+0>

Enable Redirection

(Enable Redirection = 30)

Max OFF (minutes) <D/0+0+1>Max ON (minutes) <D/0+0+2>

Detector Failure Monitor

D
Output Port 1
Output Port 2
Output Port 3
Output Port 4
Output Port 5
Output Port 6
Output Port 7

Dimming <E/125+D+Row>

B
DELAY-A 0
DELAY-B 0
DELAY-C 0
DELAY-D 0
DELAY-E 0
DELAY-F 0

<D/0+B+Row> (seconds)

Delay Logic Times

Omit Alarm <C/5+F+0>

Disable Alarm Reporting

Time <C/5+C+0>

Redial Time (minutes)

(View Redial Timer at E/2+D+6)

Detector Attributes

- 1 = Full Time Delay
- 2 = Ped Call
- 3 =
- 4 = Count
- 5 = Extension
- 6 = Type 3
- 7 = Calling
- 8 = Alternate

Det. Assignments

- 1 = Det. Set 1
- 2 = Det. Set 2
- 3 = Det. Set 3
- 4 =
- 5 =
- 6 = Failure - Min Recall
- 7 = Failure - Max Recall
- 8 = Report on Failure

D
Number of Digits
1 st Digit
2 ed Digit
3 ed Digit
4 th Digit
5 th Digit
6 th Digit
7 th Digit
8 th Digit
9 th Digit
10 th Digit
11 th Digit
12 th Digit
13 th Digit
14 th Digit
15 th Digit

<C/5+D+Row>

Dial-Back Telephone Number

C
DELAY-A 0
DELAY-B 0
DELAY-C 0
DELAY-D 0
DELAY-E 0
DELAY-F 0

<D/0+B+Row>

Delay Logic Times

Omit Alarm <C/5+F+0>

Disable Alarm Reporting

Time <C/5+C+0>

Redial Time (minutes)

(View Redial Timer at E/2+D+6)

RANCHO CARMEL Dr/SABRE SPRINGS Pkwy & TED WILLIAMS Pkwy EB

233 Program

Row	Time	Plan	Offset	Day of Week
0	07:00	2	A	23456
1	08:00	E	A	23456
2	16:00	4	A	23456
3	18:15	E	A	1234567
4				
5				
6				
7				
8				
9				
A				
B				
C				
D				
E				
F				

TOD Coordination <9/0.1+Row> TOD Function <7/0.1+Row> <E/27+4+Row>

Column 4	Phases/Bits
0	
1	
2	
3	
4	
5	
6	
7	
8	
9	
A	
B	
C	
D	
E	
F	

Row	Day	Year	Month	Holiday Type
0				
1				
2				
3				
4				
5				
6				
7				
8				
9				
A				
B				
C				
D				
E				
F				

Row	Time	Plan	Offset	Holiday Type
0				
1				
2				
3				
4				
5				
6				
7				
8				
9				
A				
B				
C				
D				
E				
F				

Row	Day	Year	Month	Holiday Type
0				
1				
2				
3				
4				
5				
6				
7				
8				
9				
A				
B				
C				
D				
E				
F				

T.O.D. Functions:
 0 =
 1 = Red Lock
 2 = Yellow Lock
 3 = Veh Min Recall
 4 = Ped Recall
 5 =
 6 = Rest In Walk
 7 = Red Rest
 8 = Double Entry
 9 = Veh Max Recall
 A = Veh Soft Recall
 B = Maximum 2
 C = Conditional Service
 D = Free Lag Phases
 E = Bit 1 - Local Override
 Bit 4 - Disable Detector OFF Monitor
 Bit 7 - Detector Count Monitor
 Bit 8 - Real Time Split Monitor
 F = Output Bits 1 thru 8

Plan Select:
 1 thru 9 = Coordination Plan 1 thru 9
 14 or E = Free
 15 or F = Flash

Month Select:
 1 = January
 2 = February
 3 = March
 4 = April
 5 = May
 6 = June
 7 = July
 8 = August
 9 = September
 A = October
 B = November
 C = December

Cycle Timer:
 Master: C/0 + A + 0
 Ring A: C/0 + B + 0
 Ring B: C/0 + D + 0.

Interval Timer:
 Ring A: F/0 + A + Interval Row
 Ring B: F/0 + B + Interval Row

 Master Plan: C/0 + A + 2
 Current Plan: C/0 + A + 3
 TOD Plan: C/0 + A + 5

Row	Time	Plan	Offset	Day of Week
0				
1				
2				
3				
4				
5				
6				
7				
8				
9				
A				
B				
C				
D				
E				
F				

Row	Time	Plan	Offset	Day of Week
0				
1				
2				
3				
4				
5				
6				
7				
8				
9				
A				
B				
C				
D				
E				
F				

Row	Day	Year	Month	Holiday Type
0				
1				
2				
3				
4				
5				
6				
7				
8				
9				
A				
B				
C				
D				
E				
F				

Row	Time	Plan	Offset	Holiday Type
0				
1				
2				
3				
4				
5				
6				
7				
8				
9				
A				
B				
C				
D				
E				
F				

Row	Day	Year	Month	Holiday Type
0				
1				
2				
3				
4				
5				
6				
7				
8				
9				
A				
B				
C				
D				
E				
F				

TOD Coordination <9/0.2+Row> Holiday Function <7/0.2+Row> <E/28+Row>

Holiday Dates <8/1.2+Row> (Bank 2)

Holiday Events <9/1.2+Row> (Bank 2)

Row	Plan Name ---->	Plan								
		1	2	3	4	5	6	7	8	9
0	Cycle Length		80		80					
1	Phase 1 - ForceOff		50		49					
2	Phase 2 - ForceOff									
3	Phase 3 - ForceOff									
4	Phase 4 - ForceOff		34		34					
5	Phase 5 - ForceOff									
6	Phase 6 - ForceOff									
7	Phase 7 - ForceOff									
8	Phase 8 - ForceOff									
9	Ring Offset									
A	Offset 1		7		69					
B	Offset 2									
C	Offset 3									
D	Perm 1 - End		10		10					
E	Hold Release		255		65					
F	Zone Offset		0		0					

Coordination - Timing Plans <C/1+Plan+Row>

Row										
0	Ped Adjustment									
1	Perm 2 - Start									
2	Perm 2 - End									
3	Perm 3 - Start									
4	Perm 3 - End									
5	Reservice Time									
6	Reservice Phases									
7										
8	Pretimed Phases									
9	Max Recall									
A	Perm 1 Veh Phase									
B	Perm 1 Ped Phase									
C	Perm 2 Veh Phase									
D	Perm 2 Ped Phase									
E	Perm 3 Veh Phase									
F	Perm 3 Ped Phase									

Coordination - Parameters <C/2+Plan+Row>

Row	E
0	
1	
2	
3	
4	
5	
6	
7	
8	
9	
A	
B	
C	
D	
E	
F	

Row	E
0	
1	
2	
3	
4	
5	
6	
7	
8	
9	
A	
B	
C	
D	
E	
F	

Sync Phases <C/1+E+Row>

Row	F
0	
1	
2	
3	
4	
5	
6	
7	
8	
9	
A	
B	
C	
D	
E	
F	

Row	F
0	
1	
2	
3	
4	
5	
6	
7	
8	
9	
A	
B	
C	
D	
E	
F	

Lag Phases <C/1+F+Row>

Coordination Timing B MBF
3/26/2001

Row	Column 9	Column A	Column B	Column C	Column D	Column E	Column F	Row
0	Spec. Funct. 1	NOT-3	Max 2	Pretimed	Set Monday	Dial 2 (7-Wire)	Sim Term	0
1	Spec. Funct. 2	NOT-4	System Det 1	Plan 1	Ext. Perm 1	Dial 3 (7-Wire)	EV-A	1
2	Spec. Funct. 3	OR-4 (a)	System Det 2	Plan 2	Ext. Perm 2	Offset 1 (7-Wire)	EV-B	2
3	Spec. Funct. 4	OR-4 (b)	System Det 3	Plan 3	Dimming	Offset 2 (7-Wire)	EV-C	3
4	NAND-3 (a)	OR-5 (a)	System Det 4	Plan 4	Set Clock	Offset 3 (7-Wire)	EV-D	4
5	NAND-3 (b)	OR-5 (b)	System Det 5	Plan 5	Stop Time	Free (7-Wire)	RR-1	5
6	NAND-4 (a)	OR-6 (a)	System Det 6	Plan 6	Flash Sense	81 Flash (7-Wire)	RR-2	6
7	NAND-4 (b)	OR-6 (b)	System Det 7	Plan 7	Manual Enable	Excl. Ped Omit	Spec. Event 1	7
8	OR-7 (a)	Fig 3 Diamond	System Det 8	Plan 8	Man. Advance	NOT-1	Spec. Event 2	8
9	OR-7 (b)	Fig 4 Diamond	Max Inhibit (nema)	Plan 9	External Alarm	NOT-2	External Lag	9
A	OR-7 (c)	AND-4 (a)	Force A (nema)	DELAY-A	Phase Bank 2	OR-1 (a)	AND-1 (a)	A
B	OR-7 (d)	AND-4 (b)	Force B (nema)	DELAY-B	Phase Bank 3	OR-1 (b)	AND-1 (b)	B
C	OR-8 (a)	NAND-1 (a)	C.N.A. (nema)	DELAY-C	Overlap Set 2	OR-2 (a)	AND-2 (a)	C
D	OR-8 (b)	NAND-1 (b)	Hold (nema)	DELAY-D	Overlap Set 3	OR-2 (b)	AND-2 (b)	D
E	OR-8 (c)	NAND-2 (a)	Max Recall	DELAY-E	Detector Set 2	OR-3 (a)	AND-3 (a)	E
F	OR-8 (d)	NAND-2 (b)	Min Recall	DELAY-F	Detector Set 3	OR-3 (b)	AND-3 (b)	F

Assignable Inputs

<E/126+Column+Row>

Row	Column 9	Column A	Column B	Column C	Column D	Column E	Column F	Row
0	Phase ON - 1	Preempt Fail	Flasher 0	Free	NOT-1	TOD Out 1	Dial 2 (7-Wire)	0
1	Phase ON - 2	Sp Evnt Out 1	Flasher 1	Plan 1	OR-1	TOD Out 2	Dial 3 (7-Wire)	1
2	Phase ON - 3	Sp Evnt Out 2	Fast Flasher	Plan 2	OR-2	TOD Out 3	Offset 1 (7-Wire)	2
3	Phase ON - 4	Sp Evnt Out 3	Fig 3 Diamond	Plan 3	OR-3	TOD Out 4	Offset 2 (7-Wire)	3
4	Phase ON - 5	Sp Evnt Out 4	Fig 4 Diamond	Plan 4	AND-1	TOD Out 5	Offset 3 (7-Wire)	4
5	Phase ON - 6	Sp Evnt Out 5		Plan 5	AND-2	TOD Out 6	Free (7-Wire)	5
6	Phase ON - 7	Sp Evnt Out 6		Plan 6	AND-3	TOD Out 7	Flash (7-Wire)	6
7	Phase ON - 8	Sp Evnt Out 7		Plan 7	NOT-2	TOD Out 8	Preempt	7
8	Ph. Check - 1	Sp Evnt Out 8	NOT-3	Plan 8	EV-A	Adv. Warn - 1	Low Priority A	8
9	Ph. Check - 2		NOT-4	Plan 9	EV-B	Adv. Warn - 2	Low Priority B	9
A	Ph. Check - 3	Detector Fail	OR-4	Spec. Funct. 3	EV-C	DELAY-A	Low Priority C	A
B	Ph. Check - 4	Spec. Funct. 1	OR-5	Spec. Funct. 4	EV-D	DELAY-B	Low Priority D	B
C	Ph. Check - 5	Spec. Funct. 2	OR-6	NAND-3	RR-1	DELAY-C		C
D	Ph. Check - 6	Central Control	AND-4	NAND-4	RR-2	DELAY-D		D
E	Ph. Check - 7	Excl. Ped DW	NAND-1	OR-7	Spec. Event 1	DELAY-E		E
F	Ph. Check - 8	Excl. Ped WK	NAND-2	OR-8	Spec. Event 2	DELAY-F		F

Assignable Outputs

<E/127+Column+Row>

INTERSECTION: Rancho Carmel Drive & Ted Williams Py WB

233 Pro

Group Assignment:
Field Master Assignment:
System Reference Number:

N/S Street: Rancho Carmel Drive
E/W Street: Ted Williams WB

Last Database Change:

Timing sheets by:

Approved by:

Timing implemented on:

FA1
EFF
10/15/12

Phase Numbers ->		Phase							
Row		1	2	3	4	5	6	7	8
0	Ped Walk		7				7		7
1	Ped FDW		6				5		
2	Min Green		10			4	10		10
3	Type 3 Disconnect								
4	Added per Vehicle								
5	Veh Extension		2.3			2.0	3.7		2.0
6	Max Gap		2.3			2.0	3.7		2.0
7	Min Gap		0.2			2.0	0.2		2.0
8	Max Limit		60			30	60		40
9	Max Limit 2								
A	Adv. / Delay Walk								
B	PE Min Ped FDW		1			1			
C	Cond Serv Check								
D	Reduce Every		1.5				0.9		
E	Yellow Change		4.5			3.4	4.7		6.0
F	Red Clear		1.0			1.0	1.0		1.0

Phase Timing - Bank 1 <F/1+Phase+Row>

Current Calculated Cycle Length: C/0 + B + F

	9	A	B	C	D
Phase 1	---	---	---	---	---
Phase 2					
Phase 3					
Phase 4					
Phase 5					
Phase 6					
Phase 7					
Phase 8					
Max Initial					
Alternate Walk					
Alternate FDW					
Alternate Initial					
Alternate Extension					
Alternate Timing	<F/1+Column+Phase>				

Free Lag 2 6 8 <C/1+F+0>

How to Set Page Access Code:
F/1 - C + 0 + F = 1

E		Row
RR-1 Delay		0
RR-1 Clear		1
EV-A Delay	0	2
EV-A Clear	0	3
EV-B Delay		4
EV-B Clear		5
EV-C Delay	0	6
EV-C Clear	0	7
EV-D Delay	0	8
EV-D Clear	0	9
RR-2 Delay		A
RR-2 Clear		B
View EV Delay	---	C
View EV Clear	---	D
View RR Delay	---	E
View RR Clear	---	F

Prompt Timing <F/1+E+Row> Phase Functions <F/1+F+Row>

Drop Number	7	<C/0+0+0>
Zone Number	7	<C/0+0+1>
Area Number	1	<C/0+0+2>
Area Address	109	<C/0+0+3>
QuicNet Channel	COM63:	(QuicNet)

(Outputs specified in Assignable Outputs at E/127+A+E & F)

Exclusive Walk	0	<F/1+0+0>
Exclusive FDW	0	<F/1+0+1>
All Red Clear	0.0	<F/1+0+2>

Exclusive Ped Phase

4 AL3

4/4/17

Communication Addresses

Flash Start	0	<F/1+0+E>
Red Revert	5.0	<F/1+0+F>
All Red Start	0.0	<F/1+C+0>

Manual Plan

0 = Automatic

1-9 = Plan 1-9

14 = Free

15 = Flash

Manual Offset

0 = Automatic

1 = Offset A

2 = Offset B

3 = Offset C

Manual Plan

0

14

Manual Offset

0

14

Manual Selection

Start / Revert Times

Notes: Drawing: 24451-2-D

Row		Overlap								F
		1	2	3	4	5	6	7	8	
0	Load Switch Number									
1	Veh Set 1 - Phases									
2	Veh Set 2 - Phases									
3	Veh Set 3 - Phases									
4	Neg Veh Phases									
5	Neg Ped Phases									
6	Green Omit Phases									
7	Green Clear Omit Phs.									
8										
9										
A										
B										
C										
D	Green Clear									
E	Yellow Change									
F	Red Clear									

Overlap Assignments

<E/29+Column+Row>

Row		E
0	Exclusive Phases	
1	RR-1 Clear Phases	
2	RR-2 Clear Phases	
3	RR-2 Limited Service	
4	Prot / Perm Phases	
5	Flash to PE Circuits	
6	Flash Entry Phases	
7	Disable Yellow Range	
8	Disable Ovp Yel Range	
9	Overlap Yellow Flash	
A	EV-A Phases	2 5
B	EV-B Phases	
C	EV-C Phases	1 6
D	EV-D Phases	8
E	Extra 1 Config. Bits	1 34
F	IC Select (Interconnect)	2

Configuration

<E/125+E+Row>

	F
Ext. Permit 1 Phases	
Ext. Permit 2 Phases	
Exclusive Ped Assign	
Preempt Non-Lock	12345678
Ped for 2P Output	2
Ped for 6P Output	6
Ped for 4P Output	
Ped for 8P Output	
Yellow Flash Phases	
Low Priority A Phases	
Low Priority B Phases	
Low Priority C Phases	
Low Priority D Phases	
Restricted Phases	
Extra 2 Config. Bits	

Configuration

<E/125+F+Row>

	C
EV-A	
EV-B	
EV-C	
EV-D	
RR-1 *	---
RR-2 *	---
SE-1	0
SE-2	0

<E/125+C+Row>

Preemption Priority

(* RR-1 is always Highest, and RR-2 is always Second Highest)

Row	
0	
1	
2	
3	
4	
5	
6	
7	
8	
9	
A	
B	
C	
D	
E	
F	

Row	
0	Phase 1
1	Phase 2
2	Phase 3
3	Phase 4
4	Phase 5
5	Phase 6
6	Phase 7
7	Phase 8
8	
9	
A	
B	
C	
D	
E	
F	

Coordination Transition Minimums

Begin Month	0
Begin Week	0
End Month	0
End Week	0

<C/5+2+A>

<C/5+2+B>

<C/5+2+C>

<C/5+2+D>

8-0 Hour, Minute, Day-of-Week

8-1 Day-of-Month, Year, Month

8-F Seconds

Time and Date

Daylight Savings Time

Daylight Savings Date:

If set to all zeros, standard dates will be used.

Row	Detector Name	C1 Pin Number	0	1	2	3	Delay	Carry-Over
			Attributes	Phase(s)	Assign			
0	212U	39	45_7	2	123	8		1.8
1	6J2U	40	45_7	6	123	8		1.8
2		41	45_7	4	123	8		
3		42	45_7	8	123	8		
4		43	45_7	2	123	8		
5		44	45_7	6	123	8		
6		45	45_7	4	123	8		
7	8J6L	46	45_7	8	123	8	10.0	
8		47	67	2	123	8		
9		48	67	6	123	8		
A		49	67	4	123	8		
B		50	67	8	123	8		
C		55	45_7	5	123	8		
D		56	45_7	1	123	8		
E		57	45_7	7	123	8		
F		58	45_7	3	123	8		

Row	Detector Name	C1 Pin Number	4	5	6	7	Delay	Carry-Over
			Attributes	Phase(s)	Assign			
0		59	45_7	5	123	8		
1		60	45_7	1	123	8		
2		61	45_7	7	123	8		
3		62	45_7	3	123	8		
4		63	45_7	2	123	8		
5	6J3U	64	45_7	6	123	8		1.8
6		65	45_7	4	123	8		
7		66	45_7	8	123	8		
8		67	2	2	123	8		
9		68	2	6	123	8		
A		69	2	4	123	8		
B		70	2	8	123	8		
C		76	45_7	2	123	8		
D		77	45_7	6	123	8		
E		78	45_7	4	123	8		
F		79	45_7	8	123	8		

Detector Assignments <E/126+Column+Row>

<D/0+Column+Row>

Ped / Phase / Overlap							
	1	2	3	4	5	6	7
Walk							
Don't Walk							
Phase Green							
Phase Yellow							
Phase Red							
Overlap Green							
Overlap Yellow							
Overlap Red							

Program Type: Redirect Phase Outputs <E/127+Column+Row>

Cabinet Type 0 <E/125+D+0>

Enable Redirection

(Enable Redirection = 30)

Max OFF (minutes) 5 <D/0+0+1>

Max ON (minutes) 60 <D/0+0+2>

Detector Failure Monitor

	D
Output Port 1	
Output Port 2	
Output Port 3	
Output Port 4	
Output Port 5	
Output Port 6	
Output Port 7	

Row 0 1 2 3 4 5 6 7

Dimming <E/125+D+Row>

Detector Attributes

1 = Full Time Delay
 2 = Ped Call
 3 =
 4 = Count
 5 = Extension
 6 = Type 3
 7 = Calling
 8 = Alternate

	D
Number of Digits	
1 st Digit	
2 ed Digit	
3 ed Digit	
4 th Digit	
5 th Digit	
6 th Digit	
7 th Digit	
8 th Digit	
9 th Digit	
10 th Digit	
11 th Digit	
12 th Digit	
13 th Digit	
14 th Digit	
15 th Digit	

Disable Alarms

1 = Stop Time
 2 = Flash Sense
 3 = Keyboard Entry
 4 = Manual Plan
 5 = Police Control
 6 = External Alarm
 7 = Detector Failure
 8 =

	B
DELAY-A	1
DELAY-B	1
DELAY-C	0
DELAY-D	0
DELAY-E	0
DELAY-F	0

Row A B C D E F

<D/0+B+Row> (seconds)

Delay Logic Times

Omit Alarm #NAME? <C/5+F+0>

Disable Alarm Reporting

Time 0 <C/5+C+0>

Redial Time (minutes)

(View Redial Timer at E/2+D+6)

<C/5+D+Row>

Dial-Back Telephone Number

INTERSECTION: Rancho Carmel Drive & Ted Williams Py WR

233 Program

Row	Time	Plan	Offset	Day of Week
0	07 : 00	2	A	23456
1	08 : 00	E	A	23456
2	16 : 00	4	A	23456
3	18 : 15	E	A	1234567
4				
5				
6				
7				
8				
9				
A				
B				
C				
D				
E				
F				

TOD Coordination <9/0.1+Row> TOD <7/0.1+Row> <E/27+4+Row>

> TOD <7/0.1+Row> <E/27+4+Row>
Function

Column 4		Row
Phases/Bits		0
2	5	1
2	6	2
2	5	3
2	6	4
		5
		6
		7
		8
		9
		A
		B
		C
		D
		E
		F

Holiday Dates <8/1.1+Row>

Holiday Events <9/1.1+Row>

T.O.D. Bits	
Row	0 =
1	1 = Red Lock
2	2 = Yellow Lock
3	3 = Veh Min Recall
4	4 = Ped Recall
5	=
6	6 = Rest In Walk
7	7 = Red Rest
8	8 = Double Entry
9	9 = Veh Max Recall
A	A = Veh Soft Recall
B	B = Maximum 2
C	C = Conditional Service
D	D = Free Lag Phases
E	E = Bit 1 - Local Override Bit 4 - Disable Detector OFF Monitor
F	Bit 7 - Detector Count Monitor
G	Bit 8 - Real Time Split Monitor
H	F = Output Bits 1 thru 8
I	Plan Select:
J	1 thru 9 = Coordination Plan 1 thru 9
K	14 or E = Freq.

Plan Select:
thru 9 = Coordination
Plan 1 thru 9
4 or E = Free
5 or F = Flash

Month Select:
1 = January
2 = February
3 = March
4 = April
5 = May
6 = June
7 = July
8 = August
9 = September
A = October
B = November
C = December

Row	Time	Plan	Offset	Day of Week
0				
1				
2				
3				
4				
5				
6				
7				
8				
9				
A				
B				
C				
D				
E				
F				

TOD Coordination <9/0.2+Row> Holiday <7/0.2+Row> <E/28+Row>
(Bank 2) . TOD Function

/> Holiday <7/0.2+Row> <E/28+Row> TOD Function

Column 4	Row 0
Phases/Bits	0
	1
	2
	3
	4
	5
	6
	7
	8
	9
	A
	B
	C
	D
	E
	F

Holiday Dates <8/1.2+Row>

Holiday Events <9/1.2+Row>

Row	
0	3 = March
1	4 = April
2	5 = May
3	6 = June
4	7 = July
5	8 = August
6	9 = September
7	A = October
8	B = November
9	C = December
	Cycle Timer:
	Master: C/0 + A + 0
	Ring A: C/0 + B + 0
	Ring B: C/0 + D + 0
	Interval Timer:
	Ring A: F/0 + A + Interval
	Row
	Ring B: F/0 + B + Interval
	Row
	Master Plan: C/0 + A + 2
	Current Plan: C/0 + A + 3
	TOD Plan: C/0 + A + 5

Cycle Timer:
Master: C/0 + A + 0
Ring A: C/0 + B + 0
Ring B: C/0 + D + 0

Interval Timer:
Ring A: F/0 + A + Interval
Row
Ring B: F/0 + B + Interval
Row

Master Plan: C/0 + A + 2
Current Plan: C/0 + A + 3
TOD Plan: C/0 + A + 5

Master Plan: C/0 + A + 2
Current Plan: C/0 + A + 3
TOD Plan: C/0 + A + 5

Master Plan: C/0 + A + 2
Current Plan: C/0 + A + 3
TOD Plan: C/0 + A + 5

INTERSECTION: Rancho Carmel Drive & Ted Williams Py V

233 Program

Row	Plan Name -->	Plan								
		2	3	4	5	6	7	8	9	
0	Cycle Length	80		80						
1	Phase 1 - ForceOff									
2	Phase 2 - ForceOff	0		0						
3	Phase 3 - ForceOff									
4	Phase 4 - ForceOff									
5	Phase 5 - ForceOff	37		31						
6	Phase 6 - ForceOff	0		0						
7	Phase 7 - ForceOff									
8	Phase 8 - ForceOff	22		16						
9	Ring Offset									
A	Offset 1	32		62						
B	Offset 2									
C	Offset 3									
D	Perm 1 - End	10		15						
E	Hold Release	255 70		255 70						
F	Zone Offset	0		0						

Coord Extra
1 = Programmed WALK Time for Sync Phases
2 = Always Terminate Sync Phase Peds

Row	5	Row
0		
1		
2	2 6	
3		
4	2 6	
5		
6		
7		
8		
9		
A		
B		
C		
D		
E		
F		

Sync Phases <C/1+E+Row>

04/13
4/4/17

Row	Ped Adjustment	0 10	0 10	0 10						
0	Perm 2 - Start									
1	Perm 2 - End									
2	Perm 3 - Start									
3	Perm 3 - End									
4	Reservice Time	0 52		0 52						
5	Reservice Phases	5		5						
6	Pretimed Phases									
7	Max Recall									
8	Perm 1 Veh Phase	12345678		12345678						
9	Perm 1 Ped Phase	12345678		12345678						
A	Perm 2 Veh Phase									
B	Perm 2 Ped Phase									
C	Perm 3 Veh Phase									
D	Perm 3 Ped Phase									

Coordination - Parameters <C/2+Plan+Row>

Row	F	Row
0	2 6 8	0
1		1
2	2 6 8	2
3		3
4	2 6 8	4
5		5
6		6
7		7
8		8
9		9
A		A
B		B
C		C
D		D
E		E
F		F

Lag Phases <C/1+F+Row>

Coordination Timing By:MBF

3/26/01

INTERSECTION: Rancho Carmel Drive & Ted Williams Py WB

Row	Column 9	Column A	Column B	Column C	Column D	Column E	Column F	Row
0	Spec. Funct. 1	NOT-3	Max 2	Pretimed	Set Monday	Dial 2 (7-Wire)	Sim Term	0
1	Spec. Funct. 2	NOT-4	System Det 1	Plan 1	Ext. Perm 1	Dial 3 (7-Wire)	EV-A	1
2	Spec. Funct. 3	OR-4 (a)	System Det 2	Plan 2	Ext. Perm 2	Offset 1 (7-Wire)	EV-B	2
3	Spec. Funct. 4	OR-4 (b)	System Det 3	Plan 3	Dimming	Offset 2 (7-Wire)	EV-C	3
4	NAND-3 (a)	OR-5 (a)	System Det 4	Plan 4	Set Clock	Offset 3 (7-Wire)	EV-D	4
5	NAND-3 (b)	OR-5 (b)	System Det 5	Plan 5	Stop Time	Free (7-Wire)	RR-1	5
6	NAND-4 (a)	OR-6 (a)	System Det 6	Plan 6	Flash Sense	81 Flash (7-Wire)	RR-2	6
7	NAND-4 (b)	OR-6 (b)	System Det 7	Plan 7	Manual Enable	Excl. Ped Omit	Spec. Event 1	7
8	OR-7 (a)	Fig 3 Diamond	System Det 8	Plan 8	Man. Advance	NOT-1	Spec. Event 2	8
9	OR-7 (b)	Fig 4 Diamond	Max Inhibit (nema)	Plan 9	External Alarm	NOT-2	External Lag	9
A	OR-7 (c)	AND-4 (a)	Force A (nema)	DELAY-A	Phase Bank 2	OR-1 (a)	AND-1 (a)	A
B	OR-7 (d)	AND-4 (b)	Force B (nema)	DELAY-B	Phase Bank 3	OR-1 (b)	AND-1 (b)	B
C	OR-8 (a)	NAND-1 (a)	C.N.A. (nema)	DELAY-C	Overlap Set 2	OR-2 (a)	AND-2 (a)	C
D	OR-8 (b)	NAND-1 (b)	Hold (nema)	DELAY-D	Overlap Set 3	OR-2 (b)	AND-2 (b)	D
E	OR-8 (c)	NAND-2 (a)	Max Recall	DELAY-E	Detector Set 2	OR-3 (a)	AND-3 (a)	E
F	OR-8 (d)	NAND-2 (b)	Min Recall	DELAY-F	Detector Set 3	OR-3 (b)	AND-3 (b)	F

Assignable Inputs

<E/126+Column+Row>

Row	Column 9	Column A	Column B	Column C	Column D	Column E	Column F	Row
0	Phase ON - 1	Preempt Fail	Flasher 0	Free	NOT-1	TOD Out 1	Dial 2 (7-Wire)	0
1	Phase ON - 2	Sp Evnt Out 1	Flasher 1	Plan 1	OR-1	TOD Out 2	Dial 3 (7-Wire)	1
2	Phase ON - 3	Sp Evnt Out 2	Fast Flasher	Plan 2	OR-2	TOD Out 3	Offset 1 (7-Wire)	2
3	Phase ON - 4	Sp Evnt Out 3	Fig 3 Diamond	Plan 3	OR-3	TOD Out 4	Offset 2 (7-Wire)	3
4	Phase ON - 5	Sp Evnt Out 4	Fig 4 Diamond	Plan 4	AND-1	TOD Out 5	Offset 3 (7-Wire)	4
5	Phase ON - 6	Sp Evnt Out 5		Plan 5	AND-2	TOD Out 6	Free (7-Wire)	5
6	Phase ON - 7	Sp Evnt Out 6		Plan 6	AND-3	TOD Out 7	Flash (7-Wire)	6
7	Phase ON - 8	Sp Evnt Out 7		Plan 7	NOT-2	TOD Out 8	Preempt	7
8	Ph. Check - 1	Sp Evnt Out 8	NOT-3	Plan 8	EV-A	Adv. Warn - 1	Low Priority A	8
9	Ph. Check - 2		NOT-4	Plan 9	EV-B	Adv. Warn - 2	Low Priority B	9
A	Ph. Check - 3	Detector Fail	OR-4	Spec. Funct. 3	EV-C	DELAY-A	Low Priority C	A
B	Ph. Check - 4	Spec. Funct. 1	OR-5	Spec. Funct. 4	EV-D	DELAY-B	Low Priority D	B
C	Ph. Check - 5	Spec. Funct. 2	OR-6	NAND-3	RR-1	DELAY-C		C
D	Ph. Check - 6	Central Control	AND-4	NAND-4	RR-2	DELAY-D		D
E	Ph. Check - 7	Excl. Ped DW	NAND-1	OR-7	Spec. Event 1	DELAY-E		E
F	Ph. Check - 8	Excl. Ped WK	NAND-2	OR-8	Spec. Event 2	DELAY-F		F

Assignable Outputs

<E/127+Column+Row>

INTERSECTION: PROVENCIAL & RANCHO CARMEL

Group Assignment
Field Master Assignment

Street Name: RANCHO CARMEL
E/W Street Name: PROVENCIAL

2 program

Timing Sheet By: MBF
Approved By: MM

Last Database Change:
System Ref. Number:
Drawing Number: 22917-19
Timing Implemented On: 1/17/02

Row	Column # -->	RANCHO CARMEL DR		PROVENCIAL PL		RANCHO CARMEL DR		PROVENCIAL PL		Phase
		Phase # -->								
0			→	↑		→	↑	↓	←	
1	Ped Walk			7				7		7
2	Ped FDW			17				5		19
3	Min Green	4	10			4	4	10		4
4	Type 3 Limit									
5	Add/Veh									
6	Veh Extn	2.0	4.0			2.0	2.0	5.1		2.0
7	Max Gap	2.0	4.0			2.0	2.0	5.1		2.0
8	Min Gap	2.0	0.2			2.0	2.0	0.2		2.0
9	Max Limit	30	60			40	30	60		40
10	Max Limit 2									
11	Bus Adv									
12	Call to Phs									
13	Reduce By		0.1					0.1		
14	Every		0.8					0.6		
15	Yellow	03.4 3.0	4.8	03.9 3.0	03.4 3.0	04.7 3.9		03.9 3.2		
16	Red Clear	1.0	1.0		1.0	1.0	1.0		1.0	

Phase Timing - Bank 1

F + Phase + Row

<F Page>

Max Initial	0
Red Rovert	5.0
All Red Start	0.0

F + 0 + E

F + 0 + F

F + C + O

Row	Overlap A	Overlap B	Overlap C	Overlap D
A				
B				
C				
D				

	A	B	C	D
	Green	Yellow	Red	Load-Switch #
Row	Clear	Change	Clear	Switch #
A				
B				
C				
D				

Start / Revert Times

Drop Number	3
Zone Number	
Area Number	
Area Address	
QuicNet Channel	

C + 0 + 0

C + 0 + 1

C + 0 + 2

C + 0 + 3

(QuicNet)

Overlap Timing

<F Page>

<D Page>

F + COLOR +

D + 0 + OVERLAP

Communication Addresses

C + F + O	Row
Free Lag	2 4 6 8

Lag Phases <C Page>

Downtime Flash 255 (minutes)

Downtime Before Auto Manual Flash

F + 0 + 8

Disable Ports 234

Disable Communication Ports

D + D + 9

INTERSECTION: PROVENCIAL & RANCHO CARMEL

223 Program

Row	Column F			
	Time	Function	Day of Week	Phases/Bits
0				
1				
2				
3				
4				
5				
6				
7				
8				
9				
A				
B				
C				
D				
E				
F				

TOD Function

7 + ROW

<D Page>

D + F + ROW

T.O.D. Functions

- 0 = Permitted Phases
- 1 = Red Lock
- 2 = Yellow Lock
- 3 = Veh Min Recall
- 4 = Ped Recall
- 5 =
- 6 = Rest In Walk
- 7 = Red Rest
- 8 = Double Entry
- 9 = Veh Max Recall
- A = Veh Soft Recall
- B = Maximum 2
- C = Conditional Service
- D = Free Lag Phases
- E = Bit 1 - Local Override
- Bit 2 - Phase Bank 2
- Bit 3 - Phase Bank 3
- Bit 4 - Disable Detector
- OFF Monitor
- Bit 7 - Detector Count Monitor
- Bit 8 - Real Time Split Monitor
- F = Output Bits 1 thru 4

Row	F	
0		
1	RR Overlap A - Phases	
2	RR Overlap B - Phases	
3	RR Overlap C - Phases	
4	RR Overlap D - Phases	
5	Ped 2P	2
6	Ped 6P	6
7	Ped 4P	
8	Ped 8P	8
9	Yellow Flash Phases	
A	Overlap A - Phases	
B	Overlap B - Phases	
C	Overlap C - Phases	
D	Overlap D - Phases	
E	Restricted Phases	
F	Assign 5 Outputs	

Configuration

E + F + ROW

<E Page>

Day of Week

- 1 = Sunday
- 2 = Monday
- 3 = Tuesday
- 4 = Wednesday
- 5 = Thursday
- 6 = Friday
- 7 = Saturday

Assign 5 Outputs

- 1 = Right Turn Overlap
- 2 = TOD Outputs
- 3 = EV Beacon - Steady
- 4 = EV Beacon - Flashing
- 5 = Special Event Outputs
- 6 = Phase 3 & 7 Ped
- 7 = Advanced Warning Sign
- 8 =

Row	E	
0	Exclusive Phases	
1	RR-1 Clear Phases	
2	RR-2 Clear Phases	
3	RR-2 Limited Service	
4	Prot / Perm Phases	
5	Overlap A - Green Omit	
6	Overlap B - Green Omit	
7	Overlap C - Green Omit	
8	Overlap D - Green Omit	
9	Overlap Yellow Flash	
A	EV-A Phases	2 5
B	EV-B Phases	
C	EV-C Phases	1 6
D	EV-D Phases	
E	Extra 1 Config. Bits	1 34
F	IC Select (Interconnect)	1 2

Configuration

For access, set F + 9 + E = 1

E + E + ROW

Extra 1 Flags

- 1 = TBC Type 1
- 2 = NEMA Ext. Coord
- 3 = Auto Daylight Savings
- 4 = EV Advance
- 5 = Remote Download
- 6 = Special Event
- 7 = Prefinred Operation
- 8 = Split Ring Operation

IC Select Flags

- 1 =
- 2 = Modem
- 3 = 7-Wire Slave
- 4 = Flash / Free
- 5 =
- 6 = Simplex Master
- 7 = 7-Wire Master
- 8 = Offset Interrupter

Time and Date

- 8-0 Hour, Minute, Day-of-Week
- 8-1 Day-of-Month, Year, Month
- 8-F Seconds

Program Information

- C + C + 0 = program
- C + 0 + 4 = 1-255
- C + C + F = version
- w/ E + E + E bit 5 on

Disable Parity

0

D+B+0

Dial-Up Telephone Communications

(If set to a non-zero value, parity will be disabled)

Row	1	3
Row	Delay	Carry-over
0		
1		1.8
2		
3		
4		
5		
6		
7		
8		
9		
A		
B		
C		
D		
E	---	---
F	---	---

Row	2	4
Row	Delay	Carry-over
0		
1		1.8
2		
3		
4		
5		
6		
7		
8		
9		
A		
B		
C		
D		
E	---	---
F	---	---

Detector Delay & Carryover <D Page>

D + X (across) + ROW

Detector Name	332 Input File	Detector Number
1I1		14
2I2U		1
2I2L		5
2I3U		21
2I3L		25
2I4		9
3I5		16
4I6U		3
4I6L		7
4I7U		23
4I7L		27
4I8		11
1I9U		18
3I9L		20
---		---
---		---

Detector Name	332 Input File	Detector Number
5J1		13
6J2U		2
6J2L		6
6J3U		22
6J3L		26
6J4		10
7J5		15
8J6U		4
8J6L		8
8J7U		24
8J7L		28
8J8		12
5J9U		17
7J9L		19
---		---
---		---

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 ---	1234
C	13 14 15 16 17 18 19 20	12345678
D	--- 21 22 23 24	5678
E	---	1234
F	--- 25 26 27 28 ---	2345

Active Detectors <D Page>

Row	Detector #
0	
1	
2	System Det. # 1
3	System Det. # 2
4	System Det. # 3
5	System Det. # 4
6	System Det. # 5
7	System Det. # 6
8	System Det. # 7
9	System Det. # 8

System Detectors <D Page>

Max ON (min)	5	D+A+E
Max OFF (min)	60	D+A+F

Detector Failure Monitor

Phase Number	F+C+1
Time Before Yellow	F+C+3

Advance Warning Beacon - Sign 1

Phase Number	F+D+1
Time Before Yellow	F+D+3

Advance Warning Beacon - Sign 2

Long Failure	0.5	F+0+6
Short Failure	0.5	F+0+7

Power Cycle Correction (Default = 0.5)

223 Program

INTERSECTION: PROVENCIAL & RANCHO CARMEL

Row	Column # -->	Plan							
		1	2	3	4	5	6	7	8
0	Plan Name -->								
1	Cycle Length		80		80				
2	Phase 1 - ForceOff		0 50 49		0 49 48				
3	Phase 2 - ForceOff								
4	Phase 3 - ForceOff								
5	Phase 4 - ForceOff		34		34				
6	Phase 5 - ForceOff		0 50 49		0 49 48				
7	Phase 6 - ForceOff								
8	Phase 7 - ForceOff								
9	Phase 8 - ForceOff		34		34				
10	Ring Offset								
11	Offset A		78		65				
12	Offset B								
13	Offset C								
14	Permissive		10		15				
15	Hold Release		65		65				
16	Ped Shift		0		0				

Coordination

<C Page>

C + Plan + ROW

Row	Time	Plan	Offset	Day of Week
0	07 : 00	2	A	_23456_
1	08 : 00	E	A	_23456_
2	16 : 00	4	A	_23456_
3	18 : 15	E	A	1234567
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

TOD Coordination

<9 Key with C+0+9=1>

Plan Select
1 thru 9 = Coordination
Plan 1 thru 9
14 or E = Free
15 or F = Flash

Row	Sync Phases	Lag Phases	<C Page>
0	Free Lag	2 4 6 8	
1	Plan 1 - Lag		
2	2 6	2 4 6 8	
3	Plan 3 - Lag		
4	2 6	2 4 6 8	
5	Plan 5 - Lag		
6	Plan 6 - Lag		
7	Plan 7 - Lag		
8	Plan 8 - Lag		
9	Plan 9 - Lag		
10	Coord Max *		
11	Coord Lag *		
12			
13			
14			
15			
16			
17			
18			
19			
20			

Sync Phases
C + E + FUNCTION #

Lag Phases
C + F + FUNCTION #

Transition Type	0
TBC Transition	
C + D + D	
Transition Type	
0 = Shortway	
Non-zero = Lengthen	

Coordination Timing By: MBF
Implemented On: 3/26/01

FOR OBSERVATION ONLY

Master Plan	C + A + 2
Current Plan	C + A + 3
Next Plan	C + A + 4
T.O.D. Plan	C + A + 5
Master Cycle	C + A + 0
Ring A Cycle	C + B + 0
Ring B Cycle	C + D + 0
Min Cycle	C + A + E
Max Cycle	C + B + E

INTERSECTION: RANCHO CARMEL & SHOAL CREEK

Group Assignment:
Field Master Assignment:



	RANCHO CARMEL DR			Phase			RANCHO CARMEL DR		SHOAL CREEK DR		
Row	Column #	Phase #		1	2	3	4	5	6	7	8
0											
1	Ped Walk										
2	Ped FDW										
3	Min Green	4	10				4	10		4	
4	Type 3 Limit										
5	Add/Veh										
6	Veh Extn	2.0	4.0				2.0	4.8		2.0	
7	Max Gap	2.0	4.0				2.0	4.8		2.0	
8	Min Gap	2.0	0.2				2.0	0.2		2.0	
9	Max Limit	30	60				30	60		40	
10	Max Limit 2										
A	Bus Adv										
B	Call to Phs										
C	Reduce By		0.1					0.1			
D	Every		0.8					0.7			
E	Yellow	3.0	4.5				3.0	4.2		3.0	
F	Red Clear	1.0	1.0				1.0	1.0		1.0	

Phase Timing - Bank 1

F + Phase + Row

<F Page>

Max Initial	0
Red Revert	5.0
All Red Start	0.0

Start / Revert Times

Drop Number	4
Zone Number	
Area Number	
Area Address	
QuicNet Channel	

Communication Addresses

C + F + O	P	Row
Free Lag	2 6 8	0

Lag Phases <C Page>

Row	A	B	C	D
A	Overlap A			
B	Overlap B			
C	Overlap C			
D	Overlap D			

Overlap Timing <F Page>

F + COLOR +

<D Page>

D + 0 + OVERLAP

Downtime Flash 255 (minutes)

Downtime Before Auto Manual Flash

F + 0 + 8

Timing Sheet By: MBF
Approved By: MN

Last Database Change:
System Ref. Number:
Drawing Number:
Timing Implemented On:

Program

RR-1 Delay	
RR-1 Clear	
EV-A Delay	0
EV-A Clear	0
EV-B Delay	
EV-B Clear	
EV-C Delay	0
EV-C Clear	0
EV-D Delay	0
EV-D Clear	0
RR-2 Delay	
RR-2 Clear	
View EV Delay	---
View EV Clear	---
View RR Delay	---
View RR Clear	---

Preempt Timing
F + E + Row <F Page>

Manual Plan	0
Manual Offset	0

C + A + 1
C + B + 1

Manual Selection

Manual Plan

0 = Automatic

1-9 = Plan 1-9

14 = Free

15 = Flash

Manual Offset

0 = Automatic

1 = Offset A

2 = Offset B

3 = Offset C

Disable Ports 234

Disable Communication Ports

D + D + 9

INTERSECTION: RANCHO CARMEL & SHOAL CREEK

223 Program

Row	Column F			
	Time	Function	Day of Week	Phases/Bits
0				
1				
2				
3				
4				
5				
6				
7				
8				
9				
A				
B				
C				
D				
E				
F				

TOD Function

7 + ROW

<D Page>

D + F + ROW

T.O.D. Functions
 0 = Permitted Phases
 1 = Red Lock
 2 = Yellow Lock
 3 = Veh Min Recall
 4 = Ped Recall
 5 =
 6 = Rest In Walk
 7 = Red Rest
 8 = Double Entry
 9 = Veh Max Recall
 A = Veh Soft Recall
 B = Maximum 2
 C = Conditional Service
 D = Free Lag Phases
 E = Bit 1 - Local Override
 Bit 2 - Phase Bank 2
 Bit 3 - Phase Bank 3
 Bit 4 - Disable Detector
 OFF Monitor
 Bit 7 - Detector Count Monitor
 Bit 8 - Real Time Split Monitor
 F = Output Bits 1 thru 4

Row	Column F
0	
1	RR Overlap A - Phases
2	RR Overlap B - Phases
3	RR Overlap C - Phases
4	RR Overlap D - Phases
5	Ped 2P <u>2</u>
6	Ped 6P
7	Ped 4P
8	Ped 8P <u>8</u>
9	Yellow Flash Phases
A	Overlap A - Phases
B	Overlap B - Phases
C	Overlap C - Phases
D	Overlap D - Phases
E	Restricted Phases
F	Assign 5 Outputs

Configuration

<E Page>

E + F + ROW

Row		E
0	Exclusive Phases	
1	RR-1 Clear Phases	
2	RR-2 Clear Phases	
3	RR-2 Limited Service	
4	Prot / Perm Phases	
5	Overlap A - Green Omit	
6	Overlap B - Green Omit	
7	Overlap C - Green Omit	
8	Overlap D - Green Omit	
9	Overlap Yellow Flash	
A	EV-A Phases	<u>2</u> <u>5</u>
B	EV-B Phases	
C	EV-C Phases	<u>1</u> <u>6</u>
D	EV-D Phases	<u>8</u>
E	Extra 1 Config. Bits	<u>1</u> <u>34</u>
F	IC Select (Interconnect)	<u>2</u>

Configuration

For access, set F + 9 + E = 1

E + E + ROW

Extra 1 Flags

1 = TBC Type 1
 2 = NEMA Ext. Coord
 3 = Auto Daylight Savings
 4 = EV Advance
 5 = Remote Download
 6 = Special Event
 7 = Pretimed Operation
 8 = Split Ring Operation

IC Select Flags

1 =
 2 = Modem
 3 = 7-Wire Slave
 4 = Flash / Free
 5 =
 6 = Simplex Master
 7 = 7-Wire Master
 8 = Offset Interrupter

Day of Week

1 = Sunday
 2 = Monday
 3 = Tuesday
 4 = Wednesday
 5 = Thursday
 6 = Friday
 7 = Saturday

Assign 5 Outputs

1 = Right Turn Overlap
 2 = TOD Outputs
 3 = EV Beacon - Steady
 4 = EV Beacon - Flashing
 5 = Special Event Outputs
 6 = Phase 3 & 7 Ped
 7 = Advanced Warning Sign
 8 =

Time and Date

8-0 Hour, Minute, Day-of-Week
 8-1 Day-of-Month, Year, Month
 8-F Seconds

Program Information

C + C + 0 = program
 C + 0 + 4 = 1-255
 C + C + F = version
 w/ E + E + E bit 5 on

Remote Download

Disable Parity 0 D+B+0

Dial-Up Telephone Communications

(If set to a non-zero value, parity will be disabled)

Row	1	3
	Delay	Carry-over
C		
1		1.8
2		
3		
4		
5		
6		
7		
8		
9		
A		
B		
C		
D		
E	---	---
F	---	---

Row	2	4
	Delay	Carry-over
G		
1		1.8
2		
3		
4		
5		
6		
7		
8		10.0
9		
A		
B		
C		
D		
E	---	---
F	---	---

Detector Delay & Carryover <D Page>

D + X (across) + ROW

Detector Name	332 Input File	Detector Number
1I1		14
2I2U		1
2I2L		5
2I3U		21
2I3L		25
2I4		9
3I5		16
4I6U		3
4I6L		7
4I7U		23
4I7L		27
4I8		11
1I9U		18
3I9L		20
---	---	---
---	---	---

Row
A
B
C
D
E
F

Detector Numbers	Detector #
1 2 3 4 5 6 7 8	12345678
9 10 11 12 ---	1234
13 14 15 16 17 18 19 20	12345678
--- 21 22 23 24	5678
--- --- ---	1234
--- 25 26 27 28 ---	2345

Active Detectors <D Page>

Row
0
1
2
3
4
5
6
7
8

Detector #
System Det. # 1
System Det. # 2
System Det. # 3
System Det. # 4
System Det. # 5
System Det. # 6
System Det. # 7
System Det. # 8

System Detectors <D Page>

Max ON (min)	5
Max OFF (min)	60

Detector Failure Monitor

Phase Number	F+C+1
Time Before Yellow	F+C+3

Advance Warning Beacon - Sign 1

Phase Number	F+D+1
Time Before Yellow	F+D+3

Advance Warning Beacon - Sign 2

Long Failure	0.5
Short Failure	0.5

Power Cycle Correction (Default = 0.5)

INTERSECTION: RANCHO CARMEL & SHOAL CREEK

223 Program

Row	Column # -->	Plan					
		1	2	3	4	5	6
0	Cycle Length		80		80		
1	Phase 1 - ForceOff		47		46		
2	Phase 2 - ForceOff						
3	Phase 3 - ForceOff						
4	Phase 4 - ForceOff						
5	Phase 5 - ForceOff		47		46		
6	Phase 6 - ForceOff						
7	Phase 7 - ForceOff						
8	Phase 8 - ForceOff		32		32		
9	Ring Offset						
10	Offset A		53		32		
11	Offset B						
12	Offset C						
13	Permissive		10		15		
14	Hold Release		255		255		
15	Ped Shift		0		0		

Coordination

<C Page>

C + Plan + ROW

Row	Time	Plan	Offset	Day of Week
0	07 : 00	2	A	_23456_
1	08 : 00	E	A	_23456_
2	16 : 00	4	A	_23456_
3	18 : 15	E	A	1234567
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

TOD Coordination

<9 Key with C+0+9=1>

Plan Select
 1 thru 9 = Coordination
 Plan 1 thru 9
 14 or E = Free
 15 or F = Flash

Row	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Plan 1																
Plan 2			2	6												
Plan 3																
Plan 4					2	6										
Plan 5																
Plan 6																
Plan 7																
Plan 8																
Plan 9																
Coord Ped*																
NEMA Hold																

Sync Phases

C + E + FUNCTION #

Lag Phases <C Page>

C + F + FUNCTION #

Transition Type	0
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TBC Transition
C + D + D

Transition Type
0 = Shortway
Non-zero = Lengthen

Coordination Timing By: MBF
 Implemented On: 3/26/01

FOR OBSERVATION ONLY

Master Plan	C + A + 2
Current Plan	C + A + 3
Next Plan	C + A + 4
T.O.D. Plan	C + A + 5
Master Cycle	C + A + 0
Ring A Cycle	C + B + 0
Ring B Cycle	C + D + 0
Min Cycle	C + A + E
Max Cycle	C + B + E

APPENDIX B

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – EXISTING

HCM 6th Signalized Intersection Summary
1: I-15 SB Ramps & SR 56

Ex AM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1656	579	0	1536	883	0	0	0	154	37	0
Future Volume (veh/h)	0	1656	579	0	1536	883	0	0	0	154	37	0
Initial Q (Q _b), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	1725	603	0	1600	0				100	124	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	3766	1132	0	2621					281	295	
Arrive On Green	0.00	0.74	0.74	0.00	1.00	0.00				0.16	0.16	0.00
Sat Flow, veh/h	0	5274	1535	0	3647	1585				1781	1870	3170
Grp Volume(v), veh/h	0	1725	603	0	1600	0				100	124	0
Grp Sat Flow(s), veh/h/ln	0	1702	1535	0	1777	1585				1781	1870	1585
Q Serve(g_s), s	0.0	16.1	20.4	0.0	0.0	0.0				6.0	7.2	0.0
Cycle Q Clear(g_c), s	0.0	16.1	20.4	0.0	0.0	0.0				6.0	7.2	0.0
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	3766	1132	0	2621					281	295	
V/C Ratio(X)	0.00	0.46	0.53	0.00	0.61					0.36	0.42	
Avail Cap(c_a), veh/h	0	3766	1132	0	2621					281	295	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	1.00	0.00	0.53	0.00				1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	6.2	6.8	0.0	0.0	0.0				45.1	45.6	0.0
Incr Delay (d2), s/veh	0.0	0.4	1.8	0.0	0.6	0.0				3.5	4.4	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
%ile BackOfQ(50%), veh/ln	0.0	5.2	6.4	0.0	0.2	0.0				2.9	3.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	6.6	8.6	0.0	0.6	0.0				48.6	50.0	0.0
LnGrp LOS	A	A	A	A	A					D	D	
Approach Vol, veh/h		2328			1600	A					224	A
Approach Delay, s/veh		7.2			0.6						49.4	
Approach LOS		A			A						D	
Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+R _c), s		96.0		24.0		96.0						
Change Period (Y+R _c), s		7.5		5.1		7.5						
Max Green Setting (Gmax), s		88.5		18.9		88.5						
Max Q Clear Time (g _{c+l1}), s		22.4		9.2		2.0						
Green Ext Time (p _c), s		17.2		0.4		12.8						

Intersection Summary

HCM 6th Ctrl Delay	6.9
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
2: I-15 NB Ramps & SR 56

Ex AM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	940	1068	0	1644	244	510	30	410	0	0	0
Future Volume (veh/h)	0	940	1068	0	1644	244	510	30	410	0	0	0
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.96			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	0	1068	1214	0	1868	277	604	0	466			
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88			
Percent Heavy Veh, %	0	2	2	0	2	2	2	2	2			
Cap, veh/h	0	3604	2433	0	2508	1097	674	0	576			
Arrive On Green	0.00	1.00	1.00	0.00	0.71	0.71	0.19	0.00	0.19			
Sat Flow, veh/h	0	5274	2700	0	3647	1554	3563	0	3047			
Grp Volume(v), veh/h	0	1068	1214	0	1868	277	604	0	466			
Grp Sat Flow(s), veh/h/ln	0	1702	1350	0	1777	1554	1781	0	1523			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	39.1	7.7	19.9	0.0	17.6			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	39.1	7.7	19.9	0.0	17.6			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	3604	2433	0	2508	1097	674	0	576			
V/C Ratio(X)	0.00	0.30	0.50	0.00	0.74	0.25	0.90	0.00	0.81			
Avail Cap(c_a), veh/h	0	3604	2433	0	2508	1097	721	0	617			
HCM Platoon Ratio	1.00	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	0.00	0.89	0.89	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	10.9	6.3	47.5	0.0	46.6			
Incr Delay (d2), s/veh	0.0	0.2	0.7	0.0	2.1	0.6	12.7	0.0	6.7			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%), veh/ln	0.0	0.1	0.2	0.0	14.4	2.5	10.0	0.0	7.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.2	0.7	0.0	13.0	6.9	60.2	0.0	53.3			
LnGrp LOS	A	A	A	A	B	A	E	A	D			
Approach Vol, veh/h	2282			2145			1070					
Approach Delay, s/veh	0.4			12.2			57.2					
Approach LOS	A			B			E					
Timer - Assigned Phs	2			6			8					
Phs Duration (G+Y+Rc), s	92.2			92.2			27.8					
Change Period (Y+Rc), s	7.5			7.5			5.1					
Max Green Setting (Gmax), s	83.1			83.1			24.3					
Max Q Clear Time (g_c+l1), s	2.0			41.1			21.9					
Green Ext Time (p_c), s	13.3			17.0			0.8					
Intersection Summary												
HCM 6th Ctrl Delay		16.1										
HCM 6th LOS		B										
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary
3: Sabre Springs Rd & Ted Williams Pkwy EB Ramps

Ex AM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑↑↑					↑↑↑		↑	↑↑	
Traffic Volume (veh/h)	150	0	408	0	0	0	0	394	117	23	366	0
Future Volume (veh/h)	150	0	408	0	0	0	0	394	117	23	366	0
Initial Q (Q _b), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94				1.00		0.97	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
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	160	0	434				0	419	124	24	389	0
Peak Hour Factor	0.94	0.94	0.94				0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	734	0	613				0	2944	801	37	2350	0
Arrive On Green	0.21	0.00	0.21				0.00	0.59	0.59	0.04	1.00	0.00
Sat Flow, veh/h	3563	0	2976				0	5287	1367	1781	3647	0
Grp Volume(v), veh/h	160	0	434				0	401	142	24	389	0
Grp Sat Flow(s), veh/h/ln	1781	0	1488				0	1609	1567	1781	1777	0
Q Serve(g_s), s	3.0	0.0	10.8				0.0	3.0	3.3	1.1	0.0	0.0
Cycle Q Clear(g_c), s	3.0	0.0	10.8				0.0	3.0	3.3	1.1	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.87	1.00		0.00
Lane Grp Cap(c), veh/h	734	0	613				0	2827	918	37	2350	0
V/C Ratio(X)	0.22	0.00	0.71				0.00	0.14	0.15	0.65	0.17	0.00
Avail Cap(c_a), veh/h	1608	0	1343				0	2827	918	191	2350	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(l)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.4	0.0	29.5				0.0	7.5	7.5	38.1	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	1.5				0.0	0.1	0.4	7.0	0.2	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
%ile BackOfQ(50%), veh/ln	1.3	0.0	3.9				0.0	0.9	1.1	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	26.5	0.0	31.0				0.0	7.6	7.9	45.1	0.2	0.0
LnGrp LOS	C	A	C				A	A	A	D	A	A
Approach Vol, veh/h		594						543			413	
Approach Delay, s/veh		29.8						7.7			2.8	
Approach LOS		C						A			A	
Timer - Assigned Phs	1	2	4		6							
Phs Duration (G+Y+Rc), s	6.1	52.6	21.4		58.6							
Change Period (Y+Rc), s	4.4	* 5.7	4.9		5.7							
Max Green Setting (Gmax), s	8.6	* 20	36.1		33.3							
Max Q Clear Time (g_c+l1), s	3.1	5.3	12.8		2.0							
Green Ext Time (p_c), s	0.0	4.2	2.5		2.0							
Intersection Summary												
HCM 6th Ctrl Delay			14.9									
HCM 6th LOS			B									
Notes												
User approved volume balancing among the lanes for turning movement.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary
4: Sabre Springs Rd/Rancho Carmel Dr & Ted Williams Pkwy WB Ramps

Ex AM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑	↑	↑↑	↑↑		↑↑	↑↑	↑↑
Traffic Volume (veh/h)	0	0	0	154	8	33	295	268	0	0	205	278
Future Volume (veh/h)	0	0	0	154	8	33	295	268	0	0	205	278
Initial Q (Q _b), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.95	1.00		1.00	1.00		0.96
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No		No		No		No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				169	9	36	324	295	0	0	225	305
Peak Hour Factor				0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				229	12	203	420	2510	0	0	1883	1425
Arrive On Green				0.23	0.23	0.23	0.12	0.71	0.00	0.00	0.89	0.89
Sat Flow, veh/h				1695	90	1506	3456	3647	0	0	3647	2689
Grp Volume(v), veh/h				178	0	36	324	295	0	0	225	305
Grp Sat Flow(s), veh/h/ln				1786	0	1506	1728	1777	0	0	1777	1344
Q Serve(g_s), s				7.4	0.0	1.5	7.3	2.1	0.0	0.0	0.7	1.3
Cycle Q Clear(g_c), s				7.4	0.0	1.5	7.3	2.1	0.0	0.0	0.7	1.3
Prop In Lane				0.95		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				241	0	203	420	2510	0	0	1883	1425
V/C Ratio(X)				0.74	0.00	0.18	0.77	0.12	0.00	0.00	0.12	0.21
Avail Cap(c_a), veh/h				536	0	452	803	2510	0	0	1883	1425
HCM Platoon Ratio				1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.67	1.67
Upstream Filter(l)				1.00	0.00	1.00	0.99	0.99	0.00	0.00	0.99	0.99
Uniform Delay (d), s/veh				29.7	0.0	27.4	34.1	3.8	0.0	0.0	2.2	2.2
Incr Delay (d2), s/veh				1.7	0.0	0.2	1.1	0.1	0.0	0.0	0.1	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(50%), veh/ln				3.0	0.0	0.5	3.0	0.6	0.0	0.0	0.2	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				31.4	0.0	27.6	35.2	3.9	0.0	0.0	2.3	2.6
LnGrp LOS				C	A	C	D	A	A	A	A	A
Approach Vol, veh/h					214			619			530	
Approach Delay, s/veh					30.7			20.3			2.5	
Approach LOS					C			C			A	
Timer - Assigned Phs				2		5	6		8			
Phs Duration (G+Y+Rc), s				62.2		14.1	48.1		17.8			
Change Period (Y+Rc), s				* 5.7		4.4	5.7		7.0			
Max Green Setting (Gmax), s				* 44		18.6	20.3		24.0			
Max Q Clear Time (g_c+l1), s				4.1		9.3	3.3		9.4			
Green Ext Time (p_c), s				1.6		0.5	3.3		0.6			
Intersection Summary												
HCM 6th Ctrl Delay				15.0								
HCM 6th LOS				B								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary
5: Rancho Carmel Dr & Provencal Pl

Ex AM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	4	117	0	33	4	245	20	31	391	6
Future Volume (veh/h)	3	1	4	117	0	33	4	245	20	31	391	6
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	0.99		0.96	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	1	4	121	0	34	4	253	21	32	403	6
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	97	46	81	292	0	270	8	2017	166	45	2256	34
Arrive On Green	0.18	0.18	0.18	0.18	0.00	0.18	0.01	1.00	1.00	0.05	1.00	1.00
Sat Flow, veh/h	201	257	458	1140	0	1520	1781	3314	273	1781	3582	53
Grp Volume(v), veh/h	8	0	0	121	0	34	4	135	139	32	200	209
Grp Sat Flow(s), veh/h/ln	916	0	0	1140	0	1520	1781	1777	1810	1781	1777	1859
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	1.5	0.2	0.0	0.0	1.4	0.0	0.0
Cycle Q Clear(g_c), s	9.1	0.0	0.0	9.1	0.0	1.5	0.2	0.0	0.0	1.4	0.0	0.0
Prop In Lane	0.37		0.50	1.00		1.00	1.00		0.15	1.00		0.03
Lane Grp Cap(c), veh/h	224	0	0	292	0	270	8	1081	1101	45	1119	1170
V/C Ratio(X)	0.04	0.00	0.00	0.41	0.00	0.13	0.53	0.12	0.13	0.71	0.18	0.18
Avail Cap(c_a), veh/h	502	0	0	552	0	553	102	1081	1101	169	1119	1170
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99
Uniform Delay (d), s/veh	27.4	0.0	0.0	30.8	0.0	27.7	39.6	0.0	0.0	37.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.3	0.0	0.1	19.5	0.2	0.2	7.2	0.3	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.1	0.0	0.0	2.1	0.0	0.5	0.1	0.1	0.1	0.7	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	27.4	0.0	0.0	31.2	0.0	27.8	59.1	0.2	0.2	44.9	0.3	0.3
LnGrp LOS	C	A	A	C	A	C	E	A	A	D	A	A
Approach Vol, veh/h		8			155			278			441	
Approach Delay, s/veh	27.4				30.4			1.1			3.6	
Approach LOS		C			C			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	54.5		19.1	4.7	56.2		19.1				
Change Period (Y+Rc), s	4.4	5.8		4.9	4.4	* 5.8		4.9				
Max Green Setting (Gmax), s	7.6	28.2		29.1	4.6	* 31		29.1				
Max Q Clear Time (g_c+l1), s	3.4	2.0		11.1	2.2	2.0		11.1				
Green Ext Time (p_c), s	0.0	2.3		0.0	0.0	5.0		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			7.7									
HCM 6th LOS			A									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary
6: Rancho Carmel Dr & Shoal Creek Dr

Ex AM
02/20/2020



Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↑ ↗	↗ ↘	↖ ↗	↑ ↗ ↘		↖ ↗	↑ ↗ ↘
Traffic Volume (veh/h)	77	103	0	278	48	68	309
Future Volume (veh/h)	77	103	0	278	48	68	309
Initial Q (Q _b), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00			0.96	1.00	
Parking Bus, Adj	1.00	1.00			1.00	1.00	1.00
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	87	116		312	54	76	347
Peak Hour Factor	0.89	0.89		0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	646	575		1247	213	98	1843
Arrive On Green	0.36	0.36		0.83	0.83	0.06	0.52
Sat Flow, veh/h	1781	1585		3108	514	1781	3647
Grp Volume(v), veh/h	87	116		182	184	76	347
Grp Sat Flow(s), veh/h/ln	1781	1585		1777	1752	1781	1777
Q Serve(g_s), s	2.6	4.0		1.8	1.8	3.4	4.2
Cycle Q Clear(g_c), s	2.6	4.0		1.8	1.8	3.4	4.2
Prop In Lane	1.00	1.00			0.29	1.00	
Lane Grp Cap(c), veh/h	646	575		735	725	98	1843
V/C Ratio(X)	0.13	0.20		0.25	0.25	0.77	0.19
Avail Cap(c_a), veh/h	646	575		735	725	289	1843
HCM Platoon Ratio	1.00	1.00		2.00	2.00	1.00	1.00
Upstream Filter(l)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.1	17.5		4.2	4.2	37.3	10.3
Incr Delay (d2), s/veh	0.4	0.8		0.8	0.8	4.8	0.2
Initial Q Delay(d3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	1.1	1.5		0.7	0.7	1.6	1.6
Unsig. Movement Delay, s/veh							
LnGrp Delay(d), s/veh	17.5	18.3		5.0	5.1	42.1	10.5
LnGrp LOS	B	B		A	A	D	B
Approach Vol, veh/h	203			366			423
Approach Delay, s/veh	18.0			5.0			16.2
Approach LOS	B			A			B
Timer - Assigned Phs	1	2			6		8
Phs Duration (G+Y+Rc), s	8.4	38.6			47.0		33.0
Change Period (Y+Rc), s	4.0	5.5			* 5.5		4.0
Max Green Setting (Gmax), s	13.0	24.5			* 34		29.0
Max Q Clear Time (g_c+l1), s	5.4	3.8			6.2		6.0
Green Ext Time (p_c), s	0.0	2.9			4.1		0.3
Intersection Summary							
HCM 6th Ctrl Delay			12.4				
HCM 6th LOS			B				

Notes

User approved ignoring U-Turning movement.

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

HCM 6th Signalized Intersection Summary
1: I-15 SB Ramps & SR 56

Ex PM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2360	406	0	1612	565	0	0	0	185	8	0
Future Volume (veh/h)	0	2360	406	0	1612	565	0	0	0	185	8	0
Initial Q (Q _b), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	2593	446	0	1771	0				209	0	0
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	2	0	2	2				2	2	2
Cap, veh/h	0	4124	1241	0	2870					277	0	
Arrive On Green	0.00	0.81	0.81	0.00	1.00	0.00				0.08	0.00	0.00
Sat Flow, veh/h	0	5274	1537	0	3647	1585				3563	0	3170
Grp Volume(v), veh/h	0	2593	446	0	1771	0				209	0	0
Grp Sat Flow(s), veh/h/ln	0	1702	1537	0	1777	1585				1781	0	1585
Q Serve(g_s), s	0.0	21.8	8.7	0.0	0.0	0.0				6.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	21.8	8.7	0.0	0.0	0.0				6.3	0.0	0.0
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	4124	1241	0	2870					277	0	
V/C Ratio(X)	0.00	0.63	0.36	0.00	0.62					0.75	0.00	
Avail Cap(c_a), veh/h	0	4124	1241	0	2870					567	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	1.00	0.00	0.51	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	4.1	2.9	0.0	0.0	0.0				49.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.7	0.8	0.0	0.5	0.0				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
%ile BackOfQ(50%), veh/ln	0.0	5.5	2.2	0.0	0.2	0.0				2.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	4.9	3.7	0.0	0.5	0.0				51.3	0.0	0.0
LnGrp LOS	A	A	A	A	A					D	A	
Approach Vol, veh/h	3039			1771	A					209		A
Approach Delay, s/veh	4.7			0.5						51.3		
Approach LOS	A			A						D		
Timer - Assigned Phs	2		4		6							
Phs Duration (G+Y+Rc), s	96.3		13.7		96.3							
Change Period (Y+Rc), s	7.5		5.1		7.5							
Max Green Setting (Gmax), s	79.9		17.5		79.9							
Max Q Clear Time (g_c+l1), s	23.8		8.3		2.0							
Green Ext Time (p_c), s	32.9		0.3		15.8							

Intersection Summary

HCM 6th Ctrl Delay	5.2
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
2: I-15 NB Ramps & SR 56

Ex PM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1359	1146	0	1329	165	781	96	865	0	0	0
Future Volume (veh/h)	0	1359	1146	0	1329	165	781	96	865	0	0	0
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.97			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	0	1477	1246	0	1445	179	923	0	940			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	0	2	2	0	2	2	2	2	2			
Cap, veh/h	0	2732	2416	0	1901	830	1249	0	1081			
Arrive On Green	0.00	1.00	1.00	0.00	0.54	0.54	0.35	0.00	0.35			
Sat Flow, veh/h	0	5274	2689	0	3647	1551	3563	0	3086			
Grp Volume(v), veh/h	0	1477	1246	0	1445	179	923	0	940			
Grp Sat Flow(s), veh/h/ln	0	1702	1345	0	1777	1551	1781	0	1543			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	35.1	6.7	25.0	0.0	31.3			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	35.1	6.7	25.0	0.0	31.3			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2732	2416	0	1901	830	1249	0	1081			
V/C Ratio(X)	0.00	0.54	0.52	0.00	0.76	0.22	0.74	0.00	0.87			
Avail Cap(c_a), veh/h	0	2732	2416	0	1901	830	1357	0	1175			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	0.00	0.71	0.71	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	20.0	13.4	31.3	0.0	33.4			
Incr Delay (d2), s/veh	0.0	0.5	0.6	0.0	2.9	0.6	2.0	0.0	6.8			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%), veh/ln	0.0	0.1	0.2	0.0	14.6	2.4	10.9	0.0	12.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.5	0.6	0.0	23.0	14.0	33.3	0.0	40.2			
LnGrp LOS	A	A	A	A	C	B	C	A	D			
Approach Vol, veh/h	2723			1624			1863					
Approach Delay, s/veh	0.6			22.0			36.8					
Approach LOS	A			C			D					
Timer - Assigned Phs	2			6			8					
Phs Duration (G+Y+Rc), s	66.4			66.4			43.6					
Change Period (Y+Rc), s	7.5			7.5			5.1					
Max Green Setting (Gmax), s	55.5			55.5			41.9					
Max Q Clear Time (g_c+l1), s	2.0			37.1			33.3					
Green Ext Time (p_c), s	32.7			11.2			5.2					
Intersection Summary												
HCM 6th Ctrl Delay		17.0										
HCM 6th LOS		B										
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary
3: Sabre Springs Rd & Ted Williams Pkwy EB Ramps

Ex PM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↔	↑↑↑					↑↑↑		↑	↑↑	
Traffic Volume (veh/h)	321	3	280	0	0	0	0	678	155	31	390	0
Future Volume (veh/h)	321	3	280	0	0	0	0	678	155	31	390	0
Initial Q (Q _b), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93				1.00		0.97	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
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	336	0	292				0	706	161	32	406	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	595	0	492				0	3275	718	45	2489	0
Arrive On Green	0.17	0.00	0.17				0.00	0.62	0.62	0.05	1.00	0.00
Sat Flow, veh/h	3563	0	2945				0	5543	1158	1781	3647	0
Grp Volume(v), veh/h	336	0	292				0	643	224	32	406	0
Grp Sat Flow(s), veh/h/ln	1781	0	1473				0	1609	1614	1781	1777	0
Q Serve(g_s), s	6.9	0.0	7.3				0.0	4.7	4.9	1.4	0.0	0.0
Cycle Q Clear(g_c), s	6.9	0.0	7.3				0.0	4.7	4.9	1.4	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.72	1.00		0.00
Lane Grp Cap(c), veh/h	595	0	492				0	2992	1001	45	2489	0
V/C Ratio(X)	0.56	0.00	0.59				0.00	0.21	0.22	0.71	0.16	0.00
Avail Cap(c_a), veh/h	1429	0	1182				0	2992	1001	191	2489	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(l)	1.00	0.00	1.00				0.00	1.00	1.00	0.99	0.99	0.00
Uniform Delay (d), s/veh	30.6	0.0	30.8				0.0	6.7	6.7	37.7	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.0	1.1				0.0	0.2	0.5	7.2	0.1	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
%ile BackOfQ(50%), veh/ln	3.0	0.0	2.6				0.0	1.4	1.6	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	31.5	0.0	32.0				0.0	6.8	7.2	44.9	0.1	0.0
LnGrp LOS	C	A	C				A	A	A	D	A	A
Approach Vol, veh/h	628							867			438	
Approach Delay, s/veh	31.7							6.9			3.4	
Approach LOS	C							A			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	6.4	55.3	18.3	61.7								
Change Period (Y+Rc), s	4.4	* 5.7	4.9	5.7								
Max Green Setting (Gmax), s	8.6	* 24	32.1	37.3								
Max Q Clear Time (g_c+l1), s	3.4	6.9	9.3	2.0								
Green Ext Time (p_c), s	0.0	7.4	2.5	2.1								
Intersection Summary												
HCM 6th Ctrl Delay			14.2									
HCM 6th LOS			B									
Notes												
User approved volume balancing among the lanes for turning movement.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary
4: Sabre Springs Rd/Rancho Carmel Dr & Ted Williams Pkwy WB Ramps

Ex PM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑	↑	↑↑	↑↑		↑↑	↑↑	↑↑
Traffic Volume (veh/h)	0	0	0	97	3	33	421	605	0	0	302	334
Future Volume (veh/h)	0	0	0	97	3	33	421	605	0	0	302	334
Initial Q (Q _b), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.95	1.00		1.00	1.00		0.96
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		No
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				105	3	36	458	658	0	0	328	363
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				227	6	197	564	2523	0	0	1748	1321
Arrive On Green				0.26	0.26	0.26	0.11	0.48	0.00	0.00	0.16	0.16
Sat Flow, veh/h				1734	50	1505	3456	3647	0	0	3647	2685
Grp Volume(v), veh/h				108	0	36	458	658	0	0	328	363
Grp Sat Flow(s), veh/h/ln				1784	0	1505	1728	1777	0	0	1777	1343
Q Serve(g_s), s				4.1	0.0	1.5	10.4	8.9	0.0	0.0	6.4	9.5
Cycle Q Clear(g_c), s				4.1	0.0	1.5	10.4	8.9	0.0	0.0	6.4	9.5
Prop In Lane				0.97		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				234	0	197	564	2523	0	0	1748	1321
V/C Ratio(X)				0.46	0.00	0.18	0.81	0.26	0.00	0.00	0.19	0.27
Avail Cap(c_a), veh/h				446	0	376	933	2523	0	0	1748	1321
HCM Platoon Ratio				2.00	2.00	2.00	0.67	0.67	1.00	1.00	0.33	0.33
Upstream Filter(l)				1.00	0.00	1.00	0.97	0.97	0.00	0.00	0.98	0.98
Uniform Delay (d), s/veh				27.1	0.0	26.2	34.4	8.4	0.0	0.0	19.7	21.0
Incr Delay (d2), s/veh				0.5	0.0	0.2	1.1	0.2	0.0	0.0	0.2	0.5
Initial Q Delay(d3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln				1.6	0.0	0.5	4.5	3.3	0.0	0.0	2.7	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				27.7	0.0	26.3	35.5	8.6	0.0	0.0	19.9	21.5
LnGrp LOS				C	A	C	D	A	A	A	B	C
Approach Vol, veh/h						144			1116			691
Approach Delay, s/veh						27.3			19.7			20.8
Approach LOS						C			B			C
Timer - Assigned Phs				2		5	6		8			
Phs Duration (G+Y+Rc), s				62.5		17.5	45.1		17.5			
Change Period (Y+Rc), s				* 5.7		4.4	5.7		7.0			
Max Green Setting (Gmax), s				* 48		21.6	21.3		20.0			
Max Q Clear Time (g_c+l1), s				10.9		12.4	11.5		6.1			
Green Ext Time (p_c), s				3.8		0.7	3.3		0.3			
Intersection Summary												
HCM 6th Ctrl Delay				20.6								
HCM 6th LOS				C								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary

5: Rancho Carmel Dr & Provencal Pl

Ex PM

02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	3	28	66	0	29	27	504	48	44	521	7
Future Volume (veh/h)	19	3	28	66	0	29	27	504	48	44	521	7
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.94	0.97		0.94	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	20	3	29	68	0	30	28	520	49	45	537	7
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	114	34	109	276	0	194	41	2126	200	56	2364	31
Arrive On Green	0.13	0.13	0.13	0.13	0.00	0.13	0.05	1.00	1.00	0.06	1.00	1.00
Sat Flow, veh/h	399	266	837	1432	0	1493	1781	3271	307	1781	3590	47
Grp Volume(v), veh/h	52	0	0	68	0	30	28	282	287	45	266	278
Grp Sat Flow(s), veh/h/ln	1502	0	0	1432	0	1493	1781	1777	1801	1781	1777	1860
Q Serve(g_s), s	0.0	0.0	0.0	0.6	0.0	1.4	1.2	0.0	0.0	2.0	0.0	0.0
Cycle Q Clear(g_c), s	3.0	0.0	0.0	3.0	0.0	1.4	1.2	0.0	0.0	2.0	0.0	0.0
Prop In Lane	0.38		0.56	1.00		1.00	1.00		0.17	1.00		0.03
Lane Grp Cap(c), veh/h	257	0	0	276	0	194	41	1155	1171	56	1170	1225
V/C Ratio(X)	0.20	0.00	0.00	0.25	0.00	0.16	0.68	0.24	0.25	0.80	0.23	0.23
Avail Cap(c_a), veh/h	578	0	0	573	0	525	147	1155	1171	169	1170	1225
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	0.98	0.98	0.98	0.97	0.97	0.97
Uniform Delay (d), s/veh	31.3	0.0	0.0	31.6	0.0	30.9	37.9	0.0	0.0	37.2	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.2	0.0	0.1	6.9	0.5	0.5	9.0	0.4	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.9	0.0	0.0	1.2	0.0	0.5	0.6	0.2	0.2	1.0	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	31.4	0.0	0.0	31.7	0.0	31.1	44.8	0.5	0.5	46.2	0.4	0.4
LnGrp LOS	C	A	A	C	A	C	D	A	A	D	A	A
Approach Vol, veh/h		52			98			597			589	
Approach Delay, s/veh		31.4			31.5			2.6			3.9	
Approach LOS		C			C			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	57.8		15.3	6.3	58.5		15.3				
Change Period (Y+Rc), s	4.4	5.8		4.9	4.4	* 5.8		4.9				
Max Green Setting (Gmax), s	7.6	29.2		28.1	6.6	* 30		28.1				
Max Q Clear Time (g_c+l1), s	4.0	2.0		5.0	3.2	2.0		5.0				
Green Ext Time (p_c), s	0.0	5.3		0.1	0.0	6.9		0.3				

Intersection Summary

HCM 6th Ctrl Delay 6.4

HCM 6th LOS A

Notes

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

HCM 6th Signalized Intersection Summary
6: Rancho Carmel Dr & Shoal Creek Dr

Ex PM
02/20/2020

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (veh/h)	36	62	0	497	38	78	541
Future Volume (veh/h)	36	62	0	497	38	78	541
Initial Q (Q _b), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00			0.96	1.00	
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	37	63		507	39	80	552
Peak Hour Factor	0.98	0.98		0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	601	535		1453	111	103	1932
Arrive On Green	0.34	0.34		0.87	0.87	0.06	0.54
Sat Flow, veh/h	1781	1585		3427	256	1781	3647
Grp Volume(v), veh/h	37	63		270	276	80	552
Grp Sat Flow(s), veh/h/ln	1781	1585		1777	1812	1781	1777
Q Serve(g_s), s	1.1	2.2		2.2	2.3	3.5	6.7
Cycle Q Clear(g_c), s	1.1	2.2		2.2	2.3	3.5	6.7
Prop In Lane	1.00	1.00			0.14	1.00	
Lane Grp Cap(c), veh/h	601	535		774	790	103	1932
V/C Ratio(X)	0.06	0.12		0.35	0.35	0.78	0.29
Avail Cap(c_a), veh/h	601	535		774	790	245	1932
HCM Platoon Ratio	1.00	1.00		2.00	2.00	1.00	1.00
Upstream Filter(l)	1.00	1.00		0.98	0.98	1.00	1.00
Uniform Delay (d), s/veh	17.9	18.3		3.0	3.0	37.2	9.9
Incr Delay (d2), s/veh	0.2	0.4		1.2	1.2	4.6	0.4
Initial Q Delay(d3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.5	0.8		0.9	0.9	1.6	2.5
Unsig. Movement Delay, s/veh							
LnGrp Delay(d), s/veh	18.1	18.7		4.3	4.2	41.8	10.2
LnGrp LOS	B	B		A	A	D	B
Approach Vol, veh/h	100			546			632
Approach Delay, s/veh	18.5			4.2			14.2
Approach LOS	B			A			B
Timer - Assigned Phs	1	2			6		8
Phs Duration (G+Y+R _c), s	8.6	40.4			49.0		31.0
Change Period (Y+R _c), s	4.0	5.5			* 5.5		4.0
Max Green Setting (Gmax), s	11.0	28.5			* 36		27.0
Max Q Clear Time (g_c+l1), s	5.5	4.3			8.7		4.2
Green Ext Time (p_c), s	0.0	4.9			6.9		0.1
Intersection Summary							
HCM 6th Ctrl Delay			10.3				
HCM 6th LOS			B				
Notes							
User approved ignoring U-Turning movement.							
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.							

APPENDIX C

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – EXISTING + PROJECT

HCM 6th Signalized Intersection Summary
1: I-15 SB Ramps & SR 56

Ex + P AM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑				↑	↑	↑↑
Traffic Volume (veh/h)	0	1657	579	0	1540	888	0	0	0	155	37	0
Future Volume (veh/h)	0	1657	579	0	1540	888	0	0	0	155	37	0
Initial Q (Q _b), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	1726	603	0	1604	0				100	124	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	3766	1132	0	2621					281	295	
Arrive On Green	0.00	0.74	0.74	0.00	1.00	0.00				0.16	0.16	0.00
Sat Flow, veh/h	0	5274	1535	0	3647	1585				1781	1870	3170
Grp Volume(v), veh/h	0	1726	603	0	1604	0				100	124	0
Grp Sat Flow(s), veh/h/ln	0	1702	1535	0	1777	1585				1781	1870	1585
Q Serve(g_s), s	0.0	16.1	20.4	0.0	0.0	0.0				6.0	7.2	0.0
Cycle Q Clear(g_c), s	0.0	16.1	20.4	0.0	0.0	0.0				6.0	7.2	0.0
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	3766	1132	0	2621					281	295	
V/C Ratio(X)	0.00	0.46	0.53	0.00	0.61					0.36	0.42	
Avail Cap(c_a), veh/h	0	3766	1132	0	2621					281	295	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	1.00	0.00	0.52	0.00				1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	6.2	6.8	0.0	0.0	0.0				45.1	45.6	0.0
Incr Delay (d2), s/veh	0.0	0.4	1.8	0.0	0.6	0.0				3.5	4.4	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
%ile BackOfQ(50%), veh/ln	0.0	5.2	6.4	0.0	0.2	0.0				2.9	3.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	6.6	8.6	0.0	0.6	0.0				48.6	50.0	0.0
LnGrp LOS	A	A	A	A	A					D	D	
Approach Vol, veh/h	2329			1604		A				224		A
Approach Delay, s/veh	7.2			0.6						49.4		
Approach LOS	A			A						D		
Timer - Assigned Phs	2		4		6							
Phs Duration (G+Y+R _c), s	96.0		24.0		96.0							
Change Period (Y+R _c), s	7.5		5.1		7.5							
Max Green Setting (Gmax), s	88.5		18.9		88.5							
Max Q Clear Time (g _{c+l1}), s	22.4		9.2		2.0							
Green Ext Time (p _c), s	17.2		0.4		12.8							

Intersection Summary

HCM 6th Ctrl Delay	6.9
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
2: I-15 NB Ramps & SR 56

Ex + P AM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	942	1068	0	1653	248	510	30	411	0	0	0
Future Volume (veh/h)	0	942	1068	0	1653	248	510	30	411	0	0	0
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.96			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	0	1070	1214	0	1878	282	604	0	467			
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88			
Percent Heavy Veh, %	0	2	2	0	2	2	2	2	2			
Cap, veh/h	0	3604	2433	0	2508	1097	674	0	576			
Arrive On Green	0.00	1.00	1.00	0.00	0.71	0.71	0.19	0.00	0.19			
Sat Flow, veh/h	0	5274	2700	0	3647	1554	3563	0	3047			
Grp Volume(v), veh/h	0	1070	1214	0	1878	282	604	0	467			
Grp Sat Flow(s), veh/h/ln	0	1702	1350	0	1777	1554	1781	0	1523			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	39.6	7.8	19.9	0.0	17.6			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	39.6	7.8	19.9	0.0	17.6			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	3604	2433	0	2508	1097	674	0	576			
V/C Ratio(X)	0.00	0.30	0.50	0.00	0.75	0.26	0.90	0.00	0.81			
Avail Cap(c_a), veh/h	0	3604	2433	0	2508	1097	721	0	617			
HCM Platoon Ratio	1.00	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	0.00	0.89	0.89	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	11.0	6.3	47.5	0.0	46.6			
Incr Delay (d2), s/veh	0.0	0.2	0.7	0.0	2.1	0.6	12.7	0.0	6.8			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%), veh/ln	0.0	0.1	0.2	0.0	14.6	2.6	10.0	0.0	7.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.2	0.7	0.0	13.1	6.9	60.2	0.0	53.4			
LnGrp LOS	A	A	A	A	B	A	E	A	D			
Approach Vol, veh/h	2284			2160			1071					
Approach Delay, s/veh	0.4			12.3			57.2					
Approach LOS	A			B			E					
Timer - Assigned Phs	2			6			8					
Phs Duration (G+Y+Rc), s	92.2			92.2			27.8					
Change Period (Y+Rc), s	7.5			7.5			5.1					
Max Green Setting (Gmax), s	83.1			83.1			24.3					
Max Q Clear Time (g_c+l1), s	2.0			41.6			21.9					
Green Ext Time (p_c), s	13.3			17.1			0.8					
Intersection Summary												
HCM 6th Ctrl Delay		16.1										
HCM 6th LOS			B									
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary
3: Sabre Springs Rd & Ted Williams Pkwy EB Ramps

Ex + P AM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑↑↑					↑↑↑		↑	↑↑	
Traffic Volume (veh/h)	153	0	408	0	0	0	0	395	117	25	368	0
Future Volume (veh/h)	153	0	408	0	0	0	0	395	117	25	368	0
Initial Q (Q _b), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94				1.00		0.97	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
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	163	0	434				0	420	124	27	391	0
Peak Hour Factor	0.94	0.94	0.94				0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	735	0	614				0	2935	797	40	2350	0
Arrive On Green	0.21	0.00	0.21				0.00	0.58	0.58	0.05	1.00	0.00
Sat Flow, veh/h	3563	0	2976				0	5290	1364	1781	3647	0
Grp Volume(v), veh/h	163	0	434				0	402	142	27	391	0
Grp Sat Flow(s), veh/h/ln	1781	0	1488				0	1609	1567	1781	1777	0
Q Serve(g_s), s	3.0	0.0	10.8				0.0	3.0	3.3	1.2	0.0	0.0
Cycle Q Clear(g_c), s	3.0	0.0	10.8				0.0	3.0	3.3	1.2	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.87	1.00		0.00
Lane Grp Cap(c), veh/h	735	0	614				0	2817	915	40	2350	0
V/C Ratio(X)	0.22	0.00	0.71				0.00	0.14	0.16	0.67	0.17	0.00
Avail Cap(c_a), veh/h	1608	0	1343				0	2817	915	191	2350	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(l)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.4	0.0	29.5				0.0	7.6	7.6	37.9	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	1.5				0.0	0.1	0.4	7.0	0.2	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
%ile BackOfQ(50%), veh/ln	1.3	0.0	3.9				0.0	1.0	1.1	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	26.6	0.0	31.0				0.0	7.7	8.0	44.9	0.2	0.0
LnGrp LOS	C	A	C				A	A	A	D	A	A
Approach Vol, veh/h	597						544			418		
Approach Delay, s/veh	29.8						7.7			3.0		
Approach LOS	C						A			A		
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	6.2	52.4	21.4	58.6								
Change Period (Y+Rc), s	4.4	* 5.7	4.9	5.7								
Max Green Setting (Gmax), s	8.6	* 20	36.1	33.3								
Max Q Clear Time (g_c+l1), s	3.2	5.3	12.8	2.0								
Green Ext Time (p_c), s	0.0	4.2	2.5	2.0								
Intersection Summary												
HCM 6th Ctrl Delay			14.9									
HCM 6th LOS			B									
Notes												
User approved volume balancing among the lanes for turning movement.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary
4: Sabre Springs Rd/Rancho Carmel Dr & Ted Williams Pkwy WB Ramps

Ex + P AM

02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑	↑	↑↑	↑↑		↑↑	↑↑	↑↑
Traffic Volume (veh/h)	0	0	0	154	8	34	295	272	0	0	209	290
Future Volume (veh/h)	0	0	0	154	8	34	295	272	0	0	209	290
Initial Q (Q _b), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.95	1.00		1.00	1.00		0.96
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No		No		No		No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				179	9	40	324	299	0	0	230	319
Peak Hour Factor				0.86	0.86	0.86	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				239	12	212	420	2490	0	0	1863	1410
Arrive On Green				0.23	0.23	0.23	0.12	0.70	0.00	0.00	0.88	0.88
Sat Flow, veh/h				1700	85	1509	3456	3647	0	0	3647	2688
Grp Volume(v), veh/h				188	0	40	324	299	0	0	230	319
Grp Sat Flow(s), veh/h/ln				1785	0	1509	1728	1777	0	0	1777	1344
Q Serve(g_s), s				7.8	0.0	1.7	7.3	2.2	0.0	0.0	0.7	1.5
Cycle Q Clear(g_c), s				7.8	0.0	1.7	7.3	2.2	0.0	0.0	0.7	1.5
Prop In Lane				0.95		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				251	0	212	420	2490	0	0	1863	1410
V/C Ratio(X)				0.75	0.00	0.19	0.77	0.12	0.00	0.00	0.12	0.23
Avail Cap(c_a), veh/h				580	0	490	803	2490	0	0	1863	1410
HCM Platoon Ratio				1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.67	1.67
Upstream Filter(l)				1.00	0.00	1.00	0.99	0.99	0.00	0.00	0.99	0.99
Uniform Delay (d), s/veh				29.3	0.0	27.0	34.1	3.9	0.0	0.0	2.4	2.5
Incr Delay (d2), s/veh				1.7	0.0	0.2	1.1	0.1	0.0	0.0	0.1	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(50%), veh/ln				3.1	0.0	0.6	3.0	0.6	0.0	0.0	0.3	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				31.0	0.0	27.1	35.2	4.0	0.0	0.0	2.5	2.8
LnGrp LOS				C	A	C	D	A	A	A	A	A
Approach Vol, veh/h					228			623			549	
Approach Delay, s/veh					30.3			20.2			2.7	
Approach LOS					C			C			A	
Timer - Assigned Phs				2		5	6		8			
Phs Duration (G+Y+Rc), s				61.8		14.1	47.6		18.2			
Change Period (Y+Rc), s				* 5.7		4.4	5.7		7.0			
Max Green Setting (Gmax), s				* 42		18.6	18.3		26.0			
Max Q Clear Time (g_c+l1), s				4.2		9.3	3.5		9.8			
Green Ext Time (p_c), s				1.6		0.5	3.2		0.7			
Intersection Summary												
HCM 6th Ctrl Delay				15.0								
HCM 6th LOS				B								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary

5: Rancho Carmel Dr & Provencal Pl

Ex + P AM

02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	4	133	0	33	4	247	23	31	391	6
Future Volume (veh/h)	3	1	4	133	0	33	4	247	23	31	391	6
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	0.99		0.96	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	1	4	137	0	34	4	255	24	32	403	6
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	94	45	78	300	0	310	8	1908	178	45	2163	32
Arrive On Green	0.20	0.20	0.20	0.20	0.00	0.20	0.01	1.00	1.00	0.05	1.00	1.00
Sat Flow, veh/h	160	222	382	1033	0	1526	1781	3274	305	1781	3582	53
Grp Volume(v), veh/h	8	0	0	137	0	34	4	137	142	32	200	209
Grp Sat Flow(s), veh/h/ln	764	0	0	1033	0	1526	1781	1777	1802	1781	1777	1859
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	1.5	0.2	0.0	0.0	1.4	0.0	0.0
Cycle Q Clear(g_c), s	11.7	0.0	0.0	11.6	0.0	1.5	0.2	0.0	0.0	1.4	0.0	0.0
Prop In Lane	0.37		0.50	1.00		1.00	1.00		0.17	1.00		0.03
Lane Grp Cap(c), veh/h	217	0	0	300	0	310	8	1035	1050	45	1073	1122
V/C Ratio(X)	0.04	0.00	0.00	0.46	0.00	0.11	0.53	0.13	0.14	0.71	0.19	0.19
Avail Cap(c_a), veh/h	457	0	0	524	0	555	102	1035	1050	169	1073	1122
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99
Uniform Delay (d), s/veh	26.0	0.0	0.0	30.0	0.0	26.0	39.6	0.0	0.0	37.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.4	0.0	0.1	19.5	0.3	0.3	7.2	0.4	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.1	0.0	0.0	2.4	0.0	0.5	0.1	0.1	0.1	0.7	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	26.0	0.0	0.0	30.4	0.0	26.0	59.1	0.3	0.3	44.9	0.4	0.4
LnGrp LOS	C	A	A	C	A	C	E	A	A	D	A	A
Approach Vol, veh/h		8			171			283			441	
Approach Delay, s/veh	26.0				29.6			1.1			3.6	
Approach LOS		C			C			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	52.4		21.2	4.7	54.1		21.2				
Change Period (Y+Rc), s	4.4	5.8		4.9	4.4	* 5.8		4.9				
Max Green Setting (Gmax), s	7.6	28.2		29.1	4.6	* 31		29.1				
Max Q Clear Time (g_c+l1), s	3.4	2.0		13.7	2.2	2.0		13.6				
Green Ext Time (p_c), s	0.0	2.3		0.0	0.0	5.0		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			7.9									
HCM 6th LOS			A									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary
6: Rancho Carmel Dr & Shoal Creek Dr

Ex + P AM
02/20/2020

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (veh/h)	77	103	0	281	48	68	310
Future Volume (veh/h)	77	103	0	281	48	68	310
Initial Q (Q _b), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00			0.96	1.00	
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	87	116		316	54	76	348
Peak Hour Factor	0.89	0.89		0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	646	575		1250	211	98	1843
Arrive On Green	0.36	0.36		0.83	0.83	0.06	0.52
Sat Flow, veh/h	1781	1585		3115	509	1781	3647
Grp Volume(v), veh/h	87	116		184	186	76	348
Grp Sat Flow(s), veh/h/ln	1781	1585		1777	1753	1781	1777
Q Serve(g_s), s	2.6	4.0		1.8	1.9	3.4	4.2
Cycle Q Clear(g_c), s	2.6	4.0		1.8	1.9	3.4	4.2
Prop In Lane	1.00	1.00			0.29	1.00	
Lane Grp Cap(c), veh/h	646	575		735	725	98	1843
V/C Ratio(X)	0.13	0.20		0.25	0.26	0.77	0.19
Avail Cap(c_a), veh/h	646	575		735	725	289	1843
HCM Platoon Ratio	1.00	1.00		2.00	2.00	1.00	1.00
Upstream Filter(l)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.1	17.5		4.2	4.2	37.3	10.3
Incr Delay (d2), s/veh	0.4	0.8		0.8	0.9	4.8	0.2
Initial Q Delay(d3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	1.1	1.5		0.7	0.7	1.6	1.6
Unsig. Movement Delay, s/veh							
LnGrp Delay(d), s/veh	17.5	18.3		5.0	5.1	42.1	10.5
LnGrp LOS	B	B		A	A	D	B
Approach Vol, veh/h	203			370			424
Approach Delay, s/veh	18.0			5.0			16.2
Approach LOS	B			A			B
Timer - Assigned Phs	1	2			6		8
Phs Duration (G+Y+R _c), s	8.4	38.6			47.0		33.0
Change Period (Y+R _c), s	4.0	5.5			* 5.5		4.0
Max Green Setting (Gmax), s	13.0	24.5			* 34		29.0
Max Q Clear Time (g_c+l1), s	5.4	3.9			6.2		6.0
Green Ext Time (p_c), s	0.0	3.0			4.1		0.3
Intersection Summary							
HCM 6th Ctrl Delay			12.4				
HCM 6th LOS			B				
Notes							
User approved ignoring U-Turning movement.							
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.							

HCM 6th Signalized Intersection Summary
1: I-15 SB Ramps & SR 56

Ex + P PM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑				↑	↑	↑↑
Traffic Volume (veh/h)	0	2364	406	0	1614	567	0	0	0	189	8	0
Future Volume (veh/h)	0	2364	406	0	1614	567	0	0	0	189	8	0
Initial Q (Q _b), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	2598	446	0	1774	0				214	0	0
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	2	0	2	2				2	2	2
Cap, veh/h	0	4116	1239	0	2865					282	0	
Arrive On Green	0.00	0.81	0.81	0.00	1.00	0.00				0.08	0.00	0.00
Sat Flow, veh/h	0	5274	1536	0	3647	1585				3563	0	3170
Grp Volume(v), veh/h	0	2598	446	0	1774	0				214	0	0
Grp Sat Flow(s), veh/h/ln	0	1702	1536	0	1777	1585				1781	0	1585
Q Serve(g_s), s	0.0	22.1	8.7	0.0	0.0	0.0				6.5	0.0	0.0
Cycle Q Clear(g_c), s	0.0	22.1	8.7	0.0	0.0	0.0				6.5	0.0	0.0
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	4116	1239	0	2865					282	0	
V/C Ratio(X)	0.00	0.63	0.36	0.00	0.62					0.76	0.00	
Avail Cap(c_a), veh/h	0	4116	1239	0	2865					567	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	1.00	0.00	0.51	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	4.2	2.9	0.0	0.0	0.0				49.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.7	0.8	0.0	0.5	0.0				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
%ile BackOfQ(50%), veh/ln	0.0	5.6	2.2	0.0	0.2	0.0				2.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	5.0	3.7	0.0	0.5	0.0				51.2	0.0	0.0
LnGrp LOS	A	A	A	A	A					D	A	
Approach Vol, veh/h	3044			1774		A				214		A
Approach Delay, s/veh	4.8			0.5						51.2		
Approach LOS	A			A						D		
Timer - Assigned Phs	2		4		6							
Phs Duration (G+Y+Rc), s	96.2		13.8		96.2							
Change Period (Y+Rc), s	7.5		5.1		7.5							
Max Green Setting (Gmax), s	79.9		17.5		79.9							
Max Q Clear Time (g_c+l1), s	24.1		8.5		2.0							
Green Ext Time (p_c), s	32.9		0.3		15.8							

Intersection Summary

HCM 6th Ctrl Delay	5.2
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
2: I-15 NB Ramps & SR 56

Ex + P PM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1367	1146	0	1333	167	781	96	870	0	0	0
Future Volume (veh/h)	0	1367	1146	0	1333	167	781	96	870	0	0	0
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.97			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	0	1486	1246	0	1449	182	923	0	946			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	0	2	2	0	2	2	2	2	2			
Cap, veh/h	0	2725	2416	0	1897	828	1253	0	1085			
Arrive On Green	0.00	1.00	1.00	0.00	0.53	0.53	0.35	0.00	0.35			
Sat Flow, veh/h	0	5274	2689	0	3647	1551	3563	0	3086			
Grp Volume(v), veh/h	0	1486	1246	0	1449	182	923	0	946			
Grp Sat Flow(s), veh/h/ln	0	1702	1345	0	1777	1551	1781	0	1543			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	35.3	6.8	24.9	0.0	31.5			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	35.3	6.8	24.9	0.0	31.5			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2725	2416	0	1897	828	1253	0	1085			
V/C Ratio(X)	0.00	0.55	0.52	0.00	0.76	0.22	0.74	0.00	0.87			
Avail Cap(c_a), veh/h	0	2725	2416	0	1897	828	1357	0	1175			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	0.00	0.71	0.71	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	20.2	13.5	31.2	0.0	33.3			
Incr Delay (d2), s/veh	0.0	0.6	0.6	0.0	3.0	0.6	2.0	0.0	7.0			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%), veh/ln	0.0	0.1	0.2	0.0	14.7	2.5	10.9	0.0	12.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.6	0.6	0.0	23.2	14.2	33.2	0.0	40.3			
LnGrp LOS	A	A	A	A	C	B	C	A	D			
Approach Vol, veh/h		2732			1631				1869			
Approach Delay, s/veh		0.6			22.2				36.8			
Approach LOS		A			C				D			
Timer - Assigned Phs		2			6				8			
Phs Duration (G+Y+Rc), s		66.2			66.2				43.8			
Change Period (Y+Rc), s		7.5			7.5				5.1			
Max Green Setting (Gmax), s		55.5			55.5				41.9			
Max Q Clear Time (g_c+l1), s		2.0			37.3				33.5			
Green Ext Time (p_c), s		32.9			11.2				5.2			
Intersection Summary												
HCM 6th Ctrl Delay		17.1										
HCM 6th LOS		B										
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary
3: Sabre Springs Rd & Ted Williams Pkwy EB Ramps

Ex + P PM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑↑↑					↑↑↑		↑	↑↑	
Traffic Volume (veh/h)	333	3	280	0	0	0	0	680	155	32	391	0
Future Volume (veh/h)	333	3	280	0	0	0	0	680	155	32	391	0
Initial Q (Q _b), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93				1.00		0.97	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
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	349	0	292				0	708	161	33	407	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	597	0	493				0	3271	715	46	2488	0
Arrive On Green	0.17	0.00	0.17				0.00	0.62	0.62	0.05	1.00	0.00
Sat Flow, veh/h	3563	0	2946				0	5546	1156	1781	3647	0
Grp Volume(v), veh/h	349	0	292				0	644	225	33	407	0
Grp Sat Flow(s), veh/h/ln	1781	0	1473				0	1609	1615	1781	1777	0
Q Serve(g_s), s	7.2	0.0	7.3				0.0	4.7	4.9	1.5	0.0	0.0
Cycle Q Clear(g_c), s	7.2	0.0	7.3				0.0	4.7	4.9	1.5	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.72	1.00		0.00
Lane Grp Cap(c), veh/h	597	0	493				0	2987	999	46	2488	0
V/C Ratio(X)	0.58	0.00	0.59				0.00	0.22	0.23	0.71	0.16	0.00
Avail Cap(c_a), veh/h	1429	0	1182				0	2987	999	191	2488	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(l)	1.00	0.00	1.00				0.00	1.00	1.00	0.99	0.99	0.00
Uniform Delay (d), s/veh	30.7	0.0	30.8				0.0	6.7	6.7	37.6	0.0	0.0
Incr Delay (d2), s/veh	0.9	0.0	1.1				0.0	0.2	0.5	7.3	0.1	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
%ile BackOfQ(50%), veh/ln	3.1	0.0	2.6				0.0	1.4	1.6	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	31.6	0.0	31.9				0.0	6.9	7.3	44.9	0.1	0.0
LnGrp LOS	C	A	C				A	A	A	D	A	A
Approach Vol, veh/h	641							869			440	
Approach Delay, s/veh	31.8							7.0			3.5	
Approach LOS	C							A			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	6.5	55.2	18.3	61.7								
Change Period (Y+Rc), s	4.4	* 5.7	4.9	5.7								
Max Green Setting (Gmax), s	8.6	* 24	32.1	37.3								
Max Q Clear Time (g_c+l1), s	3.5	6.9	9.3	2.0								
Green Ext Time (p_c), s	0.0	7.4	2.6	2.1								

Intersection Summary

HCM 6th Ctrl Delay	14.3
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

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

HCM 6th Signalized Intersection Summary
4: Sabre Springs Rd/Rancho Carmel Dr & Ted Williams Pkwy WB Ramps

Ex + P PM

02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑	↑	↑↑	↑↑		↑↑	↑↑	↑↑
Traffic Volume (veh/h)	0	0	0	97	3	35	421	619	0	0	304	339
Future Volume (veh/h)	0	0	0	97	3	35	421	619	0	0	304	339
Initial Q (Q _b), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.95	1.00		1.00	1.00		0.96
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No		No		No		No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				105	3	38	458	673	0	0	330	368
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				228	7	198	564	2523	0	0	1747	1320
Arrive On Green				0.26	0.26	0.26	0.11	0.48	0.00	0.00	0.16	0.16
Sat Flow, veh/h				1734	50	1505	3456	3647	0	0	3647	2685
Grp Volume(v), veh/h				108	0	38	458	673	0	0	330	368
Grp Sat Flow(s), veh/h/ln				1784	0	1505	1728	1777	0	0	1777	1343
Q Serve(g_s), s				4.1	0.0	1.6	10.4	9.1	0.0	0.0	6.4	9.6
Cycle Q Clear(g_c), s				4.1	0.0	1.6	10.4	9.1	0.0	0.0	6.4	9.6
Prop In Lane				0.97		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				234	0	198	564	2523	0	0	1747	1320
V/C Ratio(X)				0.46	0.00	0.19	0.81	0.27	0.00	0.00	0.19	0.28
Avail Cap(c_a), veh/h				446	0	376	933	2523	0	0	1747	1320
HCM Platoon Ratio				2.00	2.00	2.00	0.67	0.67	1.00	1.00	0.33	0.33
Upstream Filter(l)				1.00	0.00	1.00	0.97	0.97	0.00	0.00	0.98	0.98
Uniform Delay (d), s/veh				27.1	0.0	26.2	34.4	8.5	0.0	0.0	19.7	21.1
Incr Delay (d2), s/veh				0.5	0.0	0.2	1.1	0.3	0.0	0.0	0.2	0.5
Initial Q Delay(d3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln				1.6	0.0	0.5	4.5	3.4	0.0	0.0	2.8	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				27.6	0.0	26.4	35.5	8.7	0.0	0.0	20.0	21.6
LnGrp LOS				C	A	C	D	A	A	A	B	C
Approach Vol, veh/h					146			1131			698	
Approach Delay, s/veh					27.3			19.6			20.8	
Approach LOS					C			B			C	
Timer - Assigned Phs				2		5	6		8			
Phs Duration (G+Y+Rc), s				62.5		17.5	45.0		17.5			
Change Period (Y+Rc), s				* 5.7		4.4	5.7		7.0			
Max Green Setting (Gmax), s				* 48		21.6	21.3		20.0			
Max Q Clear Time (g_c+l1), s				11.1		12.4	11.6		6.1			
Green Ext Time (p_c), s				3.9		0.7	3.3		0.3			
Intersection Summary												
HCM 6th Ctrl Delay				20.6								
HCM 6th LOS				C								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary

5: Rancho Carmel Dr & Provencal Pl

Ex + P PM

02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	3	28	73	0	29	27	511	58	47	521	7
Future Volume (veh/h)	19	3	28	73	0	29	27	511	58	47	521	7
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.94	0.98		0.94	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	20	3	29	75	0	30	28	527	60	48	537	7
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	114	35	109	283	0	197	41	2067	234	60	2356	31
Arrive On Green	0.13	0.13	0.13	0.13	0.00	0.13	0.05	1.00	1.00	0.07	1.00	1.00
Sat Flow, veh/h	392	262	825	1461	0	1495	1781	3202	363	1781	3590	47
Grp Volume(v), veh/h	52	0	0	75	0	30	28	292	295	48	266	278
Grp Sat Flow(s), veh/h/ln	1479	0	0	1461	0	1495	1781	1777	1788	1781	1777	1860
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	1.4	1.2	0.0	0.0	2.1	0.0	0.0
Cycle Q Clear(g_c), s	3.1	0.0	0.0	3.1	0.0	1.4	1.2	0.0	0.0	2.1	0.0	0.0
Prop In Lane	0.38		0.56	1.00		1.00	1.00		0.20	1.00		0.03
Lane Grp Cap(c), veh/h	257	0	0	283	0	197	41	1147	1154	60	1166	1221
V/C Ratio(X)	0.20	0.00	0.00	0.27	0.00	0.15	0.68	0.25	0.26	0.80	0.23	0.23
Avail Cap(c_a), veh/h	575	0	0	578	0	525	147	1147	1154	169	1166	1221
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	0.98	0.98	0.98	0.97	0.97	0.97
Uniform Delay (d), s/veh	31.1	0.0	0.0	31.5	0.0	30.8	37.9	0.0	0.0	37.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.2	0.0	0.1	6.9	0.5	0.5	8.3	0.4	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.9	0.0	0.0	1.3	0.0	0.5	0.6	0.2	0.2	1.0	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	31.3	0.0	0.0	31.7	0.0	30.9	44.8	0.5	0.5	45.3	0.4	0.4
LnGrp LOS	C	A	A	C	A	C	D	A	A	D	A	A
Approach Vol, veh/h		52			105			615			592	
Approach Delay, s/veh		31.3			31.5			2.5			4.1	
Approach LOS		C			C			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.1	57.4		15.4	6.3	58.3		15.4				
Change Period (Y+Rc), s	4.4	5.8		4.9	4.4	* 5.8		4.9				
Max Green Setting (Gmax), s	7.6	29.2		28.1	6.6	* 30		28.1				
Max Q Clear Time (g_c+l1), s	4.1	2.0		5.1	3.2	2.0		5.1				
Green Ext Time (p_c), s	0.0	5.5		0.1	0.0	6.9		0.3				

Intersection Summary

HCM 6th Ctrl Delay 6.5

HCM 6th LOS A

Notes

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

HCM 6th Signalized Intersection Summary
6: Rancho Carmel Dr & Shoal Creek Dr

Ex + P PM
02/20/2020

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (veh/h)	36	62	0	498	38	78	544
Future Volume (veh/h)	36	62	0	498	38	78	544
Initial Q (Q _b), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00			0.96	1.00	
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	37	63		508	39	80	555
Peak Hour Factor	0.98	0.98		0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	601	535		1453	111	103	1932
Arrive On Green	0.34	0.34		0.87	0.87	0.06	0.54
Sat Flow, veh/h	1781	1585		3427	255	1781	3647
Grp Volume(v), veh/h	37	63		270	277	80	555
Grp Sat Flow(s), veh/h/ln	1781	1585		1777	1812	1781	1777
Q Serve(g_s), s	1.1	2.2		2.2	2.3	3.5	6.8
Cycle Q Clear(g_c), s	1.1	2.2		2.2	2.3	3.5	6.8
Prop In Lane	1.00	1.00			0.14	1.00	
Lane Grp Cap(c), veh/h	601	535		774	790	103	1932
V/C Ratio(X)	0.06	0.12		0.35	0.35	0.78	0.29
Avail Cap(c_a), veh/h	601	535		774	790	245	1932
HCM Platoon Ratio	1.00	1.00		2.00	2.00	1.00	1.00
Upstream Filter(l)	1.00	1.00		0.98	0.98	1.00	1.00
Uniform Delay (d), s/veh	17.9	18.3		3.0	3.0	37.2	9.9
Incr Delay (d2), s/veh	0.2	0.4		1.2	1.2	4.6	0.4
Initial Q Delay(d3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.5	0.8		0.9	0.9	1.6	2.5
Unsig. Movement Delay, s/veh							
LnGrp Delay(d), s/veh	18.1	18.7		4.3	4.2	41.8	10.2
LnGrp LOS	B	B		A	A	D	B
Approach Vol, veh/h	100			547			635
Approach Delay, s/veh	18.5			4.2			14.2
Approach LOS	B			A			B
Timer - Assigned Phs	1	2			6		8
Phs Duration (G+Y+R _c), s	8.6	40.4			49.0		31.0
Change Period (Y+R _c), s	4.0	5.5			* 5.5		4.0
Max Green Setting (Gmax), s	11.0	28.5			* 36		27.0
Max Q Clear Time (g_c+l1), s	5.5	4.3			8.8		4.2
Green Ext Time (p_c), s	0.0	4.9			7.0		0.1
Intersection Summary							
HCM 6th Ctrl Delay			10.3				
HCM 6th LOS			B				
Notes							
User approved ignoring U-Turning movement.							
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.							

APPENDIX D

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – OPENING YEAR 2022 WITHOUT PROJECT

HCM 6th Signalized Intersection Summary
1: I-15 SB Ramps & SR 56

Ex + C AM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1676	579	0	1609	974	0	0	0	161	37	0
Future Volume (veh/h)	0	1676	579	0	1609	974	0	0	0	161	37	0
Initial Q (Q _b), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	1746	603	0	1676	0				104	129	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	3766	1132	0	2621					281	295	
Arrive On Green	0.00	0.74	0.74	0.00	1.00	0.00				0.16	0.16	0.00
Sat Flow, veh/h	0	5274	1535	0	3647	1585				1781	1870	3170
Grp Volume(v), veh/h	0	1746	603	0	1676	0				104	129	0
Grp Sat Flow(s), veh/h/ln	0	1702	1535	0	1777	1585				1781	1870	1585
Q Serve(g_s), s	0.0	16.4	20.4	0.0	0.0	0.0				6.3	7.5	0.0
Cycle Q Clear(g_c), s	0.0	16.4	20.4	0.0	0.0	0.0				6.3	7.5	0.0
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	3766	1132	0	2621					281	295	
V/C Ratio(X)	0.00	0.46	0.53	0.00	0.64					0.37	0.44	
Avail Cap(c_a), veh/h	0	3766	1132	0	2621					281	295	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	1.00	0.00	0.42	0.00				1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	6.3	6.8	0.0	0.0	0.0				45.2	45.7	0.0
Incr Delay (d2), s/veh	0.0	0.4	1.8	0.0	0.5	0.0				3.7	4.7	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
%ile BackOfQ(50%), veh/ln	0.0	5.3	6.4	0.0	0.2	0.0				3.1	3.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	6.7	8.6	0.0	0.5	0.0				49.0	50.4	0.0
LnGrp LOS	A	A	A	A	A					D	D	
Approach Vol, veh/h	2349			1676		A				233		A
Approach Delay, s/veh	7.2			0.5						49.8		
Approach LOS	A			A						D		
Timer - Assigned Phs	2		4		6							
Phs Duration (G+Y+Rc), s	96.0		24.0		96.0							
Change Period (Y+Rc), s	7.5		5.1		7.5							
Max Green Setting (Gmax), s	88.5		18.9		88.5							
Max Q Clear Time (g_c+l1), s	22.4		9.5		2.0							
Green Ext Time (p_c), s	17.6		0.4		14.1							

Intersection Summary

HCM 6th Ctrl Delay	6.9
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
2: I-15 NB Ramps & SR 56

Ex + C AM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	966	1069	0	1808	270	510	30	433	0	0	0
Future Volume (veh/h)	0	966	1069	0	1808	270	510	30	433	0	0	0
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.96			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	0	1098	1215	0	2055	307	604	0	492			
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88			
Percent Heavy Veh, %	0	2	2	0	2	2	2	2	2			
Cap, veh/h	0	3603	2433	0	2508	1097	675	0	577			
Arrive On Green	0.00	1.00	1.00	0.00	0.71	0.71	0.19	0.00	0.19			
Sat Flow, veh/h	0	5274	2700	0	3647	1554	3563	0	3047			
Grp Volume(v), veh/h	0	1098	1215	0	2055	307	604	0	492			
Grp Sat Flow(s), veh/h/ln	0	1702	1350	0	1777	1554	1781	0	1523			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	48.4	8.7	19.9	0.0	18.7			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	48.4	8.7	19.9	0.0	18.7			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	3603	2433	0	2508	1097	675	0	577			
V/C Ratio(X)	0.00	0.30	0.50	0.00	0.82	0.28	0.90	0.00	0.85			
Avail Cap(c_a), veh/h	0	3603	2433	0	2508	1097	721	0	617			
HCM Platoon Ratio	1.00	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	0.00	0.89	0.89	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	12.3	6.5	47.5	0.0	47.0			
Incr Delay (d2), s/veh	0.0	0.2	0.7	0.0	3.1	0.6	12.6	0.0	9.9			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%), veh/ln	0.0	0.1	0.2	0.0	18.0	2.8	10.0	0.0	7.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.2	0.7	0.0	15.5	7.1	60.1	0.0	56.9			
LnGrp LOS	A	A	A	A	B	A	E	A	E			
Approach Vol, veh/h	2313			2362			1096					
Approach Delay, s/veh	0.4			14.4			58.7					
Approach LOS	A			B			E					
Timer - Assigned Phs	2			6			8					
Phs Duration (G+Y+Rc), s	92.2			92.2			27.8					
Change Period (Y+Rc), s	7.5			7.5			5.1					
Max Green Setting (Gmax), s	83.1			83.1			24.3					
Max Q Clear Time (g_c+l1), s	2.0			50.4			21.9					
Green Ext Time (p_c), s	13.7			17.9			0.9					
Intersection Summary												
HCM 6th Ctrl Delay	17.2											
HCM 6th LOS	B											
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary
3: Sabre Springs Rd & Ted Williams Pkwy EB Ramps

Ex + C AM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑↑↑					↑↑↑		↑	↑↑	
Traffic Volume (veh/h)	163	0	408	0	0	0	0	396	121	30	392	0
Future Volume (veh/h)	163	0	408	0	0	0	0	396	121	30	392	0
Initial Q (Q _b), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94				1.00		0.97	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
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	173	0	434				0	421	129	32	417	0
Peak Hour Factor	0.94	0.94	0.94				0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	736	0	615				0	2893	813	45	2349	0
Arrive On Green	0.21	0.00	0.21				0.00	0.58	0.58	0.05	1.00	0.00
Sat Flow, veh/h	3563	0	2976				0	5246	1400	1781	3647	0
Grp Volume(v), veh/h	173	0	434				0	406	144	32	417	0
Grp Sat Flow(s), veh/h/ln	1781	0	1488				0	1609	1559	1781	1777	0
Q Serve(g_s), s	3.2	0.0	10.8				0.0	3.1	3.4	1.4	0.0	0.0
Cycle Q Clear(g_c), s	3.2	0.0	10.8				0.0	3.1	3.4	1.4	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.90	1.00		0.00
Lane Grp Cap(c), veh/h	736	0	615				0	2801	905	45	2349	0
V/C Ratio(X)	0.24	0.00	0.71				0.00	0.15	0.16	0.71	0.18	0.00
Avail Cap(c_a), veh/h	1608	0	1343				0	2801	905	191	2349	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(l)	1.00	0.00	1.00				0.00	1.00	1.00	0.99	0.99	0.00
Uniform Delay (d), s/veh	26.5	0.0	29.5				0.0	7.7	7.8	37.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	1.5				0.0	0.1	0.4	7.2	0.2	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
%ile BackOfQ(50%), veh/ln	1.4	0.0	3.9				0.0	1.0	1.1	0.7	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	26.6	0.0	31.0				0.0	7.8	8.1	44.9	0.2	0.0
LnGrp LOS	C	A	C				A	A	A	D	A	A
Approach Vol, veh/h	607							550			449	
Approach Delay, s/veh	29.7							7.9			3.3	
Approach LOS	C							A			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	6.4	52.1	21.4	58.6								
Change Period (Y+Rc), s	4.4	* 5.7	4.9	5.7								
Max Green Setting (Gmax), s	8.6	* 20	36.1	33.3								
Max Q Clear Time (g_c+l1), s	3.4	5.4	12.8	2.0								
Green Ext Time (p_c), s	0.0	4.3	2.6	2.1								

Intersection Summary

HCM 6th Ctrl Delay	14.9
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

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

HCM 6th Signalized Intersection Summary
4: Sabre Springs Rd/Rancho Carmel Dr & Ted Williams Pkwy WB Ramps

Ex + C AM

02/20/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑	↑	↑↑	↑↑			↑↑	↑↑
Traffic Volume (veh/h)	0	0	0	174	8	35	295	283	0	0	218	334
Future Volume (veh/h)	0	0	0	174	8	35	295	283	0	0	218	334
Initial Q (Q _b), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.96	1.00		1.00	1.00		0.96
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				207	10	42	324	311	0	0	240	367
Peak Hour Factor				0.84	0.84	0.84	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				263	13	234	420	2440	0	0	1813	1371
Arrive On Green				0.26	0.26	0.26	0.12	0.69	0.00	0.00	0.85	0.85
Sat Flow, veh/h				1703	82	1514	3456	3647	0	0	3647	2687
Grp Volume(v), veh/h				217	0	42	324	311	0	0	240	367
Grp Sat Flow(s), veh/h/ln				1785	0	1514	1728	1777	0	0	1777	1344
Q Serve(g_s), s				9.0	0.0	1.7	7.3	2.4	0.0	0.0	0.9	2.1
Cycle Q Clear(g_c), s				9.0	0.0	1.7	7.3	2.4	0.0	0.0	0.9	2.1
Prop In Lane				0.95		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				276	0	234	420	2440	0	0	1813	1371
V/C Ratio(X)				0.79	0.00	0.18	0.77	0.13	0.00	0.00	0.13	0.27
Avail Cap(c_a), veh/h				513	0	435	803	2440	0	0	1813	1371
HCM Platoon Ratio				1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.67	1.67
Upstream Filter(l)				1.00	0.00	1.00	0.99	0.99	0.00	0.00	0.99	0.99
Uniform Delay (d), s/veh				28.4	0.0	25.7	34.1	4.3	0.0	0.0	3.0	3.1
Incr Delay (d2), s/veh				1.9	0.0	0.1	1.1	0.1	0.0	0.0	0.1	0.5
Initial Q Delay(d3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln				3.5	0.0	0.6	3.0	0.7	0.0	0.0	0.3	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				30.3	0.0	25.9	35.2	4.4	0.0	0.0	3.1	3.5
LnGrp LOS				C	A	C	D	A	A	A	A	A
Approach Vol, veh/h						259		635			607	
Approach Delay, s/veh						29.6		20.1			3.4	
Approach LOS						C		C			A	
Timer - Assigned Phs				2		5	6		8			
Phs Duration (G+Y+Rc), s				60.6		14.1	46.5		19.4			
Change Period (Y+Rc), s				* 5.7		4.4	5.7		7.0			
Max Green Setting (Gmax), s				* 45		18.6	21.3		23.0			
Max Q Clear Time (g_c+l1), s				4.4		9.3	4.1		11.0			
Green Ext Time (p_c), s				1.6		0.5	3.8		0.7			
Intersection Summary												
HCM 6th Ctrl Delay				15.0								
HCM 6th LOS				B								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary

5: Rancho Carmel Dr & Provencal Pl

Ex + C AM

02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	1	21	117	0	33	8	258	20	36	443	12
Future Volume (veh/h)	16	1	21	117	0	33	8	258	20	36	443	12
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	0.99		0.96	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	1	22	121	0	34	8	266	21	37	457	12
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	103	28	87	294	0	265	15	2026	159	50	2221	58
Arrive On Green	0.17	0.17	0.17	0.17	0.00	0.17	0.02	1.00	1.00	0.06	1.00	1.00
Sat Flow, veh/h	228	159	501	1168	0	1520	1781	3329	261	1781	3534	93
Grp Volume(v), veh/h	39	0	0	121	0	34	8	141	146	37	229	240
Grp Sat Flow(s), veh/h/ln	888	0	0	1168	0	1520	1781	1777	1813	1781	1777	1850
Q Serve(g_s), s	0.2	0.0	0.0	0.0	0.0	1.5	0.4	0.0	0.0	1.6	0.0	0.0
Cycle Q Clear(g_c), s	8.8	0.0	0.0	8.6	0.0	1.5	0.4	0.0	0.0	1.6	0.0	0.0
Prop In Lane	0.41		0.56	1.00		1.00	1.00		0.14	1.00		0.05
Lane Grp Cap(c), veh/h	219	0	0	294	0	265	15	1082	1103	50	1117	1163
V/C Ratio(X)	0.18	0.00	0.00	0.41	0.00	0.13	0.55	0.13	0.13	0.74	0.21	0.21
Avail Cap(c_a), veh/h	494	0	0	554	0	553	102	1082	1103	169	1117	1163
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99
Uniform Delay (d), s/veh	28.1	0.0	0.0	30.8	0.0	27.9	39.2	0.0	0.0	37.5	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.3	0.0	0.1	11.6	0.2	0.2	7.7	0.4	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.6	0.0	0.0	2.1	0.0	0.5	0.2	0.1	0.1	0.8	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	28.3	0.0	0.0	31.2	0.0	28.0	50.8	0.2	0.2	45.2	0.4	0.4
LnGrp LOS	C	A	A	C	A	C	D	A	A	D	A	A
Approach Vol, veh/h		39			155			295			506	
Approach Delay, s/veh		28.3			30.5			1.6			3.7	
Approach LOS		C			C			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+R _c), s	6.6	54.5		18.9	5.1	56.1		18.9				
Change Period (Y+R _c), s	4.4	5.8		4.9	4.4	* 5.8		4.9				
Max Green Setting (Gmax), s	7.6	28.2		29.1	4.6	* 31		29.1				
Max Q Clear Time (g_c+l1), s	3.6	2.0		10.8	2.4	2.0		10.6				
Green Ext Time (p_c), s	0.0	2.4		0.1	0.0	5.9		0.4				

Intersection Summary

HCM 6th Ctrl Delay 8.2

HCM 6th LOS A

Notes

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

HCM 6th Signalized Intersection Summary
6: Rancho Carmel Dr & Shoal Creek Dr

Ex + C AM
04/17/2020

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (veh/h)	106	128	0	304	62	74	315
Future Volume (veh/h)	106	128	0	304	62	74	315
Initial Q (Q _b), veh	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00			0.96	1.00	
Parking Bus, Adj	1.00	1.00			1.00	1.00	1.00
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	
Adj Flow Rate, veh/h	119	144		342	70	83	354
Peak Hour Factor	0.89	0.89		0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	668	594		1157	233	107	1799
Arrive On Green	0.38	0.38		0.79	0.79	0.06	0.51
Sat Flow, veh/h	1781	1585		3015	589	1781	3647
Grp Volume(v), veh/h	119	144		206	206	83	354
Grp Sat Flow(s), veh/h/ln	1781	1585		1777	1734	1781	1777
Q Serve(g_s), s	3.6	5.0		2.5	2.6	3.7	4.4
Cycle Q Clear(g_c), s	3.6	5.0		2.5	2.6	3.7	4.4
Prop In Lane	1.00	1.00			0.34	1.00	
Lane Grp Cap(c), veh/h	668	594		704	687	107	1799
V/C Ratio(X)	0.18	0.24		0.29	0.30	0.77	0.20
Avail Cap(c_a), veh/h	668	594		704	687	267	1799
HCM Platoon Ratio	1.00	1.00		2.00	2.00	1.00	1.00
Upstream Filter(l)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.7	17.2		5.3	5.3	37.1	10.8
Incr Delay (d2), s/veh	0.6	1.0		1.1	1.1	4.4	0.2
Initial Q Delay(d3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	1.5	1.9		1.0	1.0	1.7	1.6
Unsig. Movement Delay, s/veh							
LnGrp Delay(d), s/veh	17.3	18.2		6.3	6.4	41.5	11.1
LnGrp LOS	B	B		A	A	D	B
Approach Vol, veh/h	263			412			437
Approach Delay, s/veh	17.8			6.4			16.9
Approach LOS	B			A			B
Timer - Assigned Phs	1	2			6		8
Phs Duration (G+Y+R _c), s	8.8	37.2			46.0		34.0
Change Period (Y+R _c), s	4.0	5.5			* 5.5		4.0
Max Green Setting (Gmax), s	12.0	24.5			* 33		30.0
Max Q Clear Time (g_c+l1), s	5.7	4.6			6.4		7.0
Green Ext Time (p_c), s	0.0	3.3			4.2		0.4
Intersection Summary							
HCM 6th Ctrl Delay			13.2				
HCM 6th LOS			B				
Notes							
User approved ignoring U-Turning movement.							
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.							

HCM 6th Signalized Intersection Summary
1: I-15 SB Ramps & SR 56

Ex + C PM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑				↑	↑	↑↑
Traffic Volume (veh/h)	0	2441	406	0	1646	605	0	0	0	212	8	0
Future Volume (veh/h)	0	2441	406	0	1646	605	0	0	0	212	8	0
Initial Q (Q _b), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	2682	446	0	1809	0				239	0	0
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	2	0	2	2				2	2	2
Cap, veh/h	0	4080	1228	0	2840					308	0	
Arrive On Green	0.00	0.80	0.80	0.00	1.00	0.00				0.09	0.00	0.00
Sat Flow, veh/h	0	5274	1536	0	3647	1585				3563	0	3170
Grp Volume(v), veh/h	0	2682	446	0	1809	0				239	0	0
Grp Sat Flow(s), veh/h/ln	0	1702	1536	0	1777	1585				1781	0	1585
Q Serve(g_s), s	0.0	24.5	9.0	0.0	0.0	0.0				7.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	24.5	9.0	0.0	0.0	0.0				7.2	0.0	0.0
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	4080	1228	0	2840					308	0	
V/C Ratio(X)	0.00	0.66	0.36	0.00	0.64					0.78	0.00	
Avail Cap(c_a), veh/h	0	4080	1228	0	2840					567	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	1.00	0.00	0.45	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	4.7	3.1	0.0	0.0	0.0				49.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.8	0.8	0.0	0.5	0.0				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
%ile BackOfQ(50%), veh/ln	0.0	6.5	2.3	0.0	0.2	0.0				3.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	5.5	4.0	0.0	0.5	0.0				50.8	0.0	0.0
LnGrp LOS	A	A	A	A	A					D	A	
Approach Vol, veh/h		3128			1809	A				239		A
Approach Delay, s/veh		5.3			0.5					50.8		
Approach LOS		A			A					D		D
Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+R _c), s		95.4		14.6		95.4						
Change Period (Y+R _c), s		7.5		5.1		7.5						
Max Green Setting (Gmax), s		79.9		17.5		79.9						
Max Q Clear Time (g _{c+l1}), s		26.5		9.2		2.0						
Green Ext Time (p _c), s		33.9		0.3		16.5						

Intersection Summary

HCM 6th Ctrl Delay	5.7
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
2: I-15 NB Ramps & SR 56

Ex + C PM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1463	1150	0	1403	178	781	96	957	0	0	0
Future Volume (veh/h)	0	1463	1150	0	1403	178	781	96	957	0	0	0
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.97			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	0	1590	1250	0	1525	193	923	0	1040			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	0	2	2	0	2	2	2	2	2			
Cap, veh/h	0	2637	2417	0	1835	801	1315	0	1140			
Arrive On Green	0.00	1.00	1.00	0.00	0.52	0.52	0.37	0.00	0.37			
Sat Flow, veh/h	0	5274	2688	0	3647	1550	3563	0	3088			
Grp Volume(v), veh/h	0	1590	1250	0	1525	193	923	0	1040			
Grp Sat Flow(s), veh/h/ln	0	1702	1344	0	1777	1550	1781	0	1544			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	40.0	7.6	24.3	0.0	35.2			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	40.0	7.6	24.3	0.0	35.2			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2637	2417	0	1835	801	1315	0	1140			
V/C Ratio(X)	0.00	0.60	0.52	0.00	0.83	0.24	0.70	0.00	0.91			
Avail Cap(c_a), veh/h	0	2637	2417	0	1835	801	1357	0	1176			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	0.00	0.68	0.68	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	22.5	14.7	29.5	0.0	33.0			
Incr Delay (d2), s/veh	0.0	0.7	0.5	0.0	4.6	0.7	1.6	0.0	10.6			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%), veh/ln	0.0	0.2	0.2	0.0	17.0	2.8	10.5	0.0	14.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.7	0.5	0.0	27.1	15.4	31.1	0.0	43.6			
LnGrp LOS	A	A	A	A	C	B	C	A	D			
Approach Vol, veh/h	2840				1718				1963			
Approach Delay, s/veh	0.6				25.8				37.8			
Approach LOS	A				C				D			
Timer - Assigned Phs	2				6				8			
Phs Duration (G+Y+Rc), s	64.3				64.3				45.7			
Change Period (Y+Rc), s	7.5				7.5				5.1			
Max Green Setting (Gmax), s	55.5				55.5				41.9			
Max Q Clear Time (g_c+l1), s	2.0				42.0				37.2			
Green Ext Time (p_c), s	35.0				9.4				3.4			
Intersection Summary												
HCM 6th Ctrl Delay		18.4										
HCM 6th LOS			B									
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary
3: Sabre Springs Rd & Ted Williams Pkwy EB Ramps

Ex + C PM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↔	↑↑↑					↑↑↑		↑	↑↑	
Traffic Volume (veh/h)	377	3	280	0	0	0	0	684	175	34	401	0
Future Volume (veh/h)	377	3	280	0	0	0	0	684	175	34	401	0
Initial Q (Q _b), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93				1.00		0.97	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
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	395	0	292				0	712	182	35	418	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	638	0	529				0	3125	766	48	2447	0
Arrive On Green	0.18	0.00	0.18				0.00	0.61	0.61	0.05	1.00	0.00
Sat Flow, veh/h	3563	0	2956				0	5415	1263	1781	3647	0
Grp Volume(v), veh/h	395	0	292				0	665	229	35	418	0
Grp Sat Flow(s), veh/h/ln	1781	0	1478				0	1609	1590	1781	1777	0
Q Serve(g_s), s	8.2	0.0	7.2				0.0	5.0	5.3	1.5	0.0	0.0
Cycle Q Clear(g_c), s	8.2	0.0	7.2				0.0	5.0	5.3	1.5	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.79	1.00		0.00
Lane Grp Cap(c), veh/h	638	0	529				0	2927	964	48	2447	0
V/C Ratio(X)	0.62	0.00	0.55				0.00	0.23	0.24	0.73	0.17	0.00
Avail Cap(c_a), veh/h	1429	0	1186				0	2927	964	191	2447	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(l)	1.00	0.00	1.00				0.00	1.00	1.00	0.99	0.99	0.00
Uniform Delay (d), s/veh	30.3	0.0	29.9				0.0	7.2	7.2	37.5	0.0	0.0
Incr Delay (d2), s/veh	1.0	0.0	0.9				0.0	0.2	0.6	7.5	0.2	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
%ile BackOfQ(50%), veh/ln	3.5	0.0	2.6				0.0	1.6	1.7	0.8	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	31.3	0.0	30.8				0.0	7.4	7.8	45.0	0.2	0.0
LnGrp LOS	C	A	C				A	A	A	D	A	A
Approach Vol, veh/h	687							894			453	
Approach Delay, s/veh	31.1							7.5			3.6	
Approach LOS	C							A			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	6.6	54.2	19.2	60.8								
Change Period (Y+Rc), s	4.4	* 5.7	4.9	5.7								
Max Green Setting (Gmax), s	8.6	* 24	32.1	37.3								
Max Q Clear Time (g_c+l1), s	3.5	7.3	10.2	2.0								
Green Ext Time (p_c), s	0.0	7.5	2.7	2.2								
Intersection Summary												
HCM 6th Ctrl Delay			14.6									
HCM 6th LOS			B									
Notes												
User approved volume balancing among the lanes for turning movement.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary
4: Sabre Springs Rd/Rancho Carmel Dr & Ted Williams Pkwy WB Ramps

Ex + C PM

02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑	↑	↑↑	↑↑		↑↑	↑↑	↑↑
Traffic Volume (veh/h)	0	0	0	105	3	40	421	667	0	0	308	359
Future Volume (veh/h)	0	0	0	105	3	40	421	667	0	0	308	359
Initial Q (Q _b), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.95	1.00		1.00	1.00		0.96
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No		No		No		No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				122	3	47	458	725	0	0	335	390
Peak Hour Factor				0.86	0.86	0.86	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				232	6	201	564	2516	0	0	1741	1315
Arrive On Green				0.27	0.27	0.27	0.11	0.47	0.00	0.00	0.16	0.16
Sat Flow, veh/h				1741	43	1506	3456	3647	0	0	3647	2685
Grp Volume(v), veh/h				125	0	47	458	725	0	0	335	390
Grp Sat Flow(s), veh/h/ln				1783	0	1506	1728	1777	0	0	1777	1343
Q Serve(g_s), s				4.8	0.0	2.0	10.4	9.9	0.0	0.0	6.5	10.2
Cycle Q Clear(g_c), s				4.8	0.0	2.0	10.4	9.9	0.0	0.0	6.5	10.2
Prop In Lane				0.98		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				238	0	201	564	2516	0	0	1741	1315
V/C Ratio(X)				0.53	0.00	0.23	0.81	0.29	0.00	0.00	0.19	0.30
Avail Cap(c_a), veh/h				446	0	376	933	2516	0	0	1741	1315
HCM Platoon Ratio				2.00	2.00	2.00	0.67	0.67	1.00	1.00	0.33	0.33
Upstream Filter(l)				1.00	0.00	1.00	0.96	0.96	0.00	0.00	0.98	0.98
Uniform Delay (d), s/veh				27.2	0.0	26.1	34.4	8.8	0.0	0.0	19.8	21.4
Incr Delay (d2), s/veh				0.7	0.0	0.2	1.1	0.3	0.0	0.0	0.2	0.6
Initial Q Delay(d3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln				1.9	0.0	0.7	4.5	3.8	0.0	0.0	2.8	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				27.9	0.0	26.4	35.5	9.0	0.0	0.0	20.1	22.0
LnGrp LOS				C	A	C	D	A	A	A	C	C
Approach Vol, veh/h					172			1183			725	
Approach Delay, s/veh					27.4			19.3			21.1	
Approach LOS					C			B			C	
Timer - Assigned Phs				2		5	6		8			
Phs Duration (G+Y+Rc), s				62.3		17.5	44.9		17.7			
Change Period (Y+Rc), s				* 5.7		4.4	5.7		7.0			
Max Green Setting (Gmax), s				* 48		21.6	21.3		20.0			
Max Q Clear Time (g_c+l1), s				11.9		12.4	12.2		6.8			
Green Ext Time (p_c), s				4.3		0.7	3.3		0.4			
Intersection Summary												
HCM 6th Ctrl Delay				20.6								
HCM 6th LOS				C								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary

5: Rancho Carmel Dr & Provencal Pl

Ex + C PM

02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	3	36	66	0	29	44	556	48	64	544	20
Future Volume (veh/h)	27	3	36	66	0	29	44	556	48	64	544	20
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.94	0.98		0.94	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	3	37	68	0	30	45	573	49	66	561	21
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	119	31	103	279	0	193	56	2096	179	84	2268	85
Arrive On Green	0.13	0.13	0.13	0.13	0.00	0.13	0.06	1.00	1.00	0.09	1.00	1.00
Sat Flow, veh/h	430	240	800	1460	0	1493	1781	3302	282	1781	3487	130
Grp Volume(v), veh/h	68	0	0	68	0	30	45	308	314	66	285	297
Grp Sat Flow(s), veh/h/ln	1471	0	0	1460	0	1493	1781	1777	1806	1781	1777	1841
Q Serve(g_s), s	0.4	0.0	0.0	0.0	0.0	1.4	2.0	0.0	0.0	2.9	0.0	0.0
Cycle Q Clear(g_c), s	3.2	0.0	0.0	2.8	0.0	1.4	2.0	0.0	0.0	2.9	0.0	0.0
Prop In Lane	0.41		0.54	1.00		1.00	1.00		0.16	1.00		0.07
Lane Grp Cap(c), veh/h	253	0	0	279	0	193	56	1128	1147	84	1156	1197
V/C Ratio(X)	0.27	0.00	0.00	0.24	0.00	0.16	0.80	0.27	0.27	0.78	0.25	0.25
Avail Cap(c_a), veh/h	573	0	0	575	0	524	147	1128	1147	169	1156	1197
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	0.97	0.97	0.97	0.97	0.97	0.97
Uniform Delay (d), s/veh	31.7	0.0	0.0	31.6	0.0	31.0	37.2	0.0	0.0	35.8	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.2	0.0	0.1	9.0	0.6	0.6	5.7	0.5	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	1.2	0.0	0.0	1.2	0.0	0.5	1.0	0.2	0.2	1.3	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	31.9	0.0	0.0	31.7	0.0	31.1	46.2	0.6	0.6	41.5	0.5	0.5
LnGrp LOS	C	A	A	C	A	C	D	A	A	D	A	A
Approach Vol, veh/h		68			98			667			648	
Approach Delay, s/veh		31.9			31.5			3.7			4.7	
Approach LOS		C			C			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.2	56.6		15.2	6.9	57.8		15.2				
Change Period (Y+Rc), s	4.4	5.8		4.9	4.4	* 5.8		4.9				
Max Green Setting (Gmax), s	7.6	29.2		28.1	6.6	* 30		28.1				
Max Q Clear Time (g_c+l1), s	4.9	2.0		5.2	4.0	2.0		4.8				
Green Ext Time (p_c), s	0.0	5.9		0.2	0.0	7.5		0.3				

Intersection Summary

HCM 6th Ctrl Delay	7.2
HCM 6th LOS	A

Notes

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

HCM 6th Signalized Intersection Summary
6: Rancho Carmel Dr & Shoal Creek Dr

Ex + C PM
04/17/2020

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (veh/h)	56	73	0	508	68	104	565
Future Volume (veh/h)	56	73	0	508	68	104	565
Initial Q (Q _b), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00			0.96	1.00	
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	57	74		518	69	106	577
Peak Hour Factor	0.98	0.98		0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	601	535		1310	174	135	1932
Arrive On Green	0.34	0.34		0.84	0.84	0.08	0.54
Sat Flow, veh/h	1781	1585		3229	416	1781	3647
Grp Volume(v), veh/h	57	74		292	295	106	577
Grp Sat Flow(s), veh/h/ln	1781	1585		1777	1775	1781	1777
Q Serve(g_s), s	1.8	2.6		3.2	3.3	4.7	7.1
Cycle Q Clear(g_c), s	1.8	2.6		3.2	3.3	4.7	7.1
Prop In Lane	1.00	1.00			0.23	1.00	
Lane Grp Cap(c), veh/h	601	535		742	741	135	1932
V/C Ratio(X)	0.09	0.14		0.39	0.40	0.78	0.30
Avail Cap(c_a), veh/h	601	535		742	741	245	1932
HCM Platoon Ratio	1.00	1.00		2.00	2.00	1.00	1.00
Upstream Filter(l)	1.00	1.00		0.97	0.97	1.00	1.00
Uniform Delay (d), s/veh	18.1	18.4		4.1	4.1	36.3	9.9
Incr Delay (d2), s/veh	0.3	0.5		1.5	1.5	3.7	0.4
Initial Q Delay(d3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.7	1.0		1.2	1.2	2.1	2.6
Unsig. Movement Delay, s/veh							
LnGrp Delay(d), s/veh	18.4	19.0		5.6	5.6	40.0	10.3
LnGrp LOS	B	B		A	A	D	B
Approach Vol, veh/h	131			587			683
Approach Delay, s/veh	18.7			5.6			14.9
Approach LOS	B			A			B
Timer - Assigned Phs	1	2			6		8
Phs Duration (G+Y+R _c), s	10.1	38.9			49.0		31.0
Change Period (Y+R _c), s	4.0	5.5			* 5.5		4.0
Max Green Setting (Gmax), s	11.0	28.5			* 36		27.0
Max Q Clear Time (g_c+l1), s	6.7	5.3			9.1		4.6
Green Ext Time (p_c), s	0.0	5.2			7.2		0.2
Intersection Summary							
HCM 6th Ctrl Delay			11.4				
HCM 6th LOS			B				
Notes							
User approved ignoring U-Turning movement.							
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.							

APPENDIX E

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – OPENING YEAR 2022 WITH PROJECT

HCM 6th Signalized Intersection Summary
1: I-15 SB Ramps & SR 56

Ex + C + P AM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1677	579	0	1613	979	0	0	0	162	37	0
Future Volume (veh/h)	0	1677	579	0	1613	979	0	0	0	162	37	0
Initial Q (Q _b), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	1747	603	0	1680	0				208	0	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.90	0.96	0.96
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	3681	1106	0	2562					620	0	
Arrive On Green	0.00	0.72	0.72	0.00	1.00	0.00				0.17	0.00	0.00
Sat Flow, veh/h	0	5274	1534	0	3647	1585				3563	0	3170
Grp Volume(v), veh/h	0	1747	603	0	1680	0				208	0	0
Grp Sat Flow(s), veh/h/ln	0	1702	1534	0	1777	1585				1781	0	1585
Q Serve(g_s), s	0.0	17.4	21.7	0.0	0.0	0.0				6.1	0.0	0.0
Cycle Q Clear(g_c), s	0.0	17.4	21.7	0.0	0.0	0.0				6.1	0.0	0.0
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	3681	1106	0	2562					620	0	
V/C Ratio(X)	0.00	0.47	0.55	0.00	0.66					0.34	0.00	
Avail Cap(c_a), veh/h	0	3681	1106	0	2562					620	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	1.00	0.00	0.41	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	7.1	7.7	0.0	0.0	0.0				43.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.4	1.9	0.0	0.5	0.0				1.5	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.0	5.8	7.0	0.0	0.2	0.0				2.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	7.5	9.6	0.0	0.5	0.0				44.9	0.0	0.0
LnGrp LOS	A	A	A	A	A					D	A	
Approach Vol, veh/h	2350			1680		A				208		A
Approach Delay, s/veh	8.1			0.5						44.9		
Approach LOS	A			A						D		
Timer - Assigned Phs	2		4		6							
Phs Duration (G+Y+Rc), s	94.0		26.0		94.0							
Change Period (Y+Rc), s	7.5		5.1		7.5							
Max Green Setting (Gmax), s	86.5		20.9		86.5							
Max Q Clear Time (g_c+l1), s	23.7		8.1		2.0							
Green Ext Time (p_c), s	17.5		0.3		14.1							

Intersection Summary

HCM 6th Ctrl Delay	6.9
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
2: I-15 NB Ramps & SR 56

Ex + C + P AM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	968	1069	0	1817	274	510	30	434	0	0	0
Future Volume (veh/h)	0	968	1069	0	1817	274	510	30	434	0	0	0
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.96			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	0	1100	1215	0	2065	311	604	0	493			
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88			
Percent Heavy Veh, %	0	2	2	0	2	2	2	2	2			
Cap, veh/h	0	3603	2433	0	2508	1097	675	0	577			
Arrive On Green	0.00	1.00	1.00	0.00	0.71	0.71	0.19	0.00	0.19			
Sat Flow, veh/h	0	5274	2700	0	3647	1554	3563	0	3047			
Grp Volume(v), veh/h	0	1100	1215	0	2065	311	604	0	493			
Grp Sat Flow(s), veh/h/ln	0	1702	1350	0	1777	1554	1781	0	1523			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	49.0	8.8	19.9	0.0	18.8			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	49.0	8.8	19.9	0.0	18.8			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	3603	2433	0	2508	1097	675	0	577			
V/C Ratio(X)	0.00	0.31	0.50	0.00	0.82	0.28	0.90	0.00	0.85			
Avail Cap(c_a), veh/h	0	3603	2433	0	2508	1097	721	0	617			
HCM Platoon Ratio	1.00	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	0.00	0.88	0.88	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	12.4	6.5	47.5	0.0	47.0			
Incr Delay (d2), s/veh	0.0	0.2	0.6	0.0	3.2	0.6	12.6	0.0	10.0			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%), veh/ln	0.0	0.1	0.2	0.0	18.2	2.9	10.0	0.0	7.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.2	0.6	0.0	15.6	7.1	60.1	0.0	57.1			
LnGrp LOS	A	A	A	A	B	A	E	A	E			
Approach Vol, veh/h	2315			2376			1097					
Approach Delay, s/veh	0.4			14.5			58.7					
Approach LOS	A			B			E					
Timer - Assigned Phs	2			6			8					
Phs Duration (G+Y+Rc), s	92.2			92.2			27.8					
Change Period (Y+Rc), s	7.5			7.5			5.1					
Max Green Setting (Gmax), s	83.1			83.1			24.3					
Max Q Clear Time (g_c+l1), s	2.0			51.0			21.9					
Green Ext Time (p_c), s	13.8			17.9			0.9					
Intersection Summary												
HCM 6th Ctrl Delay		17.3										
HCM 6th LOS		B										
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary
3: Sabre Springs Rd & Ted Williams Pkwy EB Ramps

Ex + C + P AM

02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑↑↑					↑↑↑		↑	↑↑	
Traffic Volume (veh/h)	166	0	408	0	0	0	0	397	121	32	394	0
Future Volume (veh/h)	166	0	408	0	0	0	0	397	121	32	394	0
Initial Q (Q _b), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94				1.00		0.97	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
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	177	0	434				0	422	129	34	419	0
Peak Hour Factor	0.94	0.94	0.94				0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	736	0	615				0	2889	810	47	2348	0
Arrive On Green	0.21	0.00	0.21				0.00	0.58	0.58	0.05	1.00	0.00
Sat Flow, veh/h	3563	0	2976				0	5248	1398	1781	3647	0
Grp Volume(v), veh/h	177	0	434				0	407	144	34	419	0
Grp Sat Flow(s), veh/h/ln	1781	0	1488				0	1609	1559	1781	1777	0
Q Serve(g_s), s	3.3	0.0	10.8				0.0	3.1	3.4	1.5	0.0	0.0
Cycle Q Clear(g_c), s	3.3	0.0	10.8				0.0	3.1	3.4	1.5	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.90	1.00		0.00
Lane Grp Cap(c), veh/h	736	0	615				0	2795	903	47	2348	0
V/C Ratio(X)	0.24	0.00	0.71				0.00	0.15	0.16	0.72	0.18	0.00
Avail Cap(c_a), veh/h	1608	0	1343				0	2795	903	191	2348	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(l)	1.00	0.00	1.00				0.00	1.00	1.00	0.99	0.99	0.00
Uniform Delay (d), s/veh	26.5	0.0	29.5				0.0	7.7	7.8	37.6	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	1.5				0.0	0.1	0.4	7.4	0.2	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
%ile BackOfQ(50%), veh/ln	1.4	0.0	3.9				0.0	1.0	1.1	0.7	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	26.7	0.0	31.0				0.0	7.8	8.2	44.9	0.2	0.0
LnGrp LOS	C	A	C				A	A	A	D	A	A
Approach Vol, veh/h	611							551			453	
Approach Delay, s/veh	29.7							7.9			3.5	
Approach LOS	C							A			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	6.5	52.0	21.4	58.6								
Change Period (Y+Rc), s	4.4	* 5.7	4.9	5.7								
Max Green Setting (Gmax), s	8.6	* 20	36.1	33.3								
Max Q Clear Time (g_c+l1), s	3.5	5.4	12.8	2.0								
Green Ext Time (p_c), s	0.0	4.3	2.6	2.1								

Intersection Summary

HCM 6th Ctrl Delay	14.9
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

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

HCM 6th Signalized Intersection Summary
4: Sabre Springs Rd/Rancho Carmel Dr & Ted Williams Pkwy WB Ramps

Ex + C + P AM

02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑	↑	↑↑	↑↑		↑↑	↑↑	↑↑
Traffic Volume (veh/h)	0	0	0	174	8	36	295	287	0	0	222	346
Future Volume (veh/h)	0	0	0	174	8	36	295	287	0	0	222	346
Initial Q (Q _b), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.95	1.00		1.00	1.00		0.96
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		No
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				202	9	42	343	315	0	0	244	380
Peak Hour Factor				0.86	0.86	0.86	0.86	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				260	12	230	439	2450	0	0	1803	1363
Arrive On Green				0.25	0.25	0.25	0.13	0.69	0.00	0.00	0.85	0.85
Sat Flow, veh/h				1709	76	1513	3456	3647	0	0	3647	2687
Grp Volume(v), veh/h				211	0	42	343	315	0	0	244	380
Grp Sat Flow(s), veh/h/ln				1785	0	1513	1728	1777	0	0	1777	1343
Q Serve(g_s), s				8.8	0.0	1.7	7.7	2.4	0.0	0.0	0.9	2.3
Cycle Q Clear(g_c), s				8.8	0.0	1.7	7.7	2.4	0.0	0.0	0.9	2.3
Prop In Lane				0.96		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				271	0	230	439	2450	0	0	1803	1363
V/C Ratio(X)				0.78	0.00	0.18	0.78	0.13	0.00	0.00	0.14	0.28
Avail Cap(c_a), veh/h				535	0	454	803	2450	0	0	1803	1363
HCM Platoon Ratio				1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.67	1.67
Upstream Filter(l)				1.00	0.00	1.00	0.99	0.99	0.00	0.00	0.99	0.99
Uniform Delay (d), s/veh				28.6	0.0	26.0	33.8	4.2	0.0	0.0	3.1	3.2
Incr Delay (d2), s/veh				1.8	0.0	0.1	1.1	0.1	0.0	0.0	0.2	0.5
Initial Q Delay(d3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln				3.4	0.0	0.6	3.2	0.7	0.0	0.0	0.4	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				30.4	0.0	26.1	35.0	4.3	0.0	0.0	3.2	3.7
LnGrp LOS				C	A	C	C	A	A	A	A	A
Approach Vol, veh/h						253			658		624	
Approach Delay, s/veh						29.7			20.3		3.5	
Approach LOS						C			C		A	
Timer - Assigned Phs				2		5	6		8			
Phs Duration (G+Y+R _c), s				60.8		14.6	46.3		19.2			
Change Period (Y+R _c), s				* 5.7		4.4	5.7		7.0			
Max Green Setting (Gmax), s				* 44		18.6	20.3		24.0			
Max Q Clear Time (g _{c+l1}), s				4.4		9.7	4.3		10.8			
Green Ext Time (p _c), s				1.7		0.5	3.8		0.7			
Intersection Summary												
HCM 6th Ctrl Delay				15.0								
HCM 6th LOS				B								
Notes												
User approved pedestrian interval to be less than phase max green.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary
5: Rancho Carmel Dr & Provencal Pl

Ex + C + P AM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	1	21	133	0	33	8	260	23	36	443	12
Future Volume (veh/h)	16	1	21	133	0	33	8	260	23	36	443	12
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	0.99		0.96	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	1	22	137	0	34	8	268	24	37	457	12
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	100	28	84	302	0	301	15	1927	171	50	2140	56
Arrive On Green	0.20	0.20	0.20	0.20	0.00	0.20	0.02	1.00	1.00	0.06	1.00	1.00
Sat Flow, veh/h	187	141	424	1073	0	1525	1781	3290	292	1781	3534	93
Grp Volume(v), veh/h	39	0	0	137	0	34	8	144	148	37	229	240
Grp Sat Flow(s), veh/h/ln	752	0	0	1073	0	1525	1781	1777	1805	1781	1777	1850
Q Serve(g_s), s	0.2	0.0	0.0	0.0	0.0	1.5	0.4	0.0	0.0	1.6	0.0	0.0
Cycle Q Clear(g_c), s	11.1	0.0	0.0	10.9	0.0	1.5	0.4	0.0	0.0	1.6	0.0	0.0
Prop In Lane	0.41		0.56	1.00		1.00	1.00		0.16	1.00		0.05
Lane Grp Cap(c), veh/h	212	0	0	302	0	301	15	1041	1057	50	1076	1120
V/C Ratio(X)	0.18	0.00	0.00	0.45	0.00	0.11	0.55	0.14	0.14	0.74	0.21	0.21
Avail Cap(c_a), veh/h	455	0	0	531	0	555	102	1041	1057	169	1076	1120
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99
Uniform Delay (d), s/veh	26.8	0.0	0.0	30.1	0.0	26.3	39.2	0.0	0.0	37.5	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.4	0.0	0.1	11.6	0.3	0.3	7.7	0.4	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.6	0.0	0.0	2.4	0.0	0.5	0.2	0.1	0.1	0.8	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	26.9	0.0	0.0	30.5	0.0	26.4	50.8	0.3	0.3	45.2	0.4	0.4
LnGrp LOS	C	A	A	C	A	C	D	A	A	D	A	A
Approach Vol, veh/h		39			171			300			506	
Approach Delay, s/veh		26.9			29.7			1.6			3.7	
Approach LOS		C			C			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.6	52.7		20.7	5.1	54.2		20.7				
Change Period (Y+Rc), s	4.4	5.8		4.9	4.4	* 5.8		4.9				
Max Green Setting (Gmax), s	7.6	28.2		29.1	4.6	* 31		29.1				
Max Q Clear Time (g_c+l1), s	3.6	2.0		13.1	2.4	2.0		12.9				
Green Ext Time (p_c), s	0.0	2.4		0.1	0.0	5.9		0.5				
Intersection Summary												
HCM 6th Ctrl Delay			8.4									
HCM 6th LOS			A									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary
6: Rancho Carmel Dr & Shoal Creek Dr

Ex + C + P AM
04/17/2020



Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↑ ↗	↗ ↘	↖ ↗	↑ ↗ ↘		↖ ↗	↑ ↗ ↘
Traffic Volume (veh/h)	106	128	0	307	62	74	316
Future Volume (veh/h)	106	128	0	307	62	74	316
Initial Q (Q _b), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00			0.96	1.00	
Parking Bus, Adj	1.00	1.00			1.00	1.00	1.00
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	119	144		345	70	83	355
Peak Hour Factor	0.89	0.89		0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	668	594		1159	232	107	1799
Arrive On Green	0.38	0.38		0.79	0.79	0.06	0.51
Sat Flow, veh/h	1781	1585		3020	585	1781	3647
Grp Volume(v), veh/h	119	144		207	208	83	355
Grp Sat Flow(s), veh/h/ln	1781	1585		1777	1735	1781	1777
Q Serve(g_s), s	3.6	5.0		2.5	2.6	3.7	4.4
Cycle Q Clear(g_c), s	3.6	5.0		2.5	2.6	3.7	4.4
Prop In Lane	1.00	1.00			0.34	1.00	
Lane Grp Cap(c), veh/h	668	594		704	687	107	1799
V/C Ratio(X)	0.18	0.24		0.29	0.30	0.77	0.20
Avail Cap(c_a), veh/h	668	594		704	687	267	1799
HCM Platoon Ratio	1.00	1.00		2.00	2.00	1.00	1.00
Upstream Filter(l)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.7	17.2		5.3	5.3	37.1	10.8
Incr Delay (d2), s/veh	0.6	1.0		1.1	1.1	4.4	0.2
Initial Q Delay(d3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	1.5	1.9		1.0	1.0	1.7	1.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d), s/veh	17.3	18.2		6.3	6.4	41.5	11.1
LnGrp LOS	B	B		A	A	D	B
Approach Vol, veh/h	263			415			438
Approach Delay, s/veh	17.8			6.4			16.8
Approach LOS	B			A			B
Timer - Assigned Phs	1	2			6		8
Phs Duration (G+Y+R _c), s	8.8	37.2			46.0		34.0
Change Period (Y+R _c), s	4.0	5.5			* 5.5		4.0
Max Green Setting (Gmax), s	12.0	24.5			* 33		30.0
Max Q Clear Time (g_c+l1), s	5.7	4.6			6.4		7.0
Green Ext Time (p_c), s	0.0	3.3			4.2		0.4
Intersection Summary							
HCM 6th Ctrl Delay			13.2				
HCM 6th LOS			B				
Notes							
User approved ignoring U-Turning movement.							
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.							

HCM 6th Signalized Intersection Summary
1: I-15 SB Ramps & SR 56

Ex + C + P PM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2445	406	0	1648	607	0	0	0	216	8	0
Future Volume (veh/h)	0	2445	406	0	1648	607	0	0	0	216	8	0
Initial Q (Q _b), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	2687	446	0	1811	0				243	0	0
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	2	0	2	2				2	2	2
Cap, veh/h	0	4074	1226	0	2835					312	0	
Arrive On Green	0.00	0.80	0.80	0.00	1.00	0.00				0.09	0.00	0.00
Sat Flow, veh/h	0	5274	1536	0	3647	1585				3563	0	3170
Grp Volume(v), veh/h	0	2687	446	0	1811	0				243	0	0
Grp Sat Flow(s), veh/h/ln	0	1702	1536	0	1777	1585				1781	0	1585
Q Serve(g_s), s	0.0	24.7	9.1	0.0	0.0	0.0				7.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	24.7	9.1	0.0	0.0	0.0				7.3	0.0	0.0
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	4074	1226	0	2835					312	0	
V/C Ratio(X)	0.00	0.66	0.36	0.00	0.64					0.78	0.00	
Avail Cap(c_a), veh/h	0	4074	1226	0	2835					567	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	1.00	0.00	0.45	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	4.7	3.2	0.0	0.0	0.0				49.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.9	0.8	0.0	0.5	0.0				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
%ile BackOfQ(50%), veh/ln	0.0	6.6	2.4	0.0	0.2	0.0				3.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	5.6	4.0	0.0	0.5	0.0				50.7	0.0	0.0
LnGrp LOS	A	A	A	A	A					D	A	
Approach Vol, veh/h	3133			1811		A				243		A
Approach Delay, s/veh	5.4			0.5						50.7		
Approach LOS	A			A						D		
Timer - Assigned Phs	2		4		6							
Phs Duration (G+Y+R _c), s	95.3		14.7		95.3							
Change Period (Y+R _c), s	7.5		5.1		7.5							
Max Green Setting (Gmax), s	79.9		17.5		79.9							
Max Q Clear Time (g _{c+l1}), s	26.7		9.3		2.0							
Green Ext Time (p _c), s	33.9		0.3		16.6							

Intersection Summary

HCM 6th Ctrl Delay	5.8
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
2: I-15 NB Ramps & SR 56

Ex + C + P PM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1471	1150	0	1407	180	781	96	962	0	0	0
Future Volume (veh/h)	0	1471	1150	0	1407	180	781	96	962	0	0	0
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.97			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	0	1599	1250	0	1529	196	923	0	1046			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	0	2	2	0	2	2	2	2	2			
Cap, veh/h	0	2632	2417	0	1832	799	1318	0	1143			
Arrive On Green	0.00	1.00	1.00	0.00	0.52	0.52	0.37	0.00	0.37			
Sat Flow, veh/h	0	5274	2688	0	3647	1550	3563	0	3088			
Grp Volume(v), veh/h	0	1599	1250	0	1529	196	923	0	1046			
Grp Sat Flow(s), veh/h/ln	0	1702	1344	0	1777	1550	1781	0	1544			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	40.3	7.7	24.2	0.0	35.5			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	40.3	7.7	24.2	0.0	35.5			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2632	2417	0	1832	799	1318	0	1143			
V/C Ratio(X)	0.00	0.61	0.52	0.00	0.83	0.25	0.70	0.00	0.92			
Avail Cap(c_a), veh/h	0	2632	2417	0	1832	799	1357	0	1176			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	0.00	0.67	0.67	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	22.7	14.8	29.5	0.0	33.0			
Incr Delay (d2), s/veh	0.0	0.7	0.5	0.0	4.7	0.7	1.6	0.0	10.9			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%), veh/ln	0.0	0.2	0.2	0.0	17.2	2.8	10.5	0.0	14.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.7	0.5	0.0	27.3	15.5	31.0	0.0	44.0			
LnGrp LOS	A	A	A	A	C	B	C	A	D			
Approach Vol, veh/h	2849			1725			1969					
Approach Delay, s/veh	0.6			26.0			37.9					
Approach LOS	A			C			D					
Timer - Assigned Phs	2			6			8					
Phs Duration (G+Y+Rc), s	64.2			64.2			45.8					
Change Period (Y+Rc), s	7.5			7.5			5.1					
Max Green Setting (Gmax), s	55.5			55.5			41.9					
Max Q Clear Time (g_c+l1), s	2.0			42.3			37.5					
Green Ext Time (p_c), s	35.2			9.3			3.2					
Intersection Summary												
HCM 6th Ctrl Delay		18.5										
HCM 6th LOS		B										
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary
3: Sabre Springs Rd & Ted Williams Pkwy EB Ramps

Ex + C + P PM

02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑↑↑					↑↑↑		↑	↑↑	
Traffic Volume (veh/h)	389	3	280	0	0	0	0	686	175	35	402	0
Future Volume (veh/h)	389	3	280	0	0	0	0	686	175	35	402	0
Initial Q (Q _b), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93				1.00		0.97	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
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	407	0	292				0	715	182	36	419	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	649	0	539				0	3108	759	49	2435	0
Arrive On Green	0.18	0.00	0.18				0.00	0.60	0.60	0.06	1.00	0.00
Sat Flow, veh/h	3563	0	2959				0	5419	1259	1781	3647	0
Grp Volume(v), veh/h	407	0	292				0	667	230	36	419	0
Grp Sat Flow(s), veh/h/ln	1781	0	1479				0	1609	1591	1781	1777	0
Q Serve(g_s), s	8.4	0.0	7.2				0.0	5.1	5.4	1.6	0.0	0.0
Cycle Q Clear(g_c), s	8.4	0.0	7.2				0.0	5.1	5.4	1.6	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.79	1.00		0.00
Lane Grp Cap(c), veh/h	649	0	539				0	2909	959	49	2435	0
V/C Ratio(X)	0.63	0.00	0.54				0.00	0.23	0.24	0.73	0.17	0.00
Avail Cap(c_a), veh/h	1429	0	1187				0	2909	959	191	2435	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(l)	1.00	0.00	1.00				0.00	1.00	1.00	0.99	0.99	0.00
Uniform Delay (d), s/veh	30.2	0.0	29.7				0.0	7.3	7.4	37.5	0.0	0.0
Incr Delay (d2), s/veh	1.0	0.0	0.8				0.0	0.2	0.6	7.6	0.2	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
%ile BackOfQ(50%), veh/ln	3.6	0.0	2.5				0.0	1.6	1.8	0.8	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	31.2	0.0	30.5				0.0	7.5	8.0	45.1	0.2	0.0
LnGrp LOS	C	A	C				A	A	A	D	A	A
Approach Vol, veh/h	699							897			455	
Approach Delay, s/veh	30.9							7.6			3.7	
Approach LOS	C							A			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	6.6	53.9	19.5	60.5								
Change Period (Y+Rc), s	4.4	* 5.7	4.9	5.7								
Max Green Setting (Gmax), s	8.6	* 24	32.1	37.3								
Max Q Clear Time (g_c+l1), s	3.6	7.4	10.4	2.0								
Green Ext Time (p_c), s	0.0	7.5	2.8	2.2								

Intersection Summary

HCM 6th Ctrl Delay	14.7
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

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

HCM 6th Signalized Intersection Summary
4: Sabre Springs Rd/Rancho Carmel Dr & Ted Williams Pkwy WB Ramps

Ex + C + P PM

02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑	↑	↑↑	↑↑		↑↑	↑↑	↑↑
Traffic Volume (veh/h)	0	0	0	105	3	42	421	681	0	0	310	364
Future Volume (veh/h)	0	0	0	105	3	42	421	681	0	0	310	364
Initial Q (Q _b), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.95	1.00		1.00	1.00		0.96
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No		No		No		No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				117	3	47	468	740	0	0	337	396
Peak Hour Factor				0.90	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				231	6	200	574	2517	0	0	1731	1308
Arrive On Green				0.27	0.27	0.27	0.11	0.47	0.00	0.00	0.16	0.16
Sat Flow, veh/h				1739	45	1505	3456	3647	0	0	3647	2685
Grp Volume(v), veh/h				120	0	47	468	740	0	0	337	396
Grp Sat Flow(s), veh/h/ln				1783	0	1505	1728	1777	0	0	1777	1342
Q Serve(g_s), s				4.6	0.0	2.0	10.6	10.2	0.0	0.0	6.6	10.4
Cycle Q Clear(g_c), s				4.6	0.0	2.0	10.6	10.2	0.0	0.0	6.6	10.4
Prop In Lane				0.97		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				237	0	200	574	2517	0	0	1731	1308
V/C Ratio(X)				0.51	0.00	0.23	0.82	0.29	0.00	0.00	0.19	0.30
Avail Cap(c_a), veh/h				446	0	376	933	2517	0	0	1731	1308
HCM Platoon Ratio				2.00	2.00	2.00	0.67	0.67	1.00	1.00	0.33	0.33
Upstream Filter(l)				1.00	0.00	1.00	0.96	0.96	0.00	0.00	0.98	0.98
Uniform Delay (d), s/veh				27.1	0.0	26.2	34.3	8.8	0.0	0.0	20.0	21.6
Incr Delay (d2), s/veh				0.6	0.0	0.2	1.1	0.3	0.0	0.0	0.2	0.6
Initial Q Delay(d3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln				1.8	0.0	0.7	4.7	4.0	0.0	0.0	2.8	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				27.8	0.0	26.4	35.4	9.1	0.0	0.0	20.2	22.2
LnGrp LOS				C	A	C	D	A	A	A	C	C
Approach Vol, veh/h					167			1208			733	
Approach Delay, s/veh					27.4			19.3			21.3	
Approach LOS					C			B			C	
Timer - Assigned Phs				2		5	6		8			
Phs Duration (G+Y+Rc), s				62.4		17.7	44.7		17.6			
Change Period (Y+Rc), s				* 5.7		4.4	5.7		7.0			
Max Green Setting (Gmax), s				* 48		21.6	21.3		20.0			
Max Q Clear Time (g_c+l1), s				12.2		12.6	12.4		6.6			
Green Ext Time (p_c), s				4.4		0.7	3.3		0.4			
Intersection Summary												
HCM 6th Ctrl Delay				20.6								
HCM 6th LOS				C								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary
5: Rancho Carmel Dr & Provencal Pl

Ex + C + P PM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	3	36	73	0	29	44	563	58	67	544	20
Future Volume (veh/h)	27	3	36	73	0	29	44	563	58	67	544	20
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.94	0.98		0.94	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	3	37	75	0	30	45	580	60	69	561	21
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	119	31	103	284	0	198	56	2038	210	88	2258	84
Arrive On Green	0.13	0.13	0.13	0.13	0.00	0.13	0.06	1.00	1.00	0.10	1.00	1.00
Sat Flow, veh/h	418	235	780	1469	0	1495	1781	3237	334	1781	3487	130
Grp Volume(v), veh/h	68	0	0	75	0	30	45	318	322	69	285	297
Grp Sat Flow(s), veh/h/ln	1433	0	0	1469	0	1495	1781	1777	1795	1781	1777	1841
Q Serve(g_s), s	0.4	0.0	0.0	0.0	0.0	1.4	2.0	0.0	0.0	3.0	0.0	0.0
Cycle Q Clear(g_c), s	3.5	0.0	0.0	3.1	0.0	1.4	2.0	0.0	0.0	3.0	0.0	0.0
Prop In Lane	0.41		0.54	1.00		1.00	1.00		0.19	1.00		0.07
Lane Grp Cap(c), veh/h	253	0	0	284	0	198	56	1119	1130	88	1150	1192
V/C Ratio(X)	0.27	0.00	0.00	0.26	0.00	0.15	0.80	0.28	0.29	0.78	0.25	0.25
Avail Cap(c_a), veh/h	569	0	0	577	0	525	147	1119	1130	169	1150	1192
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	0.97	0.97	0.97	0.97	0.97	0.97
Uniform Delay (d), s/veh	31.5	0.0	0.0	31.5	0.0	30.7	37.2	0.0	0.0	35.6	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.2	0.0	0.1	9.0	0.6	0.6	5.5	0.5	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	1.2	0.0	0.0	1.3	0.0	0.5	1.0	0.2	0.2	1.4	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	31.7	0.0	0.0	31.7	0.0	30.9	46.2	0.6	0.6	41.1	0.5	0.5
LnGrp LOS	C	A	A	C	A	C	D	A	A	D	A	A
Approach Vol, veh/h		68			105			685			651	
Approach Delay, s/veh		31.7			31.4			3.6			4.8	
Approach LOS		C			C			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	56.2		15.5	6.9	57.6		15.5				
Change Period (Y+Rc), s	4.4	5.8		4.9	4.4	* 5.8		4.9				
Max Green Setting (Gmax), s	7.6	29.2		28.1	6.6	* 30		28.1				
Max Q Clear Time (g_c+l1), s	5.0	2.0		5.5	4.0	2.0		5.1				
Green Ext Time (p_c), s	0.0	6.1		0.2	0.0	7.5		0.3				

Intersection Summary

HCM 6th Ctrl Delay	7.3
HCM 6th LOS	A

Notes

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

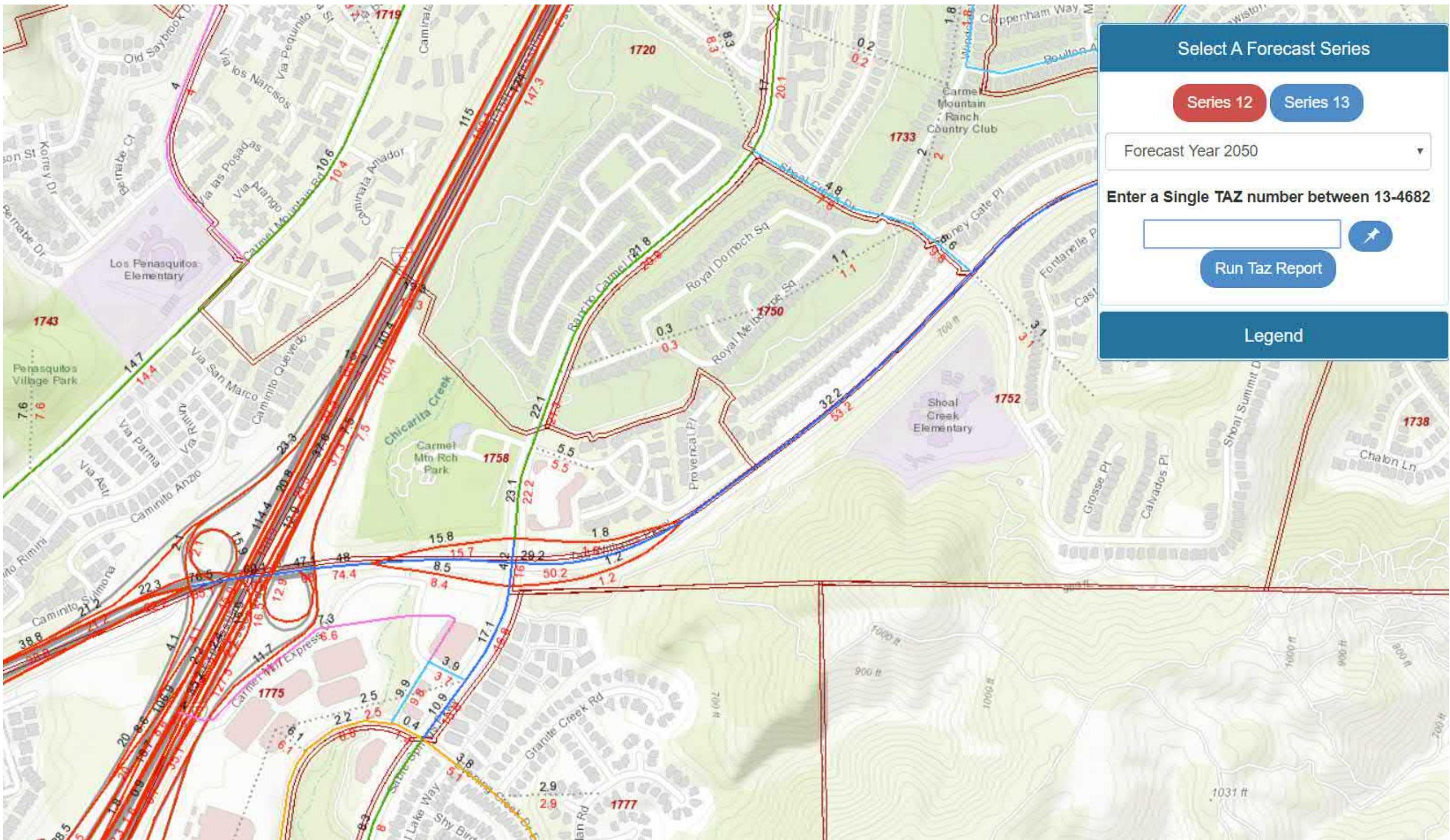
HCM 6th Signalized Intersection Summary
6: Rancho Carmel Dr & Shoal Creek Dr

Ex + C + P PM
04/17/2020

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (veh/h)	56	73	0	509	68	104	568
Future Volume (veh/h)	56	73	0	509	68	104	568
Initial Q (Q _b), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00			0.96	1.00	
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	57	74		519	69	106	580
Peak Hour Factor	0.98	0.98		0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	601	535		1310	173	135	1932
Arrive On Green	0.34	0.34		0.84	0.84	0.08	0.54
Sat Flow, veh/h	1781	1585		3230	415	1781	3647
Grp Volume(v), veh/h	57	74		293	295	106	580
Grp Sat Flow(s), veh/h/ln	1781	1585		1777	1775	1781	1777
Q Serve(g_s), s	1.8	2.6		3.2	3.3	4.7	7.1
Cycle Q Clear(g_c), s	1.8	2.6		3.2	3.3	4.7	7.1
Prop In Lane	1.00	1.00			0.23	1.00	
Lane Grp Cap(c), veh/h	601	535		742	741	135	1932
V/C Ratio(X)	0.09	0.14		0.39	0.40	0.78	0.30
Avail Cap(c_a), veh/h	601	535		742	741	245	1932
HCM Platoon Ratio	1.00	1.00		2.00	2.00	1.00	1.00
Upstream Filter(l)	1.00	1.00		0.97	0.97	1.00	1.00
Uniform Delay (d), s/veh	18.1	18.4		4.1	4.1	36.3	10.0
Incr Delay (d2), s/veh	0.3	0.5		1.5	1.5	3.7	0.4
Initial Q Delay(d3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.7	1.0		1.2	1.2	2.1	2.6
Unsig. Movement Delay, s/veh							
LnGrp Delay(d), s/veh	18.4	19.0		5.6	5.7	40.0	10.3
LnGrp LOS	B	B		A	A	D	B
Approach Vol, veh/h	131			588			686
Approach Delay, s/veh	18.7			5.6			14.9
Approach LOS	B			A			B
Timer - Assigned Phs	1	2			6		8
Phs Duration (G+Y+R _c), s	10.1	38.9			49.0		31.0
Change Period (Y+R _c), s	4.0	5.5			* 5.5		4.0
Max Green Setting (Gmax), s	11.0	28.5			* 36		27.0
Max Q Clear Time (g_c+l1), s	6.7	5.3			9.1		4.6
Green Ext Time (p_c), s	0.0	5.3			7.3		0.2
Intersection Summary							
HCM 6th Ctrl Delay			11.4				
HCM 6th LOS			B				
Notes							
User approved ignoring U-Turning movement.							
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.							

APPENDIX F

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – YEAR 2050 WITHOUT PROJECT



INTERSECTION	DIRECTION	LEG	EXISTING TRAFFIC VOLUMES						CALCULATED			EXISTING ADT	2008
			Ram	Rpm	Tam	Tpm	Lam	Lpm	AM	PM	Avgverage		
			8%	8%					SELECTED	SELECTED			
1. Ted Williams Parkway / I-15 Southbound Ramps	Sb	North	0	0	50	10	172	178	15175	8975	12075	12100	13000
	Wb	East	992	530	1596	1550	0	0	56175	56487.5	56331.25	56300	45900
	Nb	South	0	0	0	0	0	0	9625	7700	8662.5	8700	14200
	Eb	West	720	606	1734	2261	0	0	50625	55212.5	52918.75	52900	54400
2. Ted Williams Parkway / I-15 Northbound Ramps	Sb	North	0	0	0	0	0	0	2100	3025	2562.5	2600	5100
	Wb	East	147	139	1855	1428	0	0	41050	47750	44400	44400	36200
	Nb	South	402	894	21	103	541	793	26450	38525	32487.5	32500	24100
	Eb	West	1152	1292	880	1359	0	0	55350	60900	58125	58100	45900
3. Ted Williams Parkway / Rancho Carmel Drive (South)	Sb	North	0	0	469	634	114	146	13162.5	17637.5	15400	15400	15600
	Wb	East	0	0	0	0	0	0	1687.5	2087.5	1887.5	1900	1300
	Nb	South	15	21	311	296	0	0	14900	15150	15025	15000	18000
	Eb	West	397	261	6	0	159	335	7025	7450	7237.5	7200	7000
4. Ted Williams Parkway / Rancho Carmel Drive (North)	Sb	North	293	366	235	313	0	0	10850	17587.5	14218.75	14200	16400
	Wb	East	39	55	3	6	152	103	2425	2050	2237.5	2200	1800
	Nb	South	0	0	301	673	286	392	12175	18512.5	15343.75	15300	15600
	Eb	West	0	0	0	0	0	0	7275	9550	8412.5	8400	12200
5. Rancho Carmel Dr / Provencal Pl	Sb	North	2	19	389	574	19	40	8537.5	15862.5	12200	12200	15500
	Wb	East	22	25	0	1	121	49	2237.5	2162.5	2200	2200	5000
	Nb	South	17	55	249	599	4	18	9762.5	16487.5	13125	13100	16400
	Eb	West	1	24	0	3	2	12	112.5	962.5	537.5	500	600
6. Rancho Carmel Dr (n/s) / Shoal Creek Dr (e/w)	Sb	North	0	0	341	599	66	82	9525	16687.5	13106.25	13100	10300
	Wb	East	100	77	0	0	70	36	3437.5	3062.5	3250	3300	3800
	Nb	South	39	50	255	577	0	0	8812.5	15775	12293.75	12300	15100
	Eb	West	0	0	0	0	0	0	0	0	0	0	0

INTERSECTION	DIRECTION	LEG	2050 ADT	ANNUAL GROWTH FACTOR	FINAL 2050
			SELECTED		SELECTED
1. Ted Williams Parkway / I-15 Southbound Ramps	Sb	North	18000	0.9%	16100
	Wb	East	60100	0.7%	70700
	Nb	South	15100	0.2%	9200
	Eb	West	67200	0.6%	63000
2. Ted Williams Parkway / I-15 Northbound Ramps	Sb	North	7500	1.1%	3700
	Wb	East	48000	0.8%	56500
	Nb	South	26400	0.2%	34900
	Eb	West	60100	0.7%	73000
3. Ted Williams Parkway / Rancho Carmel Drive (South)	Sb	North	16000	0.1%	15700
	Wb	East	1400	0.2%	2100
	Nb	South	19200	0.2%	15800
	Eb	West	8500	0.5%	8500
4. Ted Williams Parkway / Rancho Carmel Drive (North)	Sb	North	23100	1.0%	19200
	Wb	East	2200	0.5%	2600
	Nb	South	16000	0.1%	15600
	Eb	West	15800	0.7%	10500
5. Rancho Carmel Dr / Provencal Pl	Sb	North	19000	0.5%	14500
	Wb	East	5500	0.2%	2400
	Nb	South	20000	0.5%	15400
	Eb	West	600	0.0%	500
6. Rancho Carmel Dr (n/s) / Shoal Creek Dr (e/w)	Sb	North	12300	0.5%	15200
	Wb	East	3850	0.0%	3400
	Nb	South	18500	0.5%	14600
	Eb	West	0	#DIV/0!	#DIV/0!

HCM 6th Signalized Intersection Summary
1: I-15 SB Ramps & SR 56

2050 No Proj AM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2140	770	0	1883	1251	0	0	0	237	60	0
Future Volume (veh/h)	0	2140	770	0	1883	1251	0	0	0	237	60	0
Initial Q (Q _b), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	2229	802	0	1961	0				154	191	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	3766	1132	0	2621					281	295	
Arrive On Green	0.00	0.74	0.74	0.00	1.00	0.00				0.16	0.16	0.00
Sat Flow, veh/h	0	5274	1535	0	3647	1585				1781	1870	3170
Grp Volume(v), veh/h	0	2229	802	0	1961	0				154	191	0
Grp Sat Flow(s), veh/h/ln	0	1702	1535	0	1777	1585				1781	1870	1585
Q Serve(g_s), s	0.0	24.4	34.5	0.0	0.0	0.0				9.6	11.5	0.0
Cycle Q Clear(g_c), s	0.0	24.4	34.5	0.0	0.0	0.0				9.6	11.5	0.0
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	3766	1132	0	2621					281	295	
V/C Ratio(X)	0.00	0.59	0.71	0.00	0.75					0.55	0.65	
Avail Cap(c_a), veh/h	0	3766	1132	0	2621					281	295	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	1.00	0.00	0.09	0.00				1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	7.3	8.7	0.0	0.0	0.0				46.6	47.4	0.0
Incr Delay (d2), s/veh	0.0	0.7	3.8	0.0	0.2	0.0				7.5	10.6	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
%ile BackOfQ(50%), veh/ln	0.0	8.0	11.0	0.0	0.1	0.0				4.8	6.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	8.0	12.4	0.0	0.2	0.0				54.1	58.0	0.0
LnGrp LOS	A	A	B	A	A					D	E	
Approach Vol, veh/h		3031			1961	A					345	A
Approach Delay, s/veh		9.2			0.2						56.3	
Approach LOS		A			A						E	
Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		96.0		24.0		96.0						
Change Period (Y+Rc), s		7.5		5.1		7.5						
Max Green Setting (Gmax), s		88.5		18.9		88.5						
Max Q Clear Time (g_c+l1), s		36.5		13.5		2.0						
Green Ext Time (p_c), s		27.5		0.5		20.2						

Intersection Summary

HCM 6th Ctrl Delay	8.9
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
2: I-15 NB Ramps & SR 56

2050 No Proj AM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1106	1271	0	2514	236	620	30	493	0	0	0
Future Volume (veh/h)	0	1106	1271	0	2514	236	620	30	493	0	0	0
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.96			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	0	1140	1310	0	2592	243	661	0	508			
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	0	2	2	2	2	2			
Cap, veh/h	0	3546	2434	0	2468	1080	714	0	612			
Arrive On Green	0.00	1.00	1.00	0.00	0.69	0.69	0.20	0.00	0.20			
Sat Flow, veh/h	0	5274	2699	0	3647	1554	3563	0	3051			
Grp Volume(v), veh/h	0	1140	1310	0	2592	243	661	0	508			
Grp Sat Flow(s), veh/h/ln	0	1702	1350	0	1777	1554	1781	0	1526			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	83.3	6.8	21.9	0.0	19.2			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	83.3	6.8	21.9	0.0	19.2			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	3546	2434	0	2468	1080	714	0	612			
V/C Ratio(X)	0.00	0.32	0.54	0.00	1.05	0.23	0.93	0.00	0.83			
Avail Cap(c_a), veh/h	0	3546	2434	0	2468	1080	721	0	618			
HCM Platoon Ratio	1.00	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	0.00	0.78	0.78	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	18.3	6.6	47.1	0.0	46.0			
Incr Delay (d2), s/veh	0.0	0.2	0.7	0.0	33.0	0.5	17.4	0.0	8.7			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%), veh/ln	0.0	0.1	0.2	0.0	38.1	2.1	11.4	0.0	8.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.2	0.7	0.0	51.3	7.1	64.5	0.0	54.7			
LnGrp LOS	A	A	A	A	F	A	E	A	D			
Approach Vol, veh/h	2450			2835			1169					
Approach Delay, s/veh	0.4			47.5			60.3					
Approach LOS	A			D			E					
Timer - Assigned Phs	2			6			8					
Phs Duration (G+Y+Rc), s	90.8			90.8			29.2					
Change Period (Y+Rc), s	7.5			7.5			5.1					
Max Green Setting (Gmax), s	83.1			83.1			24.3					
Max Q Clear Time (g_c+l1), s	2.0			85.3			23.9					
Green Ext Time (p_c), s	12.9			0.0			0.2					
Intersection Summary												
HCM 6th Ctrl Delay			32.0									
HCM 6th LOS			C									
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary
3: Sabre Springs Rd & Ted Williams Pkwy EB Ramps

2050 No Proj AM

02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑↑↑					↑↑↑		↑	↑↑	
Traffic Volume (veh/h)	193	10	450	0	0	0	0	322	24	132	516	0
Future Volume (veh/h)	193	10	450	0	0	0	0	322	24	132	516	0
Initial Q (Q _b), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94				1.00		0.96	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
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	213	0	479				0	343	26	140	549	0
Peak Hour Factor	0.94	0.94	0.94				0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	792	0	664				0	3035	224	171	2293	0
Arrive On Green	0.22	0.00	0.22				0.00	0.49	0.49	0.19	1.00	0.00
Sat Flow, veh/h	3563	0	2985				0	6403	452	1781	3647	0
Grp Volume(v), veh/h	213	0	479				0	267	102	140	549	0
Grp Sat Flow(s), veh/h/ln	1781	0	1493				0	1609	1768	1781	1777	0
Q Serve(g_s), s	4.0	0.0	11.9				0.0	2.4	2.5	6.0	0.0	0.0
Cycle Q Clear(g_c), s	4.0	0.0	11.9				0.0	2.4	2.5	6.0	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.26	1.00		0.00
Lane Grp Cap(c), veh/h	792	0	664				0	2385	874	171	2293	0
V/C Ratio(X)	0.27	0.00	0.72				0.00	0.11	0.12	0.82	0.24	0.00
Avail Cap(c_a), veh/h	1608	0	1347				0	2385	874	191	2293	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(l)	1.00	0.00	1.00				0.00	1.00	1.00	0.99	0.99	0.00
Uniform Delay (d), s/veh	25.7	0.0	28.8				0.0	10.8	10.9	31.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	1.5				0.0	0.1	0.3	19.2	0.2	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
%ile BackOfQ(50%), veh/ln	1.7	0.0	4.2				0.0	0.8	1.0	3.2	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	25.9	0.0	30.3				0.0	10.9	11.1	50.9	0.2	0.0
LnGrp LOS	C	A	C				A	B	B	D	A	A
Approach Vol, veh/h	692							369			689	
Approach Delay, s/veh	29.0							11.0			10.5	
Approach LOS	C							B			B	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	12.1	45.2	22.7	57.3								
Change Period (Y+Rc), s	4.4	* 5.7	4.9	5.7								
Max Green Setting (Gmax), s	8.6	* 20	36.1	33.3								
Max Q Clear Time (g_c+l1), s	8.0	4.5	13.9	2.0								
Green Ext Time (p_c), s	0.0	2.8	2.9	2.9								
Intersection Summary												
HCM 6th Ctrl Delay			17.9									
HCM 6th LOS			B									
Notes												
User approved volume balancing among the lanes for turning movement.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary
4: Sabre Springs Rd/Rancho Carmel Dr & Ted Williams Pkwy WB Ramps

2050 No Proj AM

02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑	↑	↑↑	↑↑		↑↑	↑↑	↑↑
Traffic Volume (veh/h)	0	0	0	200	5	52	330	375	0	0	293	436
Future Volume (veh/h)	0	0	0	200	5	52	330	375	0	0	293	436
Initial Q (Q _b), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.96	1.00		1.00	1.00		0.96
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No		No		No		No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				220	5	57	363	412	0	0	322	479
Peak Hour Factor				0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				275	6	239	459	2429	0	0	1761	1331
Arrive On Green				0.32	0.32	0.32	0.13	0.68	0.00	0.00	0.83	0.83
Sat Flow, veh/h				1744	40	1515	3456	3647	0	0	3647	2686
Grp Volume(v), veh/h				225	0	57	363	412	0	0	322	479
Grp Sat Flow(s), veh/h/ln				1783	0	1515	1728	1777	0	0	1777	1343
Q Serve(g_s), s				9.2	0.0	2.2	8.1	3.3	0.0	0.0	1.5	3.5
Cycle Q Clear(g_c), s				9.2	0.0	2.2	8.1	3.3	0.0	0.0	1.5	3.5
Prop In Lane				0.98		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				282	0	239	459	2429	0	0	1761	1331
V/C Ratio(X)				0.80	0.00	0.24	0.79	0.17	0.00	0.00	0.18	0.36
Avail Cap(c_a), veh/h				535	0	454	803	2429	0	0	1761	1331
HCM Platoon Ratio				2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.67	1.67
Upstream Filter(l)				1.00	0.00	1.00	0.99	0.99	0.00	0.00	0.98	0.98
Uniform Delay (d), s/veh				26.2	0.0	23.8	33.6	4.5	0.0	0.0	3.6	3.8
Incr Delay (d2), s/veh				2.0	0.0	0.2	1.2	0.1	0.0	0.0	0.2	0.7
Initial Q Delay(d3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln				3.4	0.0	0.8	3.4	1.0	0.0	0.0	0.5	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				28.2	0.0	24.0	34.8	4.7	0.0	0.0	3.8	4.5
LnGrp LOS				C	A	C	C	A	A	A	A	A
Approach Vol, veh/h					282			775			801	
Approach Delay, s/veh					27.4			18.8			4.3	
Approach LOS					C			B			A	
Timer - Assigned Phs				2		5	6		8			
Phs Duration (G+Y+Rc), s				60.4		15.0	45.3		19.6			
Change Period (Y+Rc), s				* 5.7		4.4	5.7		7.0			
Max Green Setting (Gmax), s				* 44		18.6	20.3		24.0			
Max Q Clear Time (g_c+l1), s				5.3		10.1	5.5		11.2			
Green Ext Time (p_c), s				2.2		0.5	4.7		0.8			
Intersection Summary												
HCM 6th Ctrl Delay				13.8								
HCM 6th LOS				B								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary
5: Rancho Carmel Dr & Provencal Pl

2050 No Proj AM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	0	22	140	5	35	9	303	25	30	512	11
Future Volume (veh/h)	18	0	22	140	5	35	9	303	25	30	512	11
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	0.99		0.96	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	19	0	23	144	5	36	9	312	26	31	528	11
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	106	23	76	304	9	306	16	1941	161	44	2141	45
Arrive On Green	0.20	0.00	0.20	0.20	0.20	0.20	0.02	1.00	1.00	0.05	1.00	1.00
Sat Flow, veh/h	202	113	381	1075	45	1526	1781	3312	274	1781	3557	74
Grp Volume(v), veh/h	42	0	0	149	0	36	9	166	172	31	264	275
Grp Sat Flow(s), veh/h/ln	695	0	0	1120	0	1526	1781	1777	1809	1781	1777	1854
Q Serve(g_s), s	0.3	0.0	0.0	0.0	0.0	1.5	0.4	0.0	0.0	1.4	0.0	0.0
Cycle Q Clear(g_c), s	11.3	0.0	0.0	11.1	0.0	1.5	0.4	0.0	0.0	1.4	0.0	0.0
Prop In Lane	0.45		0.55	0.97		1.00	1.00		0.15	1.00		0.04
Lane Grp Cap(c), veh/h	205	0	0	313	0	306	16	1041	1060	44	1069	1116
V/C Ratio(X)	0.21	0.00	0.00	0.48	0.00	0.12	0.56	0.16	0.16	0.70	0.25	0.25
Avail Cap(c_a), veh/h	440	0	0	540	0	555	102	1041	1060	169	1069	1116
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	0.99	0.99	0.99	0.98	0.98	0.98
Uniform Delay (d), s/veh	26.7	0.0	0.0	30.0	0.0	26.2	39.1	0.0	0.0	37.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.4	0.0	0.1	10.6	0.3	0.3	7.0	0.5	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.7	0.0	0.0	2.6	0.0	0.6	0.2	0.1	0.1	0.7	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	26.9	0.0	0.0	30.4	0.0	26.3	49.7	0.3	0.3	44.8	0.5	0.5
LnGrp LOS	C	A	A	C	A	C	D	A	A	D	A	A
Approach Vol, veh/h		42			185			347			570	
Approach Delay, s/veh		26.9			29.6			1.6			2.9	
Approach LOS		C			C			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+R _c), s	6.4	52.7		20.9	5.1	53.9		20.9				
Change Period (Y+R _c), s	4.4	5.8		4.9	4.4	* 5.8		4.9				
Max Green Setting (Gmax), s	7.6	28.2		29.1	4.6	* 31		29.1				
Max Q Clear Time (g_c+l1), s	3.4	2.0		13.3	2.4	2.0		13.1				
Green Ext Time (p_c), s	0.0	2.9		0.1	0.0	6.9		0.5				

Intersection Summary

HCM 6th Ctrl Delay	7.7
HCM 6th LOS	A

Notes

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

HCM 6th Signalized Intersection Summary
6: Rancho Carmel Dr & Shoal Creek Dr

2050 No Proj AM
02/20/2020

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (veh/h)	104	135	0	326	59	76	406
Future Volume (veh/h)	104	135	0	326	59	76	406
Initial Q (Q _b), veh	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00			0.96	1.00	
Parking Bus, Adj	1.00	1.00			1.00	1.00	1.00
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	
Adj Flow Rate, veh/h	117	152		366	66	85	456
Peak Hour Factor	0.89	0.89		0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	646	575		1218	217	110	1843
Arrive On Green	0.36	0.36		0.81	0.81	0.06	0.52
Sat Flow, veh/h	1781	1585		3085	533	1781	3647
Grp Volume(v), veh/h	117	152		216	216	85	456
Grp Sat Flow(s), veh/h/ln	1781	1585		1777	1748	1781	1777
Q Serve(g_s), s	3.6	5.4		2.4	2.4	3.8	5.7
Cycle Q Clear(g_c), s	3.6	5.4		2.4	2.4	3.8	5.7
Prop In Lane	1.00	1.00			0.30	1.00	
Lane Grp Cap(c), veh/h	646	575		723	711	110	1843
V/C Ratio(X)	0.18	0.26		0.30	0.30	0.77	0.25
Avail Cap(c_a), veh/h	646	575		723	711	289	1843
HCM Platoon Ratio	1.00	1.00		2.00	2.00	1.00	1.00
Upstream Filter(l)	1.00	1.00		0.99	0.99	1.00	1.00
Uniform Delay (d), s/veh	17.4	18.0		4.6	4.6	37.0	10.6
Incr Delay (d2), s/veh	0.6	1.1		1.0	1.1	4.3	0.3
Initial Q Delay(d3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	1.5	2.1		0.9	0.9	1.7	2.1
Unsig. Movement Delay, s/veh							
LnGrp Delay(d), s/veh	18.0	19.1		5.7	5.7	41.3	10.9
LnGrp LOS	B	B		A	A	D	B
Approach Vol, veh/h	269			432			541
Approach Delay, s/veh	18.6			5.7			15.7
Approach LOS	B			A			B
Timer - Assigned Phs	1	2			6		8
Phs Duration (G+Y+R _c), s	8.9	38.1			47.0		33.0
Change Period (Y+R _c), s	4.0	5.5			* 5.5		4.0
Max Green Setting (Gmax), s	13.0	24.5			* 34		29.0
Max Q Clear Time (g_c+l1), s	5.8	4.4			7.7		7.4
Green Ext Time (p_c), s	0.0	3.5			5.5		0.4
Intersection Summary							
HCM 6th Ctrl Delay			12.9				
HCM 6th LOS			B				
Notes							
User approved ignoring U-Turning movement.							
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.							

HCM 6th Signalized Intersection Summary
1: I-15 SB Ramps & SR 56

2050 No Proj PM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2841	650	0	1924	740	0	0	0	257	10	0
Future Volume (veh/h)	0	2841	650	0	1924	740	0	0	0	257	10	0
Initial Q (Q _b), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1856	0	1856	1856				1856	1856	1856
Adj Flow Rate, veh/h	0	2899	663	0	1963	0				269	0	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	3	3	0	3	3				3	3	3
Cap, veh/h	0	4002	1204	0	2785					338	0	
Arrive On Green	0.00	0.79	0.79	0.00	1.00	0.00				0.10	0.00	0.00
Sat Flow, veh/h	0	5233	1524	0	3618	1572				3534	0	3145
Grp Volume(v), veh/h	0	2899	663	0	1963	0				269	0	0
Grp Sat Flow(s), veh/h/ln	0	1689	1524	0	1763	1572				1767	0	1572
Q Serve(g_s), s	0.0	30.9	17.8	0.0	0.0	0.0				8.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	30.9	17.8	0.0	0.0	0.0				8.2	0.0	0.0
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	4002	1204	0	2785					338	0	
V/C Ratio(X)	0.00	0.72	0.55	0.00	0.70					0.80	0.00	
Avail Cap(c_a), veh/h	0	4002	1204	0	2785					562	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	1.00	0.00	0.15	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	5.7	4.3	0.0	0.0	0.0				48.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.2	1.8	0.0	0.2	0.0				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
%ile BackOfQ(50%), veh/ln	0.0	8.5	4.8	0.0	0.1	0.0				3.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	6.8	6.1	0.0	0.2	0.0				50.4	0.0	0.0
LnGrp LOS	A	A	A	A	A					D	A	
Approach Vol, veh/h		3562			1963	A				269		A
Approach Delay, s/veh		6.7			0.2					50.4		
Approach LOS		A			A					D		
Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+R _c), s		94.4		15.6		94.4						
Change Period (Y+R _c), s		7.5		5.1		7.5						
Max Green Setting (Gmax), s		79.9		17.5		79.9						
Max Q Clear Time (g _{c+l1}), s		32.9		10.2		2.0						
Green Ext Time (p _c), s		36.0		0.3		20.1						

Intersection Summary

HCM 6th Ctrl Delay	6.5
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
2: I-15 NB Ramps & SR 56

2050 No Proj PM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1674	1424	0	1764	213	900	140	1132	0	0	0
Future Volume (veh/h)	0	1674	1424	0	1764	213	900	140	1132	0	0	0
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.97			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1856	1856	0	1856	1856	1856	1856	1856			
Adj Flow Rate, veh/h	0	1708	1453	0	1800	217	1020	0	1155			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98			
Percent Heavy Veh, %	0	3	3	0	3	3	3	3	3			
Cap, veh/h	0	2556	2399	0	1779	776	1346	0	1167			
Arrive On Green	0.00	1.00	1.00	0.00	0.50	0.50	0.38	0.00	0.38			
Sat Flow, veh/h	0	5233	2665	0	3618	1538	3534	0	3065			
Grp Volume(v), veh/h	0	1708	1453	0	1800	217	1020	0	1155			
Grp Sat Flow(s), veh/h/ln	0	1689	1333	0	1763	1538	1767	0	1532			
Q Serve(g_s), s	0.0	0.0	55.5	0.0	55.5	9.0	27.6	0.0	41.2			
Cycle Q Clear(g_c), s	0.0	0.0	55.5	0.0	55.5	9.0	27.6	0.0	41.2			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2556	2399	0	1779	776	1346	0	1167			
V/C Ratio(X)	0.00	0.67	0.61	0.00	1.01	0.28	0.76	0.00	0.99			
Avail Cap(c_a), veh/h	0	2556	2399	0	1779	776	1346	0	1167			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	0.00	0.58	0.58	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	27.3	15.7	29.6	0.0	33.8			
Incr Delay (d2), s/veh	0.0	0.8	0.7	0.0	24.3	0.9	2.5	0.0	23.7			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%), veh/ln	0.0	0.2	0.2	0.0	26.8	3.1	12.0	0.0	18.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.8	0.7	0.0	51.6	16.6	32.2	0.0	57.5			
LnGrp LOS	A	A	A	A	F	B	C	A	E			
Approach Vol, veh/h		3161			2017				2175			
Approach Delay, s/veh		0.7			47.8				45.6			
Approach LOS		A			D				D			
Timer - Assigned Phs		2			6				8			
Phs Duration (G+Y+Rc), s		63.0			63.0				47.0			
Change Period (Y+Rc), s		7.5			7.5				5.1			
Max Green Setting (Gmax), s		55.5			55.5				41.9			
Max Q Clear Time (g_c+l1), s		57.5			57.5				43.2			
Green Ext Time (p_c), s		0.0			0.0				0.0			
Intersection Summary												
HCM 6th Ctrl Delay			26.9									
HCM 6th LOS			C									
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary
3: Sabre Springs Rd & Ted Williams Pkwy EB Ramps

2050 No Proj PM

02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑↑↑					↑↑↑		↑	↑↑	
Traffic Volume (veh/h)	446	0	300	0	0	0	0	316	45	163	671	0
Future Volume (veh/h)	446	0	300	0	0	0	0	316	45	163	671	0
Initial Q (Q _b), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94				1.00		0.96	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
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	465	0	312				0	329	47	170	699	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	708	0	591				0	2907	394	191	2376	0
Arrive On Green	0.20	0.00	0.20				0.00	0.51	0.51	0.14	0.89	0.00
Sat Flow, veh/h	3563	0	2971				0	6004	778	1781	3647	0
Grp Volume(v), veh/h	465	0	312				0	274	102	170	699	0
Grp Sat Flow(s), veh/h/ln	1781	0	1486				0	1609	1695	1781	1777	0
Q Serve(g_s), s	9.6	0.0	7.5				0.0	2.4	2.5	7.5	2.4	0.0
Cycle Q Clear(g_c), s	9.6	0.0	7.5				0.0	2.4	2.5	7.5	2.4	0.0
Prop In Lane	1.00		1.00				0.00		0.46	1.00		0.00
Lane Grp Cap(c), veh/h	708	0	591				0	2443	858	191	2376	0
V/C Ratio(X)	0.66	0.00	0.53				0.00	0.11	0.12	0.89	0.29	0.00
Avail Cap(c_a), veh/h	1429	0	1192				0	2443	858	191	2376	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.33	1.33	1.00
Upstream Filter(l)	1.00	0.00	1.00				0.00	1.00	1.00	0.97	0.97	0.00
Uniform Delay (d), s/veh	29.5	0.0	28.7				0.0	10.3	10.4	33.8	1.6	0.0
Incr Delay (d2), s/veh	1.0	0.0	0.7				0.0	0.1	0.3	34.1	0.3	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
%ile BackOfQ(50%), veh/ln	4.1	0.0	2.7				0.0	0.8	0.9	4.9	0.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	30.6	0.0	29.4				0.0	10.4	10.7	68.0	1.9	0.0
LnGrp LOS	C	A	C				A	B	B	E	A	A
Approach Vol, veh/h	777							376			869	
Approach Delay, s/veh	30.1							10.5			14.8	
Approach LOS	C						B				B	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+R _c), s	13.0	46.2	20.8	59.2								
Change Period (Y+R _c), s	4.4	* 5.7	4.9	5.7								
Max Green Setting (Gmax), s	8.6	* 24	32.1	37.3								
Max Q Clear Time (g _{c+l1}), s	9.5	4.5	11.6	4.4								
Green Ext Time (p _c), s	0.0	3.2	3.1	3.9								
Intersection Summary												
HCM 6th Ctrl Delay			19.9									
HCM 6th LOS			B									
Notes												
User approved volume balancing among the lanes for turning movement.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary
4: Sabre Springs Rd/Rancho Carmel Dr & Ted Williams Pkwy WB Ramps

2050 No Proj PM

02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑	↑	↑↑	↑↑			↑↑	↑↑
Traffic Volume (veh/h)	0	0	0	128	10	77	460	862	0	0	376	495
Future Volume (veh/h)	0	0	0	128	10	77	460	862	0	0	376	495
Initial Q (Q _b), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.95	1.00		1.00	1.00		0.96
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No		No		No		No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				139	11	84	500	937	0	0	409	538
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				224	18	204	612	2509	0	0	1685	1272
Arrive On Green				0.27	0.27	0.27	0.06	0.23	0.00	0.00	0.16	0.16
Sat Flow, veh/h				1656	131	1506	3456	3647	0	0	3647	2683
Grp Volume(v), veh/h				150	0	84	500	937	0	0	409	538
Grp Sat Flow(s), veh/h/ln				1788	0	1506	1728	1777	0	0	1777	1342
Q Serve(g_s), s				5.9	0.0	3.7	11.4	17.7	0.0	0.0	8.1	14.5
Cycle Q Clear(g_c), s				5.9	0.0	3.7	11.4	17.7	0.0	0.0	8.1	14.5
Prop In Lane				0.93		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				241	0	204	612	2509	0	0	1685	1272
V/C Ratio(X)				0.62	0.00	0.41	0.82	0.37	0.00	0.00	0.24	0.42
Avail Cap(c_a), veh/h				447	0	377	933	2509	0	0	1685	1272
HCM Platoon Ratio				2.00	2.00	2.00	0.33	0.33	1.00	1.00	0.33	0.33
Upstream Filter(l)				1.00	0.00	1.00	0.96	0.96	0.00	0.00	0.96	0.96
Uniform Delay (d), s/veh				27.4	0.0	26.6	36.4	15.8	0.0	0.0	21.2	23.9
Incr Delay (d2), s/veh				1.0	0.0	0.5	1.8	0.4	0.0	0.0	0.3	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(50%), veh/ln				2.3	0.0	1.2	5.4	8.4	0.0	0.0	3.6	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				28.4	0.0	27.1	38.2	16.2	0.0	0.0	21.5	24.9
LnGrp LOS				C	A	C	D	B	A	A	C	C
Approach Vol, veh/h					234			1437			947	
Approach Delay, s/veh					27.9			23.9			23.4	
Approach LOS					C			C			C	
Timer - Assigned Phs				2		5	6		8			
Phs Duration (G+Y+Rc), s				62.2		18.6	43.6		17.8			
Change Period (Y+Rc), s				* 5.7		4.4	5.7		7.0			
Max Green Setting (Gmax), s				* 48		21.6	21.3		20.0			
Max Q Clear Time (g_c+l1), s				19.7		13.4	16.5		7.9			
Green Ext Time (p_c), s				5.7		0.7	2.6		0.5			
Intersection Summary												
HCM 6th Ctrl Delay				24.1								
HCM 6th LOS				C								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary
5: Rancho Carmel Dr & Provencal Pl

2050 No Proj PM
02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	5	33	60	5	30	37	762	70	70	703	33
Future Volume (veh/h)	23	5	33	60	5	30	37	762	70	70	703	33
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.94	0.98		0.94	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	24	5	34	62	5	31	38	786	72	72	725	34
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	113	39	104	258	18	192	51	2070	190	92	2257	106
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.06	1.00	1.00	0.10	1.00	1.00
Sat Flow, veh/h	393	301	814	1332	137	1493	1781	3279	300	1781	3449	162
Grp Volume(v), veh/h	63	0	0	67	0	31	38	426	432	72	373	386
Grp Sat Flow(s), veh/h/ln	1508	0	0	1469	0	1493	1781	1777	1802	1781	1777	1834
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	1.5	1.7	0.0	0.0	3.2	0.0	0.0
Cycle Q Clear(g_c), s	2.8	0.0	0.0	2.8	0.0	1.5	1.7	0.0	0.0	3.2	0.0	0.0
Prop In Lane	0.38		0.54	0.93		1.00	1.00		0.17	1.00		0.09
Lane Grp Cap(c), veh/h	256	0	0	275	0	192	51	1122	1138	92	1163	1200
V/C Ratio(X)	0.25	0.00	0.00	0.24	0.00	0.16	0.75	0.38	0.38	0.78	0.32	0.32
Avail Cap(c_a), veh/h	579	0	0	579	0	524	147	1122	1138	169	1163	1200
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	0.93	0.93	0.93	0.94	0.94	0.94
Uniform Delay (d), s/veh	31.6	0.0	0.0	31.6	0.0	31.0	37.4	0.0	0.0	35.4	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.2	0.0	0.1	7.4	0.9	0.9	5.1	0.7	0.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	1.1	0.0	0.0	1.2	0.0	0.5	0.8	0.3	0.3	1.4	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	31.8	0.0	0.0	31.8	0.0	31.2	44.8	0.9	0.9	40.5	0.7	0.7
LnGrp LOS	C	A	A	C	A	C	D	A	A	D	A	A
Approach Vol, veh/h		63				98			896		831	
Approach Delay, s/veh		31.8				31.6			2.8		4.1	
Approach LOS		C				C			A		A	
Timer - Assigned Phs	1	2		4	5	6			8			
Phs Duration (G+Y+R _c), s	8.5	56.3		15.2	6.7	58.1			15.2			
Change Period (Y+R _c), s	4.4	5.8		4.9	4.4	* 5.8			4.9			
Max Green Setting (Gmax), s	7.6	29.2		28.1	6.6	* 30			28.1			
Max Q Clear Time (g_c+l1), s	5.2	2.0		4.8	3.7	2.0			4.8			
Green Ext Time (p_c), s	0.0	8.7		0.2	0.0	10.2			0.3			

Intersection Summary

HCM 6th Ctrl Delay	5.8
HCM 6th LOS	A

Notes

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

HCM 6th Signalized Intersection Summary
6: Rancho Carmel Dr & Shoal Creek Dr

2050 No Proj PM
02/20/2020

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (veh/h)	60	91	0	691	85	116	724
Future Volume (veh/h)	60	91	0	691	85	116	724
Initial Q (Q _b), veh	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00			0.96	1.00	
Parking Bus, Adj	1.00	1.00			1.00	1.00	1.00
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	
Adj Flow Rate, veh/h	61	93		705	87	118	739
Peak Hour Factor	0.98	0.98		0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	601	535		1298	160	150	1932
Arrive On Green	0.34	0.34		0.82	0.82	0.08	0.54
Sat Flow, veh/h	1781	1585		3260	390	1781	3647
Grp Volume(v), veh/h	61	93		395	397	118	739
Grp Sat Flow(s), veh/h/ln	1781	1585		1777	1780	1781	1777
Q Serve(g_s), s	1.9	3.3		5.8	5.8	5.2	9.6
Cycle Q Clear(g_c), s	1.9	3.3		5.8	5.8	5.2	9.6
Prop In Lane	1.00	1.00			0.22	1.00	
Lane Grp Cap(c), veh/h	601	535		728	730	150	1932
V/C Ratio(X)	0.10	0.17		0.54	0.54	0.79	0.38
Avail Cap(c_a), veh/h	601	535		728	730	245	1932
HCM Platoon Ratio	1.00	1.00		2.00	2.00	1.00	1.00
Upstream Filter(l)	1.00	1.00		0.93	0.93	1.00	1.00
Uniform Delay (d), s/veh	18.2	18.7		4.8	4.8	35.9	10.5
Incr Delay (d2), s/veh	0.3	0.7		2.7	2.7	3.5	0.6
Initial Q Delay(d3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.8	1.3		1.9	1.9	2.4	3.5
Unsig. Movement Delay, s/veh							
LnGrp Delay(d), s/veh	18.5	19.4		7.5	7.5	39.4	11.1
LnGrp LOS	B	B		A	A	D	B
Approach Vol, veh/h	154			792			857
Approach Delay, s/veh	19.0			7.5			15.0
Approach LOS	B			A			B
Timer - Assigned Phs	1	2			6		8
Phs Duration (G+Y+Rc), s	10.7	38.3			49.0		31.0
Change Period (Y+Rc), s	4.0	5.5			* 5.5		4.0
Max Green Setting (Gmax), s	11.0	28.5			* 36		27.0
Max Q Clear Time (g_c+l1), s	7.2	7.8			11.6		5.3
Green Ext Time (p_c), s	0.0	7.1			9.2		0.2
Intersection Summary							
HCM 6th Ctrl Delay			12.0				
HCM 6th LOS			B				
Notes							
User approved ignoring U-Turning movement.							
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.							

APPENDIX G

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – YEAR 2050 WITH PROJECT

HCM 6th Signalized Intersection Summary

1: I-15 SB Ramps & SR 56

02/20/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2141	770	0	1887	1256	0	0	0	238	60	0
Future Volume (veh/h)	0	2141	770	0	1887	1256	0	0	0	238	60	0
Initial Q (Q _b), 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
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	2230	802	0	1966	0				155	192	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	3766	1132	0	2621					281	295	
Arrive On Green	0.00	0.74	0.74	0.00	1.00	0.00				0.16	0.16	0.00
Sat Flow, veh/h	0	5274	1535	0	3647	1585				1781	1870	3170
Grp Volume(v), veh/h	0	2230	802	0	1966	0				155	192	0
Grp Sat Flow(s), veh/h/ln	0	1702	1535	0	1777	1585				1781	1870	1585
Q Serve(g_s), s	0.0	24.4	34.5	0.0	0.0	0.0				9.6	11.6	0.0
Cycle Q Clear(g_c), s	0.0	24.4	34.5	0.0	0.0	0.0				9.6	11.6	0.0
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	3766	1132	0	2621					281	295	
V/C Ratio(X)	0.00	0.59	0.71	0.00	0.75					0.55	0.65	
Avail Cap(c_a), veh/h	0	3766	1132	0	2621					281	295	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	1.00	0.00	0.09	0.00				1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	7.3	8.7	0.0	0.0	0.0				46.6	47.5	0.0
Incr Delay (d2), s/veh	0.0	0.7	3.8	0.0	0.2	0.0				7.6	10.7	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
%ile BackOfQ(50%), veh/ln	0.0	8.0	11.0	0.0	0.1	0.0				4.9	6.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	8.0	12.4	0.0	0.2	0.0				54.3	58.2	0.0
LnGrp LOS	A	A	B	A	A					D	E	
Approach Vol, veh/h		3032			1966	A					347	A
Approach Delay, s/veh		9.2			0.2						56.4	
Approach LOS		A			A						E	
Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		96.0		24.0		96.0						
Change Period (Y+Rc), s		7.5		5.1		7.5						
Max Green Setting (Gmax), s		88.5		18.9		88.5						
Max Q Clear Time (g_c+l1), s		36.5		13.6		2.0						
Green Ext Time (p_c), s		27.6		0.5		20.3						

Intersection Summary

HCM 6th Ctrl Delay	8.9
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

2: I-15 NB Ramps & SR 56

02/20/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑↑		↑↑	↑	↑	↑	↑↑			
Traffic Volume (veh/h)	0	1108	1271	0	2523	240	620	30	494	0	0	0
Future Volume (veh/h)	0	1108	1271	0	2523	240	620	30	494	0	0	0
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.96			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	0	1142	1310	0	2601	247	661	0	509			
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	0	2	2	2	2	2			
Cap, veh/h	0	3546	2434	0	2468	1080	714	0	612			
Arrive On Green	0.00	1.00	1.00	0.00	0.69	0.69	0.20	0.00	0.20			
Sat Flow, veh/h	0	5274	2699	0	3647	1554	3563	0	3051			
Grp Volume(v), veh/h	0	1142	1310	0	2601	247	661	0	509			
Grp Sat Flow(s), veh/h/ln	0	1702	1350	0	1777	1554	1781	0	1526			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	83.3	6.9	21.9	0.0	19.2			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	83.3	6.9	21.9	0.0	19.2			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	3546	2434	0	2468	1080	714	0	612			
V/C Ratio(X)	0.00	0.32	0.54	0.00	1.05	0.23	0.93	0.00	0.83			
Avail Cap(c_a), veh/h	0	3546	2434	0	2468	1080	721	0	618			
HCM Platoon Ratio	1.00	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	0.00	0.77	0.77	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	18.3	6.7	47.1	0.0	46.0			
Incr Delay (d2), s/veh	0.0	0.2	0.7	0.0	34.3	0.5	17.4	0.0	8.8			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%), veh/ln	0.0	0.1	0.2	0.0	38.6	2.1	11.4	0.0	8.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.2	0.7	0.0	52.6	7.1	64.5	0.0	54.9			
LnGrp LOS	A	A	A	A	F	A	E	A	D			
Approach Vol, veh/h	2452			2848			1170					
Approach Delay, s/veh	0.4			48.7			60.3					
Approach LOS	A			D			E					
Timer - Assigned Phs	2			6			8					
Phs Duration (G+Y+Rc), s	90.8			90.8			29.2					
Change Period (Y+Rc), s	7.5			7.5			5.1					
Max Green Setting (Gmax), s	83.1			83.1			24.3					
Max Q Clear Time (g_c+l1), s	2.0			85.3			23.9					
Green Ext Time (p_c), s	12.9			0.0			0.2					
Intersection Summary												
HCM 6th Ctrl Delay			32.5									
HCM 6th LOS			C									
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary
3: Sabre Springs Rd & Ted Williams Pkwy EB Ramps

02/20/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑↑↑					↑↑↑		↑	↑↑	
Traffic Volume (veh/h)	196	10	450	0	0	0	0	323	24	134	518	0
Future Volume (veh/h)	196	10	450	0	0	0	0	323	24	134	518	0
Initial Q (Q _b), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94				1.00		0.96	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
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	217	0	479				0	344	26	143	551	0
Peak Hour Factor	0.94	0.94	0.94				0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	793	0	664				0	3024	222	174	2292	0
Arrive On Green	0.22	0.00	0.22				0.00	0.49	0.49	0.20	1.00	0.00
Sat Flow, veh/h	3563	0	2985				0	6405	451	1781	3647	0
Grp Volume(v), veh/h	217	0	479				0	268	102	143	551	0
Grp Sat Flow(s), veh/h/ln	1781	0	1493				0	1609	1768	1781	1777	0
Q Serve(g_s), s	4.0	0.0	11.9				0.0	2.4	2.5	6.2	0.0	0.0
Cycle Q Clear(g_c), s	4.0	0.0	11.9				0.0	2.4	2.5	6.2	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.26	1.00		0.00
Lane Grp Cap(c), veh/h	793	0	664				0	2375	871	174	2292	0
V/C Ratio(X)	0.27	0.00	0.72				0.00	0.11	0.12	0.82	0.24	0.00
Avail Cap(c_a), veh/h	1608	0	1347				0	2375	871	191	2292	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(l)	1.00	0.00	1.00				0.00	1.00	1.00	0.99	0.99	0.00
Uniform Delay (d), s/veh	25.8	0.0	28.8				0.0	10.9	10.9	31.5	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	1.5				0.0	0.1	0.3	20.1	0.2	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
%ile BackOfQ(50%), veh/ln	1.7	0.0	4.2				0.0	0.8	1.0	3.3	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	25.9	0.0	30.3				0.0	11.0	11.2	51.6	0.2	0.0
LnGrp LOS	C	A	C				A	B	B	D	A	A
Approach Vol, veh/h	696							370			694	
Approach Delay, s/veh	28.9							11.1			10.8	
Approach LOS	C						B				B	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	12.2	45.1	22.7	57.3								
Change Period (Y+Rc), s	4.4	* 5.7	4.9	5.7								
Max Green Setting (Gmax), s	8.6	* 20	36.1	33.3								
Max Q Clear Time (g_c+l1), s	8.2	4.5	13.9	2.0								
Green Ext Time (p_c), s	0.0	2.8	2.9	2.9								

Intersection Summary

HCM 6th Ctrl Delay	18.0
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

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

HCM 6th Signalized Intersection Summary

4: Sabre Springs Rd/Rancho Carmel Dr & Ted Williams Pkwy WB Ramps

02/20/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑	↑	↑↑	↑↑		↑↑	↑↑	↑↑
Traffic Volume (veh/h)	0	0	0	200	5	53	330	379	0	0	297	448
Future Volume (veh/h)	0	0	0	200	5	53	330	379	0	0	297	448
Initial Q (Q _b), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.96	1.00		1.00	1.00		0.96
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No		No		No		No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				227	6	60	363	416	0	0	326	492
Peak Hour Factor				0.88	0.88	0.88	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				281	7	245	459	2414	0	0	1746	1320
Arrive On Green				0.32	0.32	0.32	0.13	0.68	0.00	0.00	0.82	0.82
Sat Flow, veh/h				1738	46	1516	3456	3647	0	0	3647	2685
Grp Volume(v), veh/h				233	0	60	363	416	0	0	326	492
Grp Sat Flow(s), veh/h/ln				1783	0	1516	1728	1777	0	0	1777	1343
Q Serve(g_s), s				9.6	0.0	2.3	8.1	3.4	0.0	0.0	1.6	3.8
Cycle Q Clear(g_c), s				9.6	0.0	2.3	8.1	3.4	0.0	0.0	1.6	3.8
Prop In Lane				0.97		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				289	0	245	459	2414	0	0	1746	1320
V/C Ratio(X)				0.81	0.00	0.24	0.79	0.17	0.00	0.00	0.19	0.37
Avail Cap(c_a), veh/h				535	0	455	803	2414	0	0	1746	1320
HCM Platoon Ratio				2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.67	1.67
Upstream Filter(l)				1.00	0.00	1.00	0.99	0.99	0.00	0.00	0.98	0.98
Uniform Delay (d), s/veh				25.9	0.0	23.5	33.6	4.7	0.0	0.0	3.8	4.0
Incr Delay (d2), s/veh				2.0	0.0	0.2	1.2	0.2	0.0	0.0	0.2	0.8
Initial Q Delay(d3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln				3.5	0.0	0.8	3.4	1.1	0.0	0.0	0.6	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				27.9	0.0	23.6	34.8	4.8	0.0	0.0	4.0	4.8
LnGrp LOS				C	A	C	C	A	A	A	A	A
Approach Vol, veh/h					293			779			818	
Approach Delay, s/veh					27.1			18.8			4.5	
Approach LOS					C			B			A	
Timer - Assigned Phs				2		5	6		8			
Phs Duration (G+Y+Rc), s				60.0		15.0	45.0		20.0			
Change Period (Y+Rc), s				* 5.7		4.4	5.7		7.0			
Max Green Setting (Gmax), s				* 44		18.6	20.3		24.0			
Max Q Clear Time (g_c+l1), s				5.4		10.1	5.8		11.6			
Green Ext Time (p_c), s				2.3		0.5	4.8		0.8			

Intersection Summary

HCM 6th Ctrl Delay	13.9
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary

5: Rancho Carmel Dr & Provencal Pl

02/20/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	0	22	156	5	35	9	305	28	30	512	11
Future Volume (veh/h)	18	0	22	156	5	35	9	305	28	30	512	11
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	0.99		0.96	1.00		0.96	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	19	0	23	161	5	36	9	314	29	31	528	11
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	103	23	73	316	7	339	16	1853	170	44	2065	43
Arrive On Green	0.22	0.00	0.22	0.22	0.22	0.22	0.02	1.00	1.00	0.05	1.00	1.00
Sat Flow, veh/h	169	103	328	1025	32	1529	1781	3280	300	1781	3557	74
Grp Volume(v), veh/h	42	0	0	166	0	36	9	169	174	31	264	275
Grp Sat Flow(s), veh/h/ln	599	0	0	1056	0	1529	1781	1777	1803	1781	1777	1854
Q Serve(g_s), s	0.3	0.0	0.0	0.0	0.0	1.5	0.4	0.0	0.0	1.4	0.0	0.0
Cycle Q Clear(g_c), s	13.5	0.0	0.0	13.2	0.0	1.5	0.4	0.0	0.0	1.4	0.0	0.0
Prop In Lane	0.45		0.55	0.97		1.00	1.00		0.17	1.00		0.04
Lane Grp Cap(c), veh/h	198	0	0	323	0	339	16	1004	1019	44	1032	1077
V/C Ratio(X)	0.21	0.00	0.00	0.51	0.00	0.11	0.56	0.17	0.17	0.70	0.26	0.26
Avail Cap(c_a), veh/h	404	0	0	520	0	556	102	1004	1019	169	1032	1077
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	0.99	0.99	0.99	0.98	0.98	0.98
Uniform Delay (d), s/veh	25.6	0.0	0.0	29.4	0.0	24.8	39.1	0.0	0.0	37.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.5	0.0	0.1	10.6	0.4	0.4	7.0	0.6	0.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.6	0.0	0.0	2.9	0.0	0.5	0.2	0.1	0.1	0.7	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	25.8	0.0	0.0	29.8	0.0	24.9	49.7	0.4	0.4	44.8	0.6	0.6
LnGrp LOS	C	A	A	C	A	C	D	A	A	D	A	A
Approach Vol, veh/h		42			202			352			570	
Approach Delay, s/veh		25.8			29.0			1.6			3.0	
Approach LOS		C			C			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	51.0		22.6	5.1	52.3		22.6				
Change Period (Y+Rc), s	4.4	5.8		4.9	4.4	* 5.8		4.9				
Max Green Setting (Gmax), s	7.6	28.2		29.1	4.6	* 31		29.1				
Max Q Clear Time (g_c+l1), s	3.4	2.0		15.5	2.4	2.0		15.2				
Green Ext Time (p_c), s	0.0	2.9		0.1	0.0	6.9		0.5				

Intersection Summary

HCM 6th Ctrl Delay 7.9

HCM 6th LOS A

Notes

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

HCM 6th Signalized Intersection Summary

6: Rancho Carmel Dr & Shoal Creek Dr

02/20/2020



Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↑ ↗	↗ ↘	↖ ↙	↑ ↗ ↙	↗ ↘ ↙	↖ ↗	↑ ↗ ↙
Traffic Volume (veh/h)	104	135	0	329	59	76	407
Future Volume (veh/h)	104	135	0	329	59	76	407
Initial Q (Q _b), veh	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00			0.96	1.00	
Parking Bus, Adj	1.00	1.00			1.00	1.00	1.00
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	117	152		370	66	85	457
Peak Hour Factor	0.89	0.89		0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	668	594		1183	208	110	1799
Arrive On Green	0.38	0.38		0.79	0.79	0.06	0.51
Sat Flow, veh/h	1781	1585		3090	528	1781	3647
Grp Volume(v), veh/h	117	152		218	218	85	457
Grp Sat Flow(s), veh/h/ln	1781	1585		1777	1748	1781	1777
Q Serve(g_s), s	3.5	5.3		2.7	2.8	3.8	5.8
Cycle Q Clear(g_c), s	3.5	5.3		2.7	2.8	3.8	5.8
Prop In Lane	1.00	1.00			0.30	1.00	
Lane Grp Cap(c), veh/h	668	594		701	690	110	1799
V/C Ratio(X)	0.18	0.26		0.31	0.32	0.77	0.25
Avail Cap(c_a), veh/h	668	594		701	690	289	1799
HCM Platoon Ratio	1.00	1.00		2.00	2.00	1.00	1.00
Upstream Filter(l)	1.00	1.00		0.99	0.99	1.00	1.00
Uniform Delay (d), s/veh	16.7	17.3		5.4	5.4	37.0	11.2
Incr Delay (d2), s/veh	0.6	1.0		1.1	1.2	4.3	0.3
Initial Q Delay(d3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	1.5	2.0		1.1	1.1	1.7	2.2
Unsig. Movement Delay, s/veh							
LnGrp Delay(d), s/veh	17.3	18.3		6.5	6.6	41.3	11.5
LnGrp LOS	B	B		A	A	D	B
Approach Vol, veh/h	269			436			542
Approach Delay, s/veh	17.9			6.6			16.2
Approach LOS	B			A			B
Timer - Assigned Phs	1	2			6		8
Phs Duration (G+Y+Rc), s	8.9	37.1			46.0		34.0
Change Period (Y+Rc), s	4.0	5.5			* 5.5		4.0
Max Green Setting (Gmax), s	13.0	23.5			* 33		30.0
Max Q Clear Time (g_c+l1), s	5.8	4.8			7.8		7.3
Green Ext Time (p_c), s	0.0	3.4			5.4		0.4
Intersection Summary							
HCM 6th Ctrl Delay			13.2				
HCM 6th LOS			B				

Notes

User approved ignoring U-Turning movement.

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

HCM 6th Signalized Intersection Summary

1: I-15 SB Ramps & SR 56

02/20/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑				↑	↑	↑↑
Traffic Volume (veh/h)	0	2845	650	0	1926	742	0	0	0	261	10	0
Future Volume (veh/h)	0	2845	650	0	1926	742	0	0	0	261	10	0
Initial Q (Q _b), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1856	0	1856	1856				1856	1856	1856
Adj Flow Rate, veh/h	0	2903	663	0	1965	0				273	0	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	3	3	0	3	3				3	3	3
Cap, veh/h	0	3996	1202	0	2781					342	0	
Arrive On Green	0.00	0.79	0.79	0.00	1.00	0.00				0.10	0.00	0.00
Sat Flow, veh/h	0	5233	1524	0	3618	1572				3534	0	3145
Grp Volume(v), veh/h	0	2903	663	0	1965	0				273	0	0
Grp Sat Flow(s), veh/h/ln	0	1689	1524	0	1763	1572				1767	0	1572
Q Serve(g_s), s	0.0	31.2	17.9	0.0	0.0	0.0				8.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	31.2	17.9	0.0	0.0	0.0				8.3	0.0	0.0
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	3996	1202	0	2781					342	0	
V/C Ratio(X)	0.00	0.73	0.55	0.00	0.71					0.80	0.00	
Avail Cap(c_a), veh/h	0	3996	1202	0	2781					562	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	1.00	0.00	0.15	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	5.7	4.3	0.0	0.0	0.0				48.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.2	1.8	0.0	0.2	0.0				1.7	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.0	8.6	4.8	0.0	0.1	0.0				3.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	6.9	6.2	0.0	0.2	0.0				50.3	0.0	0.0
LnGrp LOS	A	A	A	A	A					D	A	
Approach Vol, veh/h		3566			1965	A				273		A
Approach Delay, s/veh		6.8			0.2					50.3		
Approach LOS		A			A					D		D
Timer - Assigned Phs		2			4							
Phs Duration (G+Y+Rc), s		94.3			15.7							
Change Period (Y+Rc), s		7.5			5.1							
Max Green Setting (Gmax), s		79.9			17.5							
Max Q Clear Time (g_c+l1), s		33.2			10.3							
Green Ext Time (p_c), s		35.9			0.3							

Intersection Summary

HCM 6th Ctrl Delay	6.6
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

2: I-15 NB Ramps & SR 56

02/20/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1682	1424	0	1768	215	900	140	1137	0	0	0
Future Volume (veh/h)	0	1682	1424	0	1768	215	900	140	1137	0	0	0
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.97			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1856	1856	0	1856	1856	1856	1856	1856			
Adj Flow Rate, veh/h	0	1716	1453	0	1804	219	1020	0	1160			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98			
Percent Heavy Veh, %	0	3	3	0	3	3	3	3	3			
Cap, veh/h	0	2556	2399	0	1779	776	1346	0	1167			
Arrive On Green	0.00	1.00	1.00	0.00	0.50	0.50	0.38	0.00	0.38			
Sat Flow, veh/h	0	5233	2665	0	3618	1538	3534	0	3065			
Grp Volume(v), veh/h	0	1716	1453	0	1804	219	1020	0	1160			
Grp Sat Flow(s), veh/h/ln	0	1689	1333	0	1763	1538	1767	0	1532			
Q Serve(g_s), s	0.0	0.0	55.5	0.0	55.5	9.1	27.6	0.0	41.5			
Cycle Q Clear(g_c), s	0.0	0.0	55.5	0.0	55.5	9.1	27.6	0.0	41.5			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2556	2399	0	1779	776	1346	0	1167			
V/C Ratio(X)	0.00	0.67	0.61	0.00	1.01	0.28	0.76	0.00	0.99			
Avail Cap(c_a), veh/h	0	2556	2399	0	1779	776	1346	0	1167			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	0.00	0.58	0.58	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	27.3	15.7	29.6	0.0	33.9			
Incr Delay (d2), s/veh	0.0	0.8	0.7	0.0	24.9	0.9	2.5	0.0	24.7			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%), veh/ln	0.0	0.2	0.2	0.0	26.9	3.2	12.0	0.0	19.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.8	0.7	0.0	52.2	16.7	32.2	0.0	58.6			
LnGrp LOS	A	A	A	A	F	B	C	A	E			
Approach Vol, veh/h	3169			2023			2180					
Approach Delay, s/veh	0.8			48.3			46.3					
Approach LOS	A			D			D					
Timer - Assigned Phs	2			6			8					
Phs Duration (G+Y+Rc), s	63.0			63.0			47.0					
Change Period (Y+Rc), s	7.5			7.5			5.1					
Max Green Setting (Gmax), s	55.5			55.5			41.9					
Max Q Clear Time (g_c+l1), s	57.5			57.5			43.5					
Green Ext Time (p_c), s	0.0			0.0			0.0		0.0			
Intersection Summary												
HCM 6th Ctrl Delay			27.3									
HCM 6th LOS			C									
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary
3: Sabre Springs Rd & Ted Williams Pkwy EB Ramps

02/20/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑↑↑					↑↑↑		↑	↑↑	
Traffic Volume (veh/h)	458	0	300	0	0	0	0	318	45	164	672	0
Future Volume (veh/h)	458	0	300	0	0	0	0	318	45	164	672	0
Initial Q (Q _b), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94				1.00		0.96	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
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	477	0	312				0	331	47	171	700	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	720	0	601				0	2890	390	191	2365	0
Arrive On Green	0.20	0.00	0.20				0.00	0.50	0.50	0.11	0.67	0.00
Sat Flow, veh/h	3563	0	2973				0	6009	775	1781	3647	0
Grp Volume(v), veh/h	477	0	312				0	275	103	171	700	0
Grp Sat Flow(s), veh/h/ln	1781	0	1487				0	1609	1696	1781	1777	0
Q Serve(g_s), s	9.9	0.0	7.5				0.0	2.4	2.6	7.6	6.6	0.0
Cycle Q Clear(g_c), s	9.9	0.0	7.5				0.0	2.4	2.6	7.6	6.6	0.0
Prop In Lane	1.00		1.00				0.00		0.46	1.00		0.00
Lane Grp Cap(c), veh/h	720	0	601				0	2427	853	191	2365	0
V/C Ratio(X)	0.66	0.00	0.52				0.00	0.11	0.12	0.89	0.30	0.00
Avail Cap(c_a), veh/h	1429	0	1193				0	2427	853	191	2365	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00				0.00	1.00	1.00	0.97	0.97	0.00
Uniform Delay (d), s/veh	29.4	0.0	28.5				0.0	10.5	10.5	35.2	5.6	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.7				0.0	0.1	0.3	35.3	0.3	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
%ile BackOfQ(50%), veh/ln	4.2	0.0	2.6				0.0	0.8	1.0	5.1	2.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	30.5	0.0	29.2				0.0	10.6	10.8	70.5	5.9	0.0
LnGrp LOS	C	A	C				A	B	B	E	A	A
Approach Vol, veh/h	789						378			871		
Approach Delay, s/veh	29.9						10.6			18.6		
Approach LOS	C						B			B		
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	13.0	45.9	21.1	58.9								
Change Period (Y+Rc), s	4.4	* 5.7	4.9	5.7								
Max Green Setting (Gmax), s	8.6	* 24	32.1	37.3								
Max Q Clear Time (g_c+l1), s	9.6	4.6	11.9	8.6								
Green Ext Time (p_c), s	0.0	3.2	3.1	3.8								
Intersection Summary												
HCM 6th Ctrl Delay			21.5									
HCM 6th LOS			C									
Notes												
User approved volume balancing among the lanes for turning movement.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary

4: Sabre Springs Rd/Rancho Carmel Dr & Ted Williams Pkwy WB Ramps

02/20/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑	↑	↑↑	↑↑		↑↑	↑↑	↑↑
Traffic Volume (veh/h)	0	0	0	128	10	79	460	876	0	0	378	500
Future Volume (veh/h)	0	0	0	128	10	79	460	876	0	0	378	500
Initial Q (Q _b), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.95	1.00		1.00	1.00		0.96
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		No
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				139	11	86	500	952	0	0	411	543
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				224	18	204	612	2509	0	0	1684	1272
Arrive On Green				0.27	0.27	0.27	0.06	0.23	0.00	0.00	0.16	0.16
Sat Flow, veh/h				1656	131	1506	3456	3647	0	0	3647	2683
Grp Volume(v), veh/h				150	0	86	500	952	0	0	411	543
Grp Sat Flow(s), veh/h/ln				1788	0	1506	1728	1777	0	0	1777	1342
Q Serve(g_s), s				5.9	0.0	3.8	11.4	18.0	0.0	0.0	8.1	14.6
Cycle Q Clear(g_c), s				5.9	0.0	3.8	11.4	18.0	0.0	0.0	8.1	14.6
Prop In Lane				0.93		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				242	0	204	612	2509	0	0	1684	1272
V/C Ratio(X)				0.62	0.00	0.42	0.82	0.38	0.00	0.00	0.24	0.43
Avail Cap(c_a), veh/h				447	0	377	933	2509	0	0	1684	1272
HCM Platoon Ratio				2.00	2.00	2.00	0.33	0.33	1.00	1.00	0.33	0.33
Upstream Filter(l)				1.00	0.00	1.00	0.96	0.96	0.00	0.00	0.96	0.96
Uniform Delay (d), s/veh				27.4	0.0	26.6	36.4	15.9	0.0	0.0	21.2	23.9
Incr Delay (d2), s/veh				1.0	0.0	0.5	1.8	0.4	0.0	0.0	0.3	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(50%), veh/ln				2.3	0.0	1.3	5.4	8.6	0.0	0.0	3.6	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				28.4	0.0	27.1	38.2	16.4	0.0	0.0	21.5	24.9
LnGrp LOS				C	A	C	D	B	A	A	C	C
Approach Vol, veh/h						236						954
Approach Delay, s/veh						27.9		23.9				23.5
Approach LOS						C		C				C
Timer - Assigned Phs				2		5	6		8			
Phs Duration (G+Y+Rc), s				62.2		18.6	43.6		17.8			
Change Period (Y+Rc), s				* 5.7		4.4	5.7		7.0			
Max Green Setting (Gmax), s				* 48		21.6	21.3		20.0			
Max Q Clear Time (g_c+l1), s				20.0		13.4	16.6		7.9			
Green Ext Time (p_c), s				5.8		0.7	2.5		0.5			
Intersection Summary												
HCM 6th Ctrl Delay				24.1								
HCM 6th LOS				C								

Notes

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

HCM 6th Signalized Intersection Summary

5: Rancho Carmel Dr & Provencal Pl

02/20/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	5	33	67	5	30	37	769	80	73	703	33
Future Volume (veh/h)	23	5	33	67	5	30	37	769	80	73	703	33
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.94	0.98		0.94	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	24	5	34	69	5	31	38	793	82	75	725	34
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	114	39	106	265	16	196	51	2026	209	96	2246	105
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.06	1.00	1.00	0.11	1.00	1.00
Sat Flow, veh/h	392	297	809	1352	124	1494	1781	3237	335	1781	3449	162
Grp Volume(v), veh/h	63	0	0	74	0	31	38	435	440	75	373	386
Grp Sat Flow(s), veh/h/ln	1498	0	0	1476	0	1494	1781	1777	1794	1781	1777	1834
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	1.5	1.7	0.0	0.0	3.3	0.0	0.0
Cycle Q Clear(g_c), s	3.1	0.0	0.0	3.1	0.0	1.5	1.7	0.0	0.0	3.3	0.0	0.0
Prop In Lane	0.38		0.54	0.93		1.00	1.00		0.19	1.00		0.09
Lane Grp Cap(c), veh/h	259	0	0	281	0	196	51	1112	1123	96	1157	1194
V/C Ratio(X)	0.24	0.00	0.00	0.26	0.00	0.16	0.75	0.39	0.39	0.78	0.32	0.32
Avail Cap(c_a), veh/h	579	0	0	580	0	525	147	1112	1123	169	1157	1194
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	0.93	0.93	0.93	0.94	0.94	0.94
Uniform Delay (d), s/veh	31.4	0.0	0.0	31.5	0.0	30.8	37.4	0.0	0.0	35.3	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.2	0.0	0.1	7.4	1.0	1.0	4.9	0.7	0.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	1.1	0.0	0.0	1.3	0.0	0.5	0.8	0.3	0.3	1.5	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	31.6	0.0	0.0	31.7	0.0	31.0	44.8	1.0	1.0	40.2	0.7	0.7
LnGrp LOS	C	A	A	C	A	C	D	A	A	D	A	A
Approach Vol, veh/h		63			105			913		834		
Approach Delay, s/veh		31.6			31.5			2.8		4.2		
Approach LOS		C			C			A		A		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+R _c), s	8.7	55.9		15.4	6.7	57.9		15.4				
Change Period (Y+R _c), s	4.4	5.8		4.9	4.4	* 5.8		4.9				
Max Green Setting (Gmax), s	7.6	29.2		28.1	6.6	* 30		28.1				
Max Q Clear Time (g_c+l1), s	5.3	2.0		5.1	3.7	2.0		5.1				
Green Ext Time (p_c), s	0.0	9.0		0.2	0.0	10.2		0.3				

Intersection Summary

HCM 6th Ctrl Delay	5.9
HCM 6th LOS	A

Notes

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

HCM 6th Signalized Intersection Summary

6: Rancho Carmel Dr & Shoal Creek Dr

02/20/2020



Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (veh/h)	60	91	0	692	85	116	727
Future Volume (veh/h)	60	91	0	692	85	116	727
Initial Q (Q _b), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00			0.96	1.00	
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	61	93		706	87	118	742
Peak Hour Factor	0.98	0.98		0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	601	535		1298	160	150	1932
Arrive On Green	0.34	0.34		0.82	0.82	0.08	0.54
Sat Flow, veh/h	1781	1585		3261	390	1781	3647
Grp Volume(v), veh/h	61	93		396	397	118	742
Grp Sat Flow(s), veh/h/ln	1781	1585		1777	1781	1781	1777
Q Serve(g_s), s	1.9	3.3		5.8	5.8	5.2	9.6
Cycle Q Clear(g_c), s	1.9	3.3		5.8	5.8	5.2	9.6
Prop In Lane	1.00	1.00			0.22	1.00	
Lane Grp Cap(c), veh/h	601	535		728	730	150	1932
V/C Ratio(X)	0.10	0.17		0.54	0.54	0.79	0.38
Avail Cap(c_a), veh/h	601	535		728	730	245	1932
HCM Platoon Ratio	1.00	1.00		2.00	2.00	1.00	1.00
Upstream Filter(l)	1.00	1.00		0.93	0.93	1.00	1.00
Uniform Delay (d), s/veh	18.2	18.7		4.8	4.8	35.9	10.5
Incr Delay (d2), s/veh	0.3	0.7		2.7	2.7	3.5	0.6
Initial Q Delay(d3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.8	1.3		1.9	1.9	2.4	3.5
Unsig. Movement Delay, s/veh							
LnGrp Delay(d), s/veh	18.5	19.4		7.5	7.5	39.4	11.1
LnGrp LOS	B	B		A	A	D	B
Approach Vol, veh/h	154			793			860
Approach Delay, s/veh	19.0			7.5			15.0
Approach LOS	B			A			B
Timer - Assigned Phs	1	2			6		8
Phs Duration (G+Y+R _c), s	10.7	38.3			49.0		31.0
Change Period (Y+R _c), s	4.0	5.5			* 5.5		4.0
Max Green Setting (Gmax), s	11.0	28.5			* 36		27.0
Max Q Clear Time (g_c+l1), s	7.2	7.8			11.6		5.3
Green Ext Time (p_c), s	0.0	7.1			9.2		0.2
Intersection Summary							
HCM 6th Ctrl Delay			12.0				
HCM 6th LOS			B				

Notes

User approved ignoring U-Turning movement.

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

APPENDIX H

**QUEUEING WORKSHEETS FOR THE RANCHO CARMEL
DRIVE / PROVENCAL PLACE INTERSECTION FOR ALL SCENARIOS AND PARKING CALCULATIONS AND
PAGES FROM *THE CITY OF LOS ANGELES DRIVEWAY DESIGN* DATED FEBRUARY 2003**

Queues
5: Rancho Carmel Dr & Provencal Pl

Ex AM
02/21/2020



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	8	121	34	4	274	32	409
v/c Ratio	0.03	0.53	0.13	0.04	0.11	0.24	0.16
Control Delay	17.9	36.9	25.9	34.2	4.4	41.2	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.9	36.9	25.9	34.2	4.4	41.2	5.2
Queue Length 50th (ft)	2	58	15	1	1	17	18
Queue Length 95th (ft)	11	86	31	8	80	26	114
Internal Link Dist (ft)	420	420			470		2180
Turn Bay Length (ft)				160		300	
Base Capacity (vph)	563	504	560	106	2388	170	2538
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.24	0.06	0.04	0.11	0.19	0.16

Intersection Summary

Queues
5: Rancho Carmel Dr & Provencal Pl

Ex PM
02/21/2020



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	52	68	30	28	569	45	544
v/c Ratio	0.23	0.37	0.14	0.22	0.24	0.31	0.22
Control Delay	16.8	33.6	27.5	48.2	3.6	44.3	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.8	33.6	27.5	48.2	3.6	44.3	5.2
Queue Length 50th (ft)	11	33	14	14	54	23	28
Queue Length 95th (ft)	32	53	29	42	20	59	59
Internal Link Dist (ft)	420	420			470		2180
Turn Bay Length (ft)				160		300	
Base Capacity (vph)	531	468	539	151	2348	174	2499
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.15	0.06	0.19	0.24	0.26	0.22

Intersection Summary



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	8	137	34	4	279	32	409
v/c Ratio	0.03	0.57	0.13	0.04	0.13	0.24	0.17
Control Delay	17.6	37.6	25.3	32.8	6.0	41.5	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.6	37.6	25.3	32.8	6.0	41.5	5.6
Queue Length 50th (ft)	2	65	15	1	1	17	19
Queue Length 95th (ft)	11	96	31	8	89	26	115
Internal Link Dist (ft)	420	420			470		2180
Turn Bay Length (ft)				160		300	
Base Capacity (vph)	568	504	560	106	2208	170	2360
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.27	0.06	0.04	0.13	0.19	0.17

Intersection Summary

Queues

5: Rancho Carmel Dr & Provencal Pl

Ex + P PM

02/21/2020



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	52	75	30	28	587	48	544
v/c Ratio	0.22	0.39	0.14	0.22	0.25	0.33	0.22
Control Delay	16.6	34.2	27.2	48.2	3.7	44.7	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.6	34.2	27.2	48.2	3.7	44.7	5.3
Queue Length 50th (ft)	11	36	14	14	55	24	28
Queue Length 95th (ft)	32	58	29	42	20	62	59
Internal Link Dist (ft)	420	420			470		2180
Turn Bay Length (ft)				160		300	
Base Capacity (vph)	530	468	539	151	2327	175	2487
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.16	0.06	0.19	0.25	0.27	0.22

Intersection Summary



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	39	121	34	8	287	37	469
v/c Ratio	0.15	0.54	0.13	0.07	0.13	0.27	0.19
Control Delay	15.3	37.2	25.8	34.6	4.8	40.6	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.3	37.2	25.8	34.6	4.8	40.6	6.3
Queue Length 50th (ft)	7	58	15	3	32	20	27
Queue Length 95th (ft)	26	87	31	12	80	31	135
Internal Link Dist (ft)	420	420			470		2180
Turn Bay Length (ft)				160		300	
Base Capacity (vph)	541	491	560	111	2285	171	2520
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.25	0.06	0.07	0.13	0.22	0.19

Intersection Summary



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	68	68	30	45	622	66	582
v/c Ratio	0.29	0.32	0.14	0.31	0.28	0.41	0.25
Control Delay	17.7	31.8	27.4	49.3	3.6	45.6	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.7	31.8	27.4	49.3	3.6	45.6	6.1
Queue Length 50th (ft)	14	32	14	20	41	33	47
Queue Length 95th (ft)	38	53	29	59	24	77	67
Internal Link Dist (ft)	420	420			470		2180
Turn Bay Length (ft)				160		300	
Base Capacity (vph)	526	530	539	159	2233	182	2375
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.13	0.06	0.28	0.28	0.36	0.25

Intersection Summary

Queues
5: Rancho Carmel Dr & Provencal Pl

Ex + C + P AM

02/21/2020



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	39	137	34	8	292	37	469
v/c Ratio	0.14	0.58	0.13	0.07	0.14	0.27	0.20
Control Delay	14.9	38.2	25.2	36.6	5.3	41.2	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.9	38.2	25.2	36.6	5.3	41.2	6.7
Queue Length 50th (ft)	7	65	15	0	19	20	28
Queue Length 95th (ft)	26	97	31	13	85	31	134
Internal Link Dist (ft)	420	420			470		2180
Turn Bay Length (ft)				160		300	
Base Capacity (vph)	543	491	560	111	2107	171	2344
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.28	0.06	0.07	0.14	0.22	0.20

Intersection Summary

Queues
5: Rancho Carmel Dr & Provencal Pl

Ex + C + P PM

02/21/2020



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	68	75	30	45	640	69	582
v/c Ratio	0.29	0.35	0.14	0.31	0.29	0.43	0.25
Control Delay	17.5	32.2	27.2	49.7	3.6	46.3	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.5	32.2	27.2	49.7	3.6	46.3	6.2
Queue Length 50th (ft)	14	36	14	21	39	35	47
Queue Length 95th (ft)	38	57	29	59	25	80	67
Internal Link Dist (ft)	420	420			470		2180
Turn Bay Length (ft)				160		300	
Base Capacity (vph)	525	529	539	159	2213	182	2364
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.14	0.06	0.28	0.29	0.38	0.25

Intersection Summary

Queues
5: Rancho Carmel Dr & Provencal Pl

2050 No Proj AM

02/21/2020



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	42	149	36	9	338	31	539
v/c Ratio	0.12	0.62	0.13	0.08	0.16	0.24	0.23
Control Delay	0.7	39.7	24.7	42.6	4.1	44.5	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.7	39.7	24.7	42.6	4.1	44.5	6.0
Queue Length 50th (ft)	0	71	15	4	2	17	26
Queue Length 95th (ft)	2	106	33	18	63	30	153
Internal Link Dist (ft)	420	420			470		2180
Turn Bay Length (ft)				160		300	
Base Capacity (vph)	581	471	560	111	2172	169	2312
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.32	0.06	0.08	0.16	0.18	0.23

Intersection Summary

Queues
5: Rancho Carmel Dr & Provencal Pl

2050 No Proj PM

02/21/2020



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	63	67	31	38	858	72	759
v/c Ratio	0.27	0.33	0.15	0.27	0.38	0.44	0.32
Control Delay	17.6	32.2	27.7	45.4	5.6	45.7	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.6	32.2	27.7	45.4	5.6	45.7	6.2
Queue Length 50th (ft)	14	32	14	20	41	36	60
Queue Length 95th (ft)	37	52	29	0	73	83	84
Internal Link Dist (ft)	420	420			470		2180
Turn Bay Length (ft)				160		300	
Base Capacity (vph)	532	520	539	157	2231	183	2383
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.13	0.06	0.24	0.38	0.39	0.32

Intersection Summary

Queues

5: Rancho Carmel Dr & Provencal Pl

02/21/2020



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	42	166	36	9	343	31	539
v/c Ratio	0.12	0.66	0.12	0.08	0.16	0.24	0.24
Control Delay	0.7	40.7	24.1	42.7	4.4	45.7	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.7	40.7	24.1	42.7	4.4	45.7	6.3
Queue Length 50th (ft)	0	78	15	4	2	17	26
Queue Length 95th (ft)	2	117	33	17	65	30	155
Internal Link Dist (ft)	420	420			470		2180
Turn Bay Length (ft)				160		300	
Base Capacity (vph)	580	471	560	111	2135	169	2278
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.35	0.06	0.08	0.16	0.18	0.24

Intersection Summary

Queues

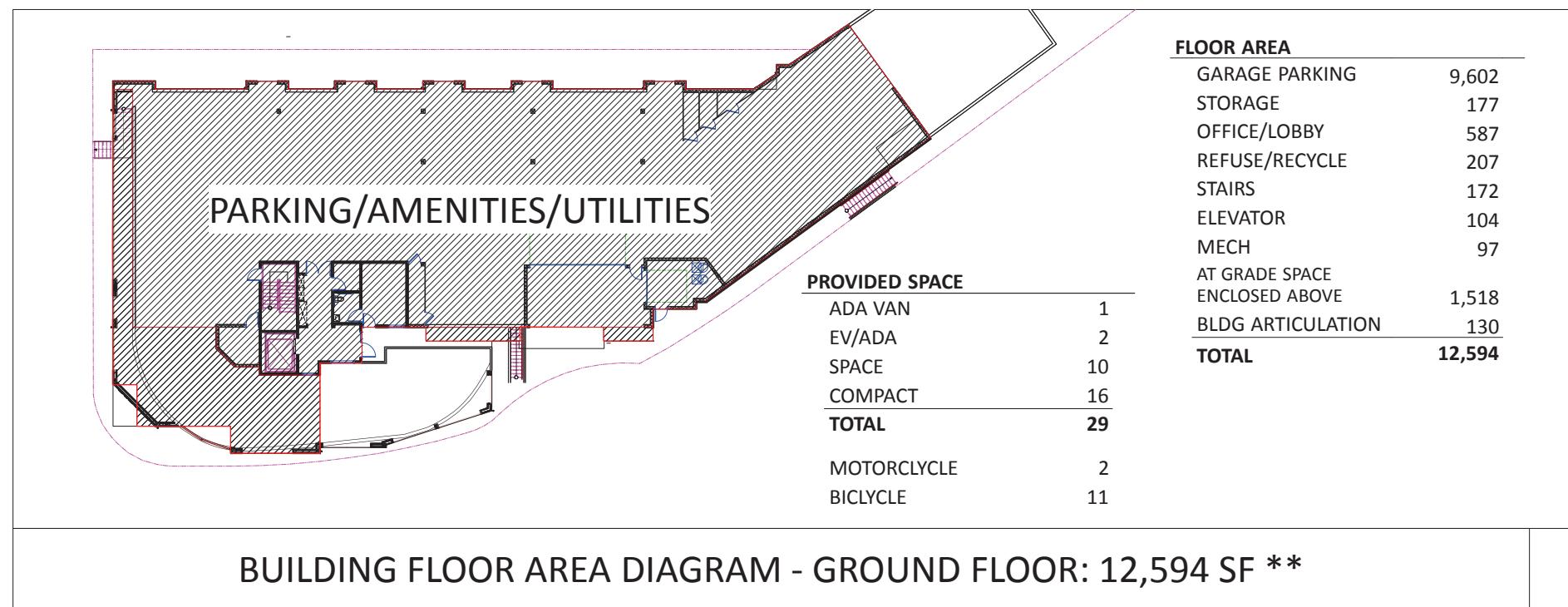
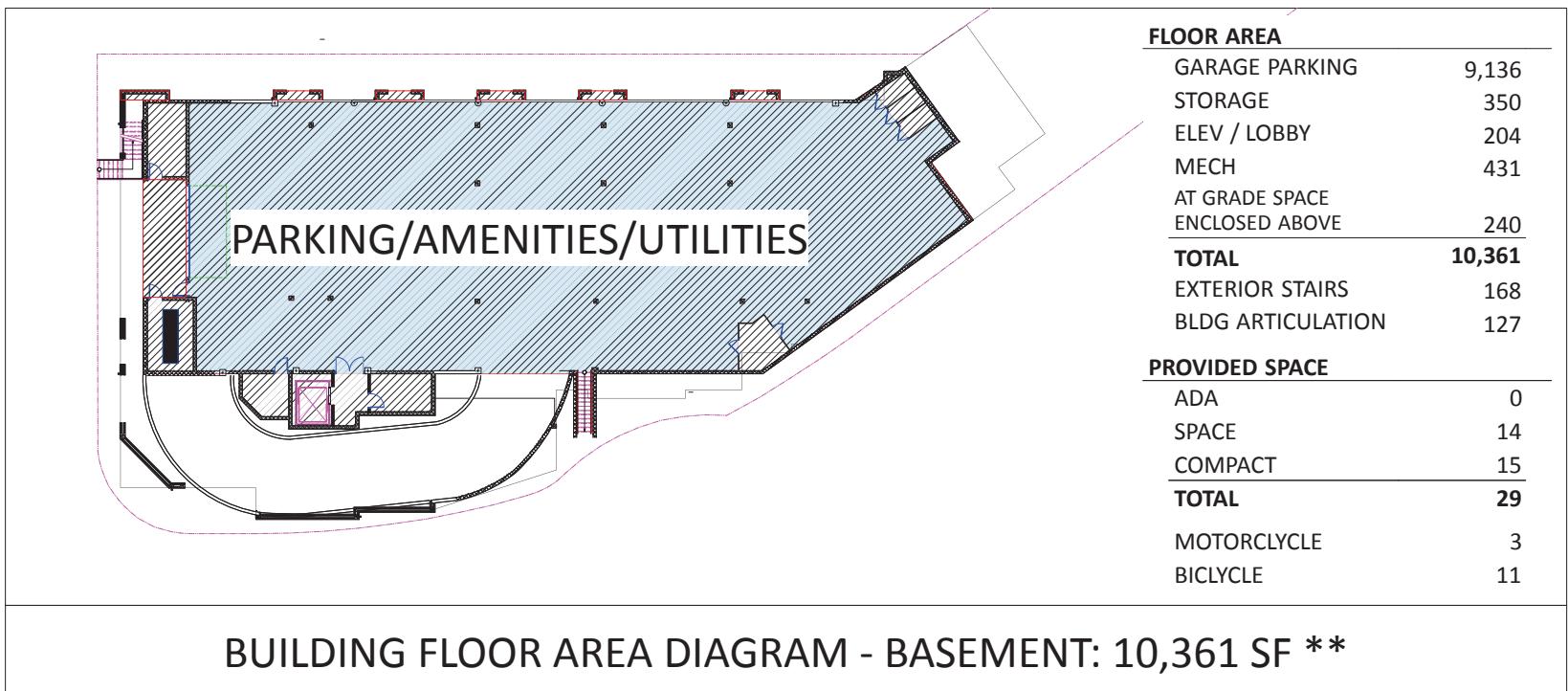
5: Rancho Carmel Dr & Provencal Pl

02/21/2020



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	63	74	31	38	875	75	759
v/c Ratio	0.27	0.35	0.14	0.27	0.40	0.45	0.32
Control Delay	17.4	32.6	27.4	45.6	5.8	46.4	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.4	32.6	27.4	45.6	5.8	46.4	6.3
Queue Length 50th (ft)	13	35	14	20	41	38	60
Queue Length 95th (ft)	37	56	29	0	76	85	84
Internal Link Dist (ft)	420	420			470		2180
Turn Bay Length (ft)				160		300	
Base Capacity (vph)	532	519	539	157	2212	185	2372
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.14	0.06	0.24	0.40	0.41	0.32

Intersection Summary



Transportation Amenity Requirement

Project Applicant:	Project Address:
New Pointe Communities	10211 Rancho Carmel Dr. San Diego
Project No:	Phone:

The purpose of this form is to determine the transportation amenity requirement per San Diego Municipal Code (SDMC) Section 142.0528. This applies to multifamily residential developments within Parking Standards Transit Priority Areas. This form must be completed by the project applicant and submitted to Development Services at time of project submittal.

Step 1: Enter APN: (Please type in and do not copy and paste)	3136801800																				
Step 2: Find out if your parcel is located within a Parking Standards TPA?	Within a Parking Standards TPA; proceed to Steps 3 & 4 for Transportation Amenity Requirement																				
<p>Please note:</p> <ul style="list-style-type: none"> - If parcel is located within a Parking Standards TPA, zero minimum parking standards apply. - If parcel is located within Downtown, maximum parking requirements also apply. - If parcel is located within Coastal Overlay Zone, zero minimum parking standards are not in effect. <p>- If parcel is <u>NOT</u> located within a Parking Standards TPA, zero minimum parking standards do not apply.</p>																					
Step 3: Enter Total Number of Units:	48																				
Step 4: Enter Total Number of Bedrooms:	72																				
<table> <tr> <td>Bedroom Ratio:</td> <td>1.50</td> </tr> <tr> <td>Jobs Within a Mile (Walking):</td> <td>5,646</td> </tr> <tr> <td>CalEnviro Screen:</td> <td>8.19</td> </tr> <tr> <td>Employment within a 30-Minute Transit Trip:</td> <td>27,093</td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td>Bedroom Ratio Score:</td> <td>5</td> </tr> <tr> <td>Jobs-Housing Score:</td> <td>1</td> </tr> <tr> <td>Environmental Priority Index Score:</td> <td>0</td> </tr> <tr> <td>Transit Commute Score:</td> <td>2</td> </tr> <tr> <td>Transportation Amenity Score:</td> <td>8</td> </tr> </table>		Bedroom Ratio:	1.50	Jobs Within a Mile (Walking):	5,646	CalEnviro Screen:	8.19	Employment within a 30-Minute Transit Trip:	27,093			Bedroom Ratio Score:	5	Jobs-Housing Score:	1	Environmental Priority Index Score:	0	Transit Commute Score:	2	Transportation Amenity Score:	8
Bedroom Ratio:	1.50																				
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Jobs-Housing Score:	1																				
Environmental Priority Index Score:	0																				
Transit Commute Score:	2																				
Transportation Amenity Score:	8																				
Transportation Amenity Requirement:	2 Points																				

TRANSPORTATION AMENITY REQUIREMENT

Required		2 points
Provided	Transit and Rideshare Information	1 points
	Delivery Support	1 points
	Child Transportation Storage	1 points
	Micro Mobility 10%	3 points
	Co-Working Space	2 points
Total		8 points

 Department of Transportation	MANUAL OF POLICIES AND PROCEDURES		SECTION NO.
			321
	SUBJECT	DATE 2/2003	
	DRIVEWAY DESIGN		DIST. ORIGINATOR 10
PAGE 1 of 11			

I. Purpose

This Section provides the basic criteria for review of driveway designs.

The Department of Transportation (DOT) has a broad responsibility to ensure the safe and efficient use of City streets. The impact on streets is influenced by the design and use of off-street parking and loading facilities to accept and discharge vehicles. The goal of good driveway design is to minimize adverse effects on street traffic.

II. Conditions of Tracts or Other Actions

DOT requirements of driveways, prohibitions of driveways on certain streets, limitations of turning movements, and other conditions are often imposed through:

- A. Zone Changes: These requirements usually originate in DOT during the zoning review process and are adopted by the Council.
- B. Conditional Uses: Hearing examiners obtain the recommendations of DOT and often include traffic requirements.
- C. Tract Review: All Tract maps are subject to approval by the Advisory Agency (i.e., a deputy of the Director of Planning). The Advisory Agency is assisted by the Subdivision Committee, on which DOT is represented. The Advisory Agency frequently includes traffic requirements in its final determination.

It is necessary in many cases to "clear" these traffic requirements, i.e., certify that they have been carried out. This is done by DOT's representative on the Subdivision Committee, who must approve any plans affected by such requirements.

III. Code Requirements

The Los Angeles Municipal Code (LAMC) specifically requires DOT to carry out certain functions with relation to off-street parking facilities. The Bureau of Transportation Programs and Development Review of the Department serves as a review agency for driveways and other off-street uses through the required approval of Building Permit Applications. Relevant Municipal Code Sections are:

- 12.21 A-4(g)
- 12.21 A-5(e)
- 12.21 A-5(i)
- 12.21 A-5(j)
- 12.21 C-6(a)

PAGE 8	DATE 02/2003	SECTION 321	SUBJECT DRIVEWAY DESIGN	Department of Transportation MANUAL OF POLICIES & PROCEDURES
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APPENDIX A – PARKING CONTROL SERVICE RATE

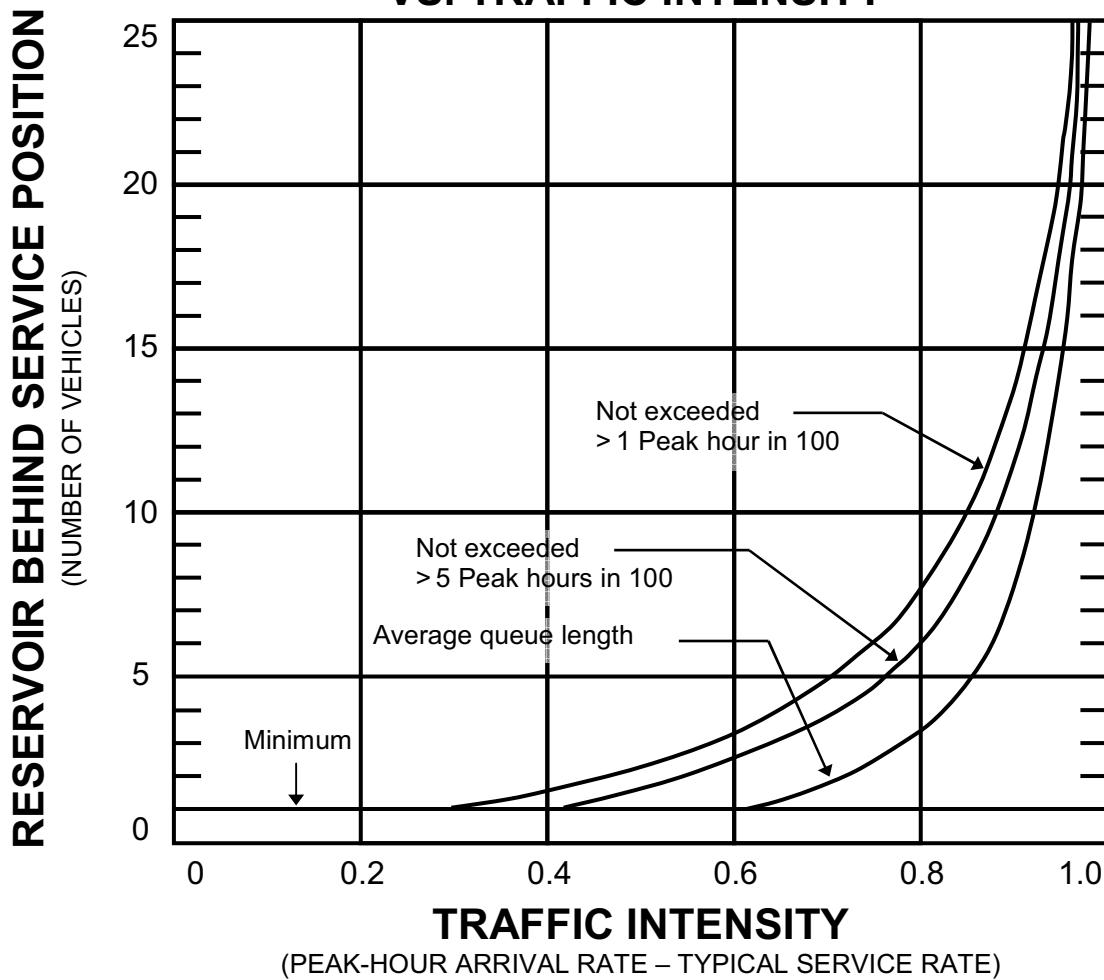
Type of Control	<u>Typical Service Rates Per Lane⁴</u>	
	Average Headway (Sec/Veh)	Capacity (Veh/Hr)
Entering:		
Clear aisle, no control	3.6	1,000
Ticket dispenser, no gate	5.0	720
Time stamp and handed to driver	8.5	425
Coded-card operated gate	8.9	405
Cashier, flat fee, no gate		
No information given	9.2	390
Direction-info needed	14.8	250
Ticket dispenser with gate		
Sharp turn @ approach	9.5	380
Easy direct approach	5.5	650
Coin-operated gate	20.4	175
Internal:		
Clear aisle or ramp, no parking	2.0	1,800
Straight ramp w/bend @ end	2.2	1,650
Circular ramp, 30' R @ C/L	2.2	1,650
Aisle with adjacent 9' x 18' stalls		
Inbound	3.5	1,040
Outbound	8.6	420
Exiting:		
Light street congestion	7.2	500
Moderate street congestion	9.0	400
Coded card/token-operated gate	9.0	400
Cashier, flat fee with gate	13.4	270
Cashier, variable fee with gate	19.5	185
Coin operated gate	20.4	175

⁴ Assumes no significant interference by pedestrians, other traffic, etc.

Department of Transportation MANUAL OF POLICIES & PROCEDURES	SUBJECT DRIVEWAY DESIGN	SECTION 321	DATE 02/2003	PAGE 9
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APPENDIX B

RESERVOIR NEEDS VS. TRAFFIC INTENSITY



Assumptions:

- Arrivals follow a Poisson Distribution.
- Service rate can be represented by an exponential probability function.
- Flow is equally divided between each line if more than one is available.

Notes:

1. To obtain total reservoir length, use 20 feet per vehicle + 20 feet for the service position (or 12 feet to the driver of the vehicle in the service position).
2. For peak-hour arrival rate contact City-Wide Planning Coordination Section at (213) 482-7024.
3. See Appendix A for parking control service rate.