

LOCAL TRANSPORTATION ANALYSIS

ARMORLITE LOFTS

San Marcos, California
November 7, 2024

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EXECUTIVE SUMMARY

Linscott, Law & Greenspan (LLG), Engineers has prepared this Local Transportation Analysis (LTA) to assess the potential impacts to the street system as a result of the proposed Armorlite Lofts project. The Project proposes to construct 165 apartment units and 5,600 SF of commercial use at 225 Las Posas Road in the City of San Marcos.

Project is calculated to generate 1,214 ADT, with 86 trips during the AM peak hour (20 inbound and 66 outbound), and 109 trips during the PM peak hour (72 inbound and 37 outbound).

While Level of Service (LOS) analysis is not used to determine CEQA significance, the intersection and street segment analysis provided in this study shows that the Project will not have any substantial effects at the study area intersections and street segments. A CEQA Vehicle Miles Traveled (VMT) analysis is prepared in a report under separate cover.

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LOCAL TRANSPORTATION ANALYSIS

ARMORLITE LOFTS

San Marcos, California

November 7, 2024

1.0 INTRODUCTION

Linscott, Law & Greenspan (LLG), Engineers has prepared this Local Transportation Analysis (LTA) to assess the potential impacts to the street system as a result of the proposed Armorlite Lofts project (hereafter referred to as the “Project”). The Project proposes to construct 165 apartment units and 5,600 SF of commercial use at 225 Las Posas Road in the City of San Marcos.

Transportation impact analyses within the City of San Marcos includes two sets of requirements.

- **CEQA Analysis**, consisting of Vehicles Miles Traveled (VMT) analysis, is addressed in a report under separate cover.
- **Non-CEQA Local Transportation Analysis** to evaluate the effects of a development project on the circulation network.

The traffic analysis presented in this report includes the following:

- Project Description
- Existing Conditions
- Analysis Approach and Methodology
- Analysis of Existing Conditions
- Trip Generation, Distribution, and Assignment
- Analysis of Near-Term (Interim Year 2025) without and with Project Conditions
- Analysis of Long-Term (Horizon Year 2050) without and with Project Conditions
- Site Access, On-Site Circulation and Parking Review
- Active Transportation Review
- Conclusions

2.0 PROJECT DESCRIPTION

The project applicant is requesting approval of a Specific Plan (SP-23-0001), General Plan Amendment (GPA23-0002), Rezone (R23-0001), Site Development Plan (SDP23-0003) and a Conditional Use Permit (CUP23-0002). The General Plan Designation on the Project site is Public Institutional (PI). A General Plan Amendment is proposed to change the designation to Specific Plan Area (SPA). The Zoning on the project site is Public-Institutional (P-1). A rezone is proposed to change the site zoning to Specific Plan Area (SPA). If approved, these entitlements would allow for the development of 165 apartment units and 5,600 SF of commercial use at 225 Las Posas Road in the City of San Marcos. As proposed, 15% of the units will be affordable at the very-low income level (30% to 50% of the Area Median Income or AMI). The Project is anticipated to start construction in 2026 with full occupancy in late 2027/early 2028.

Access to the Project site will be via one unsignalized driveway on Armorlite Drive. The entrance driveway will be ungated and will be 24-feet wide. Secondary emergency-only access will be provided at the northwest corner of the Project site and will be accessed through the adjacent AT&T parcels.

Figure 2–1 shows the Project vicinity. *Figure 2–2* shows a more detailed project area map. *Figure 2–3* shows the Project site plan.

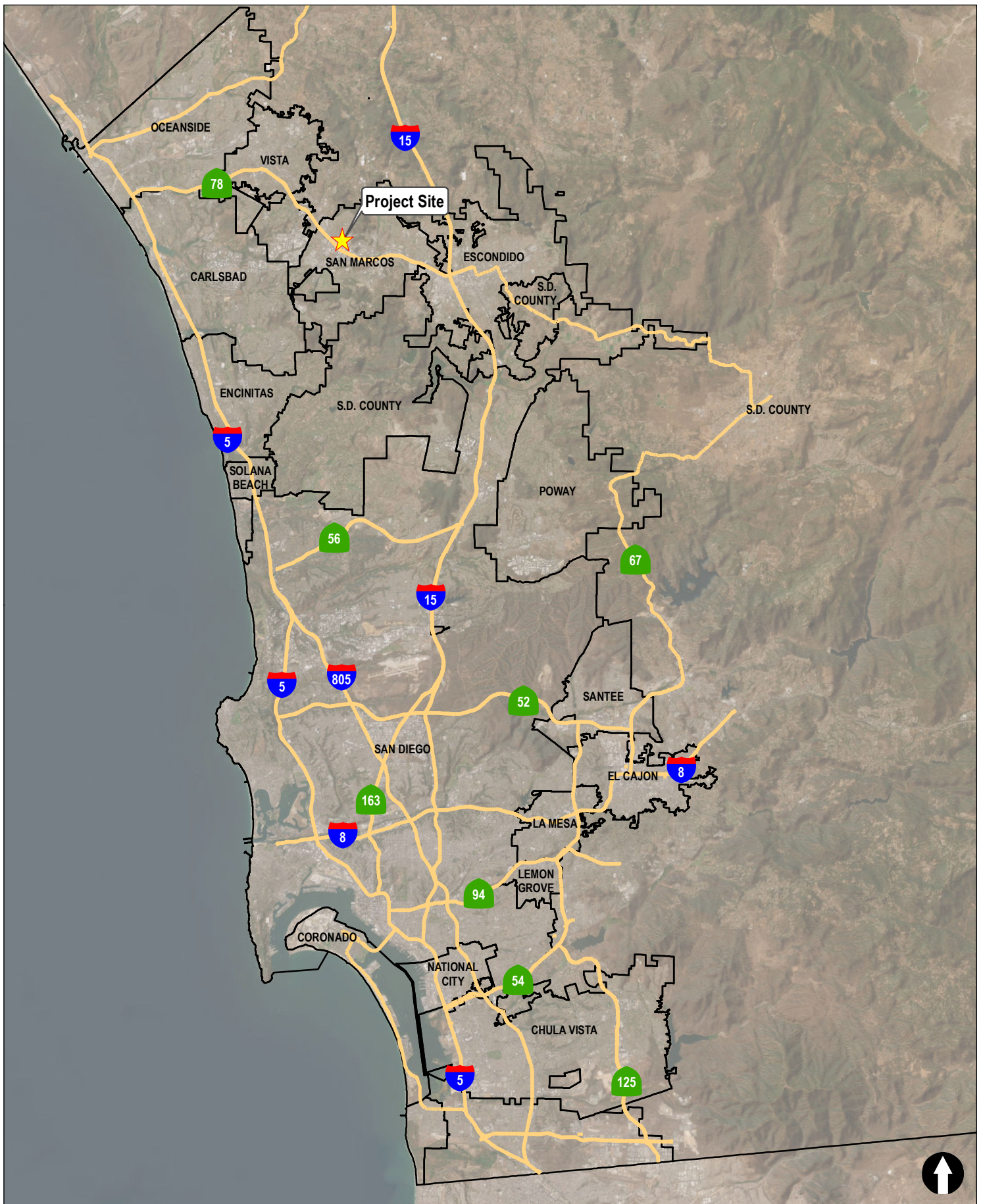




Figure 2-2

ARMORLITE LOFTS



3.0 EXISTING CONDITIONS

Effective evaluation of the traffic impacts associated with the proposed Armorlite Lofts 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.

The study area includes the following intersections and street segments:

INTERSECTIONS

1. Mission Road / Rancho Santa Fe Road
2. Mission Road / Pacific Street
3. Mission Road / Las Posas Road
4. Mission Road / Knoll Road
5. Armorlite Drive / Las Posas Road
6. Armorlite Drive / Project Driveway
7. Las Posas Road / Descanso Avenue
8. Las Posas Road / SR-78 Westbound Ramps
9. Las Posas Road / Grand Avenue
10. Grand Avenue / SR-78 Eastbound Ramps / Via Vera Cruz

STREET SEGMENTS

Mission Road

1. Rancho Santa Fe Road to Las Posas Road
2. Las Posas Road to Knoll Road

Las Posas Road

3. Mission Road to SR-78 Westbound Ramps
4. SR-78 Westbound Ramps to Grand Avenue

3.1 Existing Street Network

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

Mission Road is currently constructed as a 4-lane divided roadway west of Pacific Street and a 4-lane undivided roadway with a two-way left-turn lane east of Pacific Street. The posted speed limit is 45 mph. On-street parking is prohibited. Sidewalks are provided on both sides of the roadway. Class I bike lanes are provided on the Inland Rail Trail which runs on the north side of Mission Road west of Pacific Street, and on the south side of Mission Road east of Pacific Street. Class II bike lanes are provided west of Rancho Santa Fe Road and east of Pacific Street on both sides of the roadway. Class III bike routes are provided between Rancho Santa Fe Road and Pacific Street.

Armorlite Drive is currently constructed as a 2-lane undivided roadway. The posted speed limit is 25 mph. On-street angled parking is provided on the south side. Sidewalks are provided on both

sides of the roadway. Class I bike lanes are provided on the north side of Armorlite Drive between Las Posas Road and Bingham Drive.

Las Posas Road is currently constructed as a 6-lane divided roadway north of Grand Avenue and a 5-lane divided roadway (3 northbound lanes and 2 southbound lanes) south of Grand Avenue. The posted speed limit is 45 mph. On-street parking is prohibited. Sidewalks and Class II bike lanes are provided on both sides of the roadway.

3.2 Existing Traffic Volumes

Peak hour intersection turning movement volume and street segment average daily traffic (ADT) volume counts were conducted on either Thursday, September 14, 2023 or Wednesday, October 25, 2023, when schools in the area were in session.

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

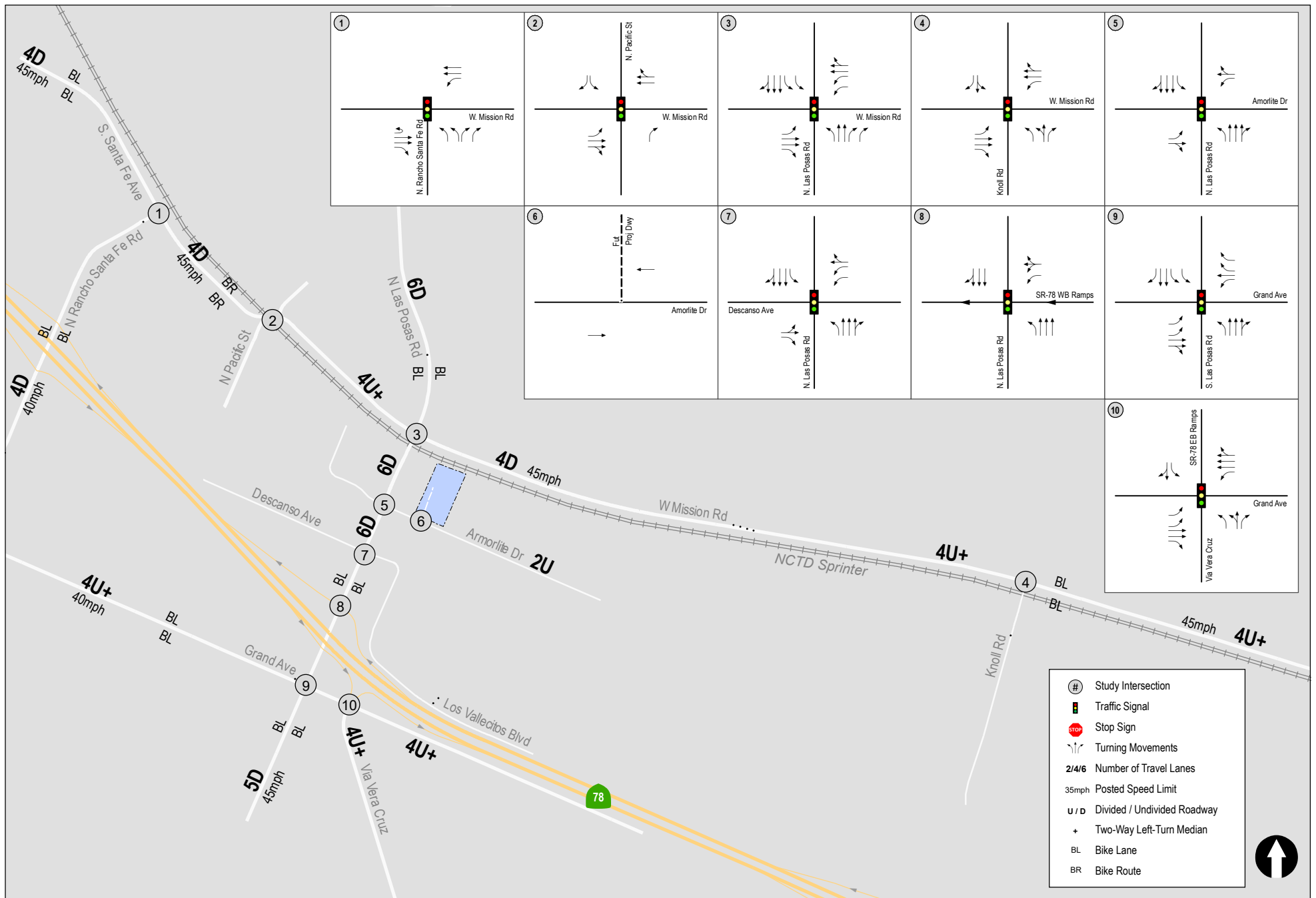


Figure 3-1
Existing Conditions Diagram

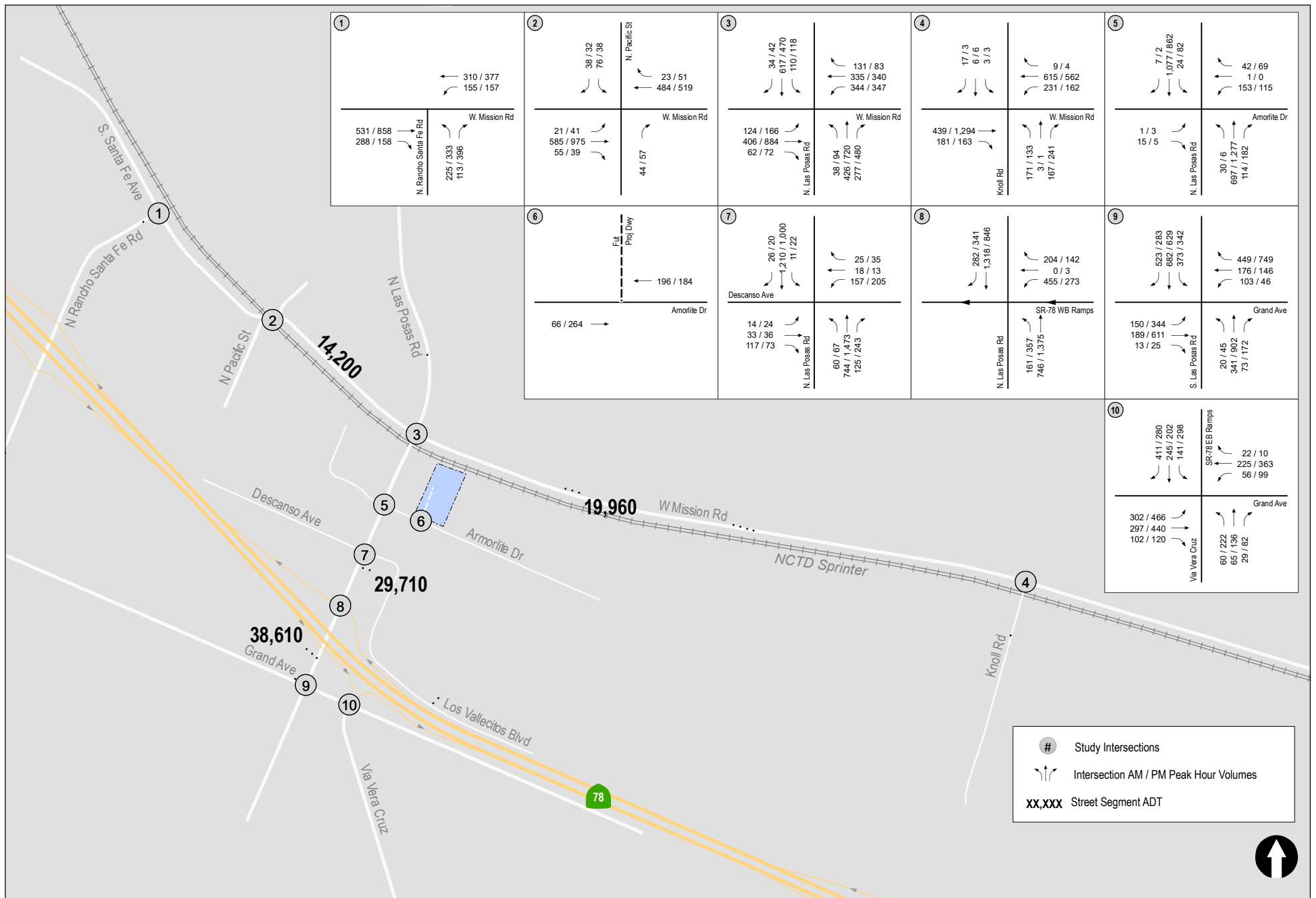


Figure 3-2
Existing Traffic Volumes

4.0 ANALYSIS APPROACH AND METHODOLOGY

4.1 Methodology

Level of service (LOS) is the term used to denote the different operating conditions which occur on a given roadway segment under various traffic volume loads. It is a qualitative measure used to describe a quantitative analysis 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 operating conditions. LOS designation is reported differently for signalized and unsignalized intersections, as well as for roadway segments.

4.1.1 Intersections

Signalized intersections were analyzed under AM and PM peak hour conditions. Average vehicle delay was determined utilizing the methodology found in Chapter 19 of the Highway Capacity Manual (HCM) 6th Edition, with the assistance of the Synchro (version 11) computer software. The delay values (represented in seconds) were qualified with a corresponding intersection LOS.

Unsignalized intersections were analyzed under AM and PM peak hour conditions. Average vehicle delay and LOS was determined based upon the procedures found in Chapters 20 and 21 of the HCM 6th Edition, with the assistance of the Synchro (version 11) computer software.

4.1.2 Street Segments

Street segment analysis is based upon the comparison of daily traffic volumes (ADTs) to the City of San Marcos'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 Marcos's *Roadway Classification, Level of Service, and ADT Table* is attached in **Appendix B**.

4.2 Level of Service Standards

The City of San Marcos strives to maintain intersection and roadway segment operations based on LOS standards outlined in the General Plan Mobility Element. If the addition of the traffic generated from a proposed project results in any one of the following, improvements should be identified to increase performance to acceptable or pre-project conditions under each scenario:

- Triggers an intersection operating at acceptable LOS to operate at unacceptable LOS and increases the delay by more than 2.0 seconds.
- Increases the delay for a study intersection that is already operating at unacceptable LOS by more than 2.0 seconds.
- Triggers a roadway segment operating at acceptable LOS to operate at unacceptable LOS and increases the volume/capacity (V/C) ratio by more than 0.02.
- Increases the V/C ratio for a study roadway segment that is already operating at unacceptable LOS by more than 0.02.

5.0 ANALYSIS OF EXISTING CONDITIONS

5.1 Peak Hour Intersection Levels of Service

Table 5–1 summarizes the intersection operations under Existing conditions. As shown in *Table 5–1*, all the study area intersections are calculated to operate at LOS D or better during both the AM and PM peak hours with the exception of the following intersections:

- Las Posas Road / Descanso Avenue – LOS F during the AM and LOS E during the PM peak hour
- Las Posas Road / Grand Avenue – LOS E during the AM and PM peak hours

Appendix C contains the Existing intersection analysis worksheets.

**TABLE 5-1
EXISTING INTERSECTION OPERATIONS**

Intersection	Control Type	Peak Hour	Existing	
			Delay ^a	LOS ^b
1. Mission Rd / Rancho Santa Fe Rd	Signal	AM PM	29.3 30.3	C C
2. Mission Rd / Pacific St	Signal	AM PM	28.2 46.0	C D
3. Mission Rd / Las Posas Rd	Signal	AM PM	46.6 50.0	D D
4. Mission Rd / Knoll Rd	Signal	AM PM	49.4 38.8	D D
5. Armorlite Dr / Las Posas Rd	Signal	AM PM	28.0 24.3	C C
6. Armorlite Dr / Project Drwy	DNE	AM PM	— —	— —
7. Las Posas Rd / Descanso Ave	Signal	AM PM	97.6 80.0	F E
8. Las Posas Rd / SR-78 WB Ramps	Signal	AM PM	28.5 20.0	C B
9. Las Posas Rd / Grand Ave	Signal	AM PM	68.4 72.1	E E
10. Grand Ave / SR-78 EB Ramps / Via Vera Cruz	Signal	AM PM	39.5 41.5	D D

Footnotes:

- a. Average delay expressed in seconds per vehicle.
b. Level of Service.

General Note:

1. DNE – does not exist.

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

5.2 Daily Street Segment Levels of Service

Table 5–2 summarizes the street segment operations under Existing conditions. As shown in **Table 5–2**, all segments are calculated to currently operate at LOS C or better.

TABLE 5–2
EXISTING STREET SEGMENT OPERATIONS

Street Segment	Classification	Capacity (LOS E) ^a	ADT ^b	LOS ^c	V/C ^d
Mission Rd					
Rancho Santa Fe Rd to Las Posas Rd	4-Lane Major Arterial with Enhanced Class II Bike Lanes	40,000	14,200	A	0.355
Las Posas Rd to Knoll Rd	4-Lane Major Arterial with Enhanced Class II Bike Lanes	40,000	19,960	B	0.499
Las Posas Rd					
Mission Rd to SR-78 WB Ramps	6-Lane Prime Arterial	60,000	29,710	B	0.495
Mission Rd to Grand Ave	6-Lane Prime Arterial	60,000	38,610	C	0.644

Footnotes:

- a. Capacities based on City of San Marcos Circulation Element Roadway Classification Table (see *Appendix B*).
- b. Average Daily Traffic Volumes.
- c. Level of Service.
- d. Volume to Capacity Ratio.

6.0 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

As described in *Section 2.0*, The Project proposes to construct 165 apartment units and 5,600 SF of commercial use.

6.1 Trip Generation

6.1.1 Trip Rates

The Project traffic generation calculations were conducted using the trip generation rates published in SANDAG's *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002*. Based on the project description, the apartment trip rate of 6/unit was used for the 165 apartment units, and the specialty retail/strip commercial trip rate of 40/1,000 SF was used for the 5,600 SF of commercial use. Based on coordination with the applicant, the commercial use will be geared more towards the Armorlite Lofts residents. To be conservative, no mixed-use credit was applied.

The nearest bus stop is located about 500 feet south of the Project site (5-minute walk), just south of the Armorlite Drive / Las Posas Road intersection. The Palomar College Station, which serves the Sprinter, is located about 1,000 feet east of the Mission Road / Las Posas Road intersection (10-minute walk from the Project site). Given the close proximity of the bus stop and trolley station to the Project site, it is reasonable to assume that a portion of the trips generated by the Project would utilize public transit. To be conservative, no transit credit was applied.

6.1.2 Project Trips

Table 6-1 shows the Project trip generation. As shown in *Table 6-1*, the Project is calculated to generate 1,214 ADT, with 86 trips during the AM peak hour (20 inbound and 66 outbound), and 109 trips during the PM peak hour (72 inbound and 37 outbound).

**TABLE 6-1
PROJECT 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	In:Out Split	Volume		
Apartments	165 dwelling units	6/DU ^b	990	8%	20:80	16	63	79	9%	70:30	62	27	89
Commercial Mixed-Use	5,600 SF	40/KSF ^c	224	3%	60:40	4	3	7	9%	50:50	10	10	20
Total			1,214			20	66	86			72	37	109

Footnotes:

- a. Rates are based on SANDAG's (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002
- b. Based on apartment rate of 6/DU.
- c. Based on specialty retail/strip commercial rate of 40/1,000 SF.

6.2 Trip Distribution and Assignment

The Project traffic was distributed based on the site location, access to SR-78, existing traffic patterns in the area and anticipated traffic routes to and from the site. The Project's regional distributions assumes 20% of trips oriented to/from the west and 40% of trips oriented to/from the east, and local distributions assumes 20% oriented to/from the south, 10% to/from the west and 10% to/from the east.

Figure 6-1 shows the overall Project traffic distribution. **Figure 6-2** shows the Project traffic volumes.

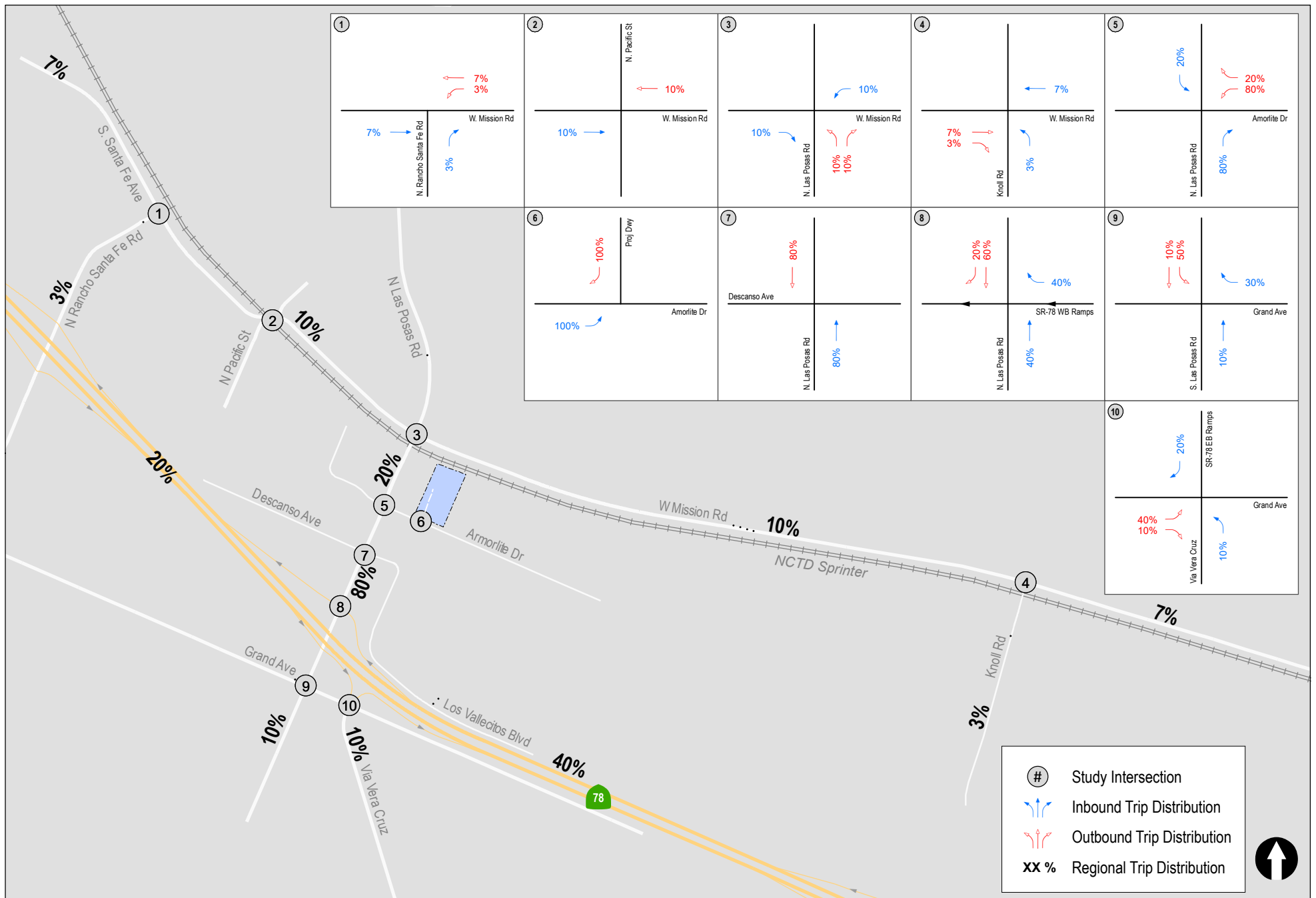


Figure 6-1

Project Traffic Distribution

ARMORLITE LOFTS



Figure 6-2
Project Traffic Volumes

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7.0 ANALYSIS OF NEAR-TERM (INTERIM YEAR 2025) SCENARIOS

The following section presents the analysis of study area intersections and street segments under Interim Year conditions without and with the Project.

Based on the *City of San Marcos Transportation Analysis Guidelines (dated November 16, 2020)*, the Interim Year conditions for a transportation analysis is based on one of SANDAG's pre-established interim year scenario models, depending on whichever is closest to the project's anticipated opening year. As mentioned in *Section 2.0*, the Project is anticipated to start construction in 2026 with full occupancy in late 2027/early 2028. Therefore, SANDAG's Year 2025 was used as the Interim Year for this report.

7.1 Near-Term (Interim Year 2025) Traffic Volumes

To forecast future traffic volumes for Near-Term (Interim Year 2025) conditions, the SANDAG ABM2+ Year 2016 and Year 2025 models were utilized to obtain the growth per year percent. Year 2025 traffic volumes were then developed based on an extrapolation using the calculated growth per year percent and applying it to the Year 2023 existing traffic volume counts for 2 years. In addition, traffic volumes from potential Cumulative projects provided by City of San Marcos staff were manually added onto the study area intersection and street segments. These Cumulative projects are listed in *Table 7-1* below. Cumulative projects are other projects in the study area that will add traffic to the local circulation system by the Interim Year.

Figure 7-1 shows the Near-Term (Interim Year 2025) traffic volumes. *Figure 7-2* shows the Near-Term (Interim Year 2025) + Project traffic volumes.

**TABLE 7-1
CUMULATIVE PROJECTS INFORMATION**

Name	Description	Location
Santa Fe Flores	Construct a 54-unit residential apartment building and 117 parking spaces on 2.23 acres.	Northwest corner of S. Santa Fe Avenue and Las Flores Drive San Marcos, CA 92069
Meritage Homes	Construct a 120-unit residential condominium development on 7.6 acres.	West of intersection of Las Posas Road and Palm Road San Marcos, CA 92078
Lonnie Tabbaa	Construct a gas station, car wash, commercial drive thru, and convenience store on the subject property.	Southwest corner of W. Mission Road and N. Las Posas Road San Marcos, CA 92078
Mariposa	Construct a 100-unit affordable apartment complex on the western parcel as Phase I.	604 W. Richmar Avenue San Marcos, CA 92069
Karl Strauss Brewery & Tasting Room	Develop on a vacant 1.95-acre site for a 6,132 SF brewing tasting room and commercial kitchen, 2,916 SF entertainment area (game room), 1,480 SF building for cabana, restrooms and refuse area, outdoor patio/garden area and associated parking.	Las Posas Road & Los Vallecitos Blvd San Marcos, CA 92078
Lab Holding, LLC	Construct a horizontal mixed-use project consisting of 102 residential units on the west side and 63,641 square feet of commercial space and eight/live work units on the east side.	Southwest corner of Grand Avenue and Linda Vista Drive San Marcos, CA 92069
Las Posas Owner LPV, LLC	Develop the site with 495 residential units, inclusive of 75 affordable units.	Northwest Corner of Las Posas Road and Linda Vista Drive San Marcos, CA 92078
Murai-Sab, LLC	Develop an 89-unit single family residential subdivision at the west side of the northern end of Las Posas Road.	West side of the northern end of Las Posas Road. San Marcos, CA 92069
San Marcos Highlands	Develop 187 single-family residence.	East side of the northern end of Las Posas Road. San Marcos, CA 92069

7.2 Near-Term (Interim Year 2025) Without Project

7.2.1 Intersection Analysis

Table 7–2 summarizes the intersection operations under Near-Term (Interim Year 2025) without Project conditions. As shown in *Table 7–2*, all the study area intersections are calculated to operate at LOS D or better during both the AM and PM peak hours with the exception of the following intersections:

- Las Posas Road / Descanso Avenue – LOS F during the AM and PM peak hours
- Las Posas Road / Grand Avenue – LOS F during the AM and PM peak hours

Appendix D contains the Near-Term (Interim Year 2025) intersection analysis worksheets.

7.2.2 Segment Operations

Table 7–3 summarizes the street segment operations under Near-Term (Interim Year 2025) without Project conditions. As shown in *Table 7–3*, all street segments are calculated to operate at LOS C or better.

7.3 Near-Term (Interim Year 2025) + Project

7.3.1 Intersection Analysis

Table 7–2 summarizes the intersection operations under Near-Term (Interim Year 2025) + Project conditions. As shown in *Table 7–2*, with the addition of project traffic, all the study area intersections are calculated to operate at LOS D or better during both the AM and PM peak hours with the exception of the following intersections:

- Las Posas Road / Descanso Avenue – LOS F during the AM and PM peak hours
- Las Posas Road / Grand Avenue – LOS F during the AM and PM peak hours

Based on the established Level of Service Standards outlined in *Section 4.2*, no substantial effects are identified as the Project adds less than 2 seconds of average vehicle delay. Therefore, improvements are not required under this analysis.

Appendix E contains the Near-Term (Interim Year 2025) + Project intersection analysis worksheets.

7.3.2 Segment Operations

Table 7–3 summarizes the street segment operations under Near-Term (Interim Year 2025) + Project conditions. As shown in *Table 7–3*, with the addition of project traffic, all street segments are calculated to operate at LOS C or better.

TABLE 7-2
NEAR-TERM (INTERIM YEAR 2025) INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Near-Term (Interim Year 2025)		Near-Term (Interim Year 2025) + Project		Δ^c	Substantial Effect?
			Delay	LOS	Delay	LOS		
1. Mission Rd / Rancho Santa Fe Rd	Signal	AM	29.6	C	29.6	C	0.0	No
		PM	31.6	C	31.8	C	0.2	No
2. Mission Rd / Pacific St	Signal	AM	29.6	C	29.8	C	0.2	No
		PM	50.3	D	50.8	D	0.5	No
3. Mission Rd / Las Posas Rd	Signal	AM	49.7	D	50.0	D	0.3	No
		PM	52.5	D	53.2	D	0.7	No
4. Mission Rd / Knoll Rd	Signal	AM	53.4	D	53.9	D	0.5	No
		PM	43.1	D	43.2	D	0.1	No
5. Armorlite Dr / Las Posas Rd	Signal	AM	28.2	C	43.4	D	15.2	No
		PM	25.5	C	31.6	C	6.1	No
6. Armorlite Dr / Project Drwy	DNE / TWSC ^d	AM	–	–	10.1	B	–	No
		PM	–	–	9.7	A	–	No
7. Las Posas Rd / Descanso Ave	Signal	AM	116.5	F	117.1	F	0.6	No
		PM	112.0	F	113.2	F	1.2	No
8. Las Posas Rd / SR-78 WB Ramps	Signal	AM	34.8	C	36.2	D	1.4	No
		PM	30.1	C	32.2	C	2.1	No
9. Las Posas Rd / Grand Ave	Signal	AM	112.6	F	113.9	F	1.3	No
		PM	130.8	F	132.1	F	1.3	No
10. Grand Ave / SR-78 EB Ramps / Via Vera Cruz	Signal	AM	39.6	D	40.1	D	0.5	No
		PM	43.4	D	43.8	D	0.4	No

Footnotes:

- Average delay expressed in seconds per vehicle.
- Level of Service.
- Δ denotes an increase in delay due to project.
- TWSC – Two-Way Stop Controlled intersection.

General Note:

- DNE – does not exist.

SIGNALIZED		UNSIGNALIZED	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
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 7-3
NEAR-TERM (INTERIM YEAR 2025) STREET SEGMENT OPERATIONS

Street Segment	Capacity (LOS E) ^a	Near-Term (Interim Year 2025)			Near-Term (Interim Year 2025) + Project			Δ^e	Substantial Effect?
		ADT ^b	LOS ^c	V/C ^d	ADT	LOS	V/C		
Mission Rd									
Rancho Santa Fe Rd to Las Posas Rd	40,000	15,390	B	0.385	15,510	B	0.388	0.003	No
Las Posas Rd to Knoll Rd	40,000	21,266	C	0.532	21,386	C	0.535	0.003	No
Las Posas Rd									
Mission Rd to SR-78 WB Ramps	60,000	33,637	B	0.561	34,607	B	0.577	0.016	No
Mission Rd to Grand Ave	60,000	43,651	C	0.728	44,261	C	0.738	0.010	No

Footnotes:

- a. Capacities based on San Marcos Roadway Classification & LOS table (See *Appendix B*).
- b. Average Daily Traffic
- c. Level of Service
- d. Volume to Capacity ratio
- e. Δ denotes a project-induced increase in the Volume to Capacity ratio

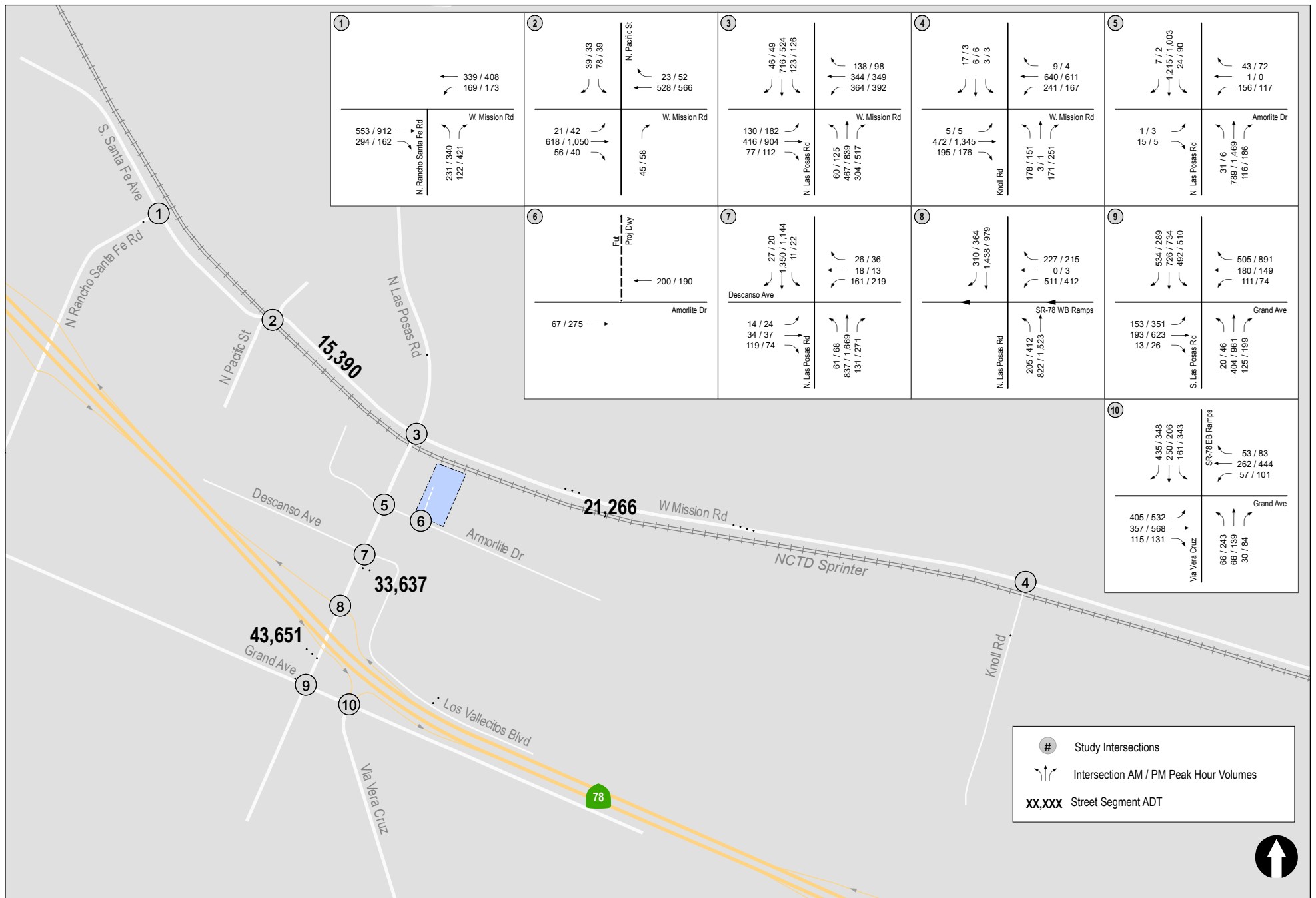


Figure 7-1
Near-Term (Interim Year 2025) without Project Traffic Volumes

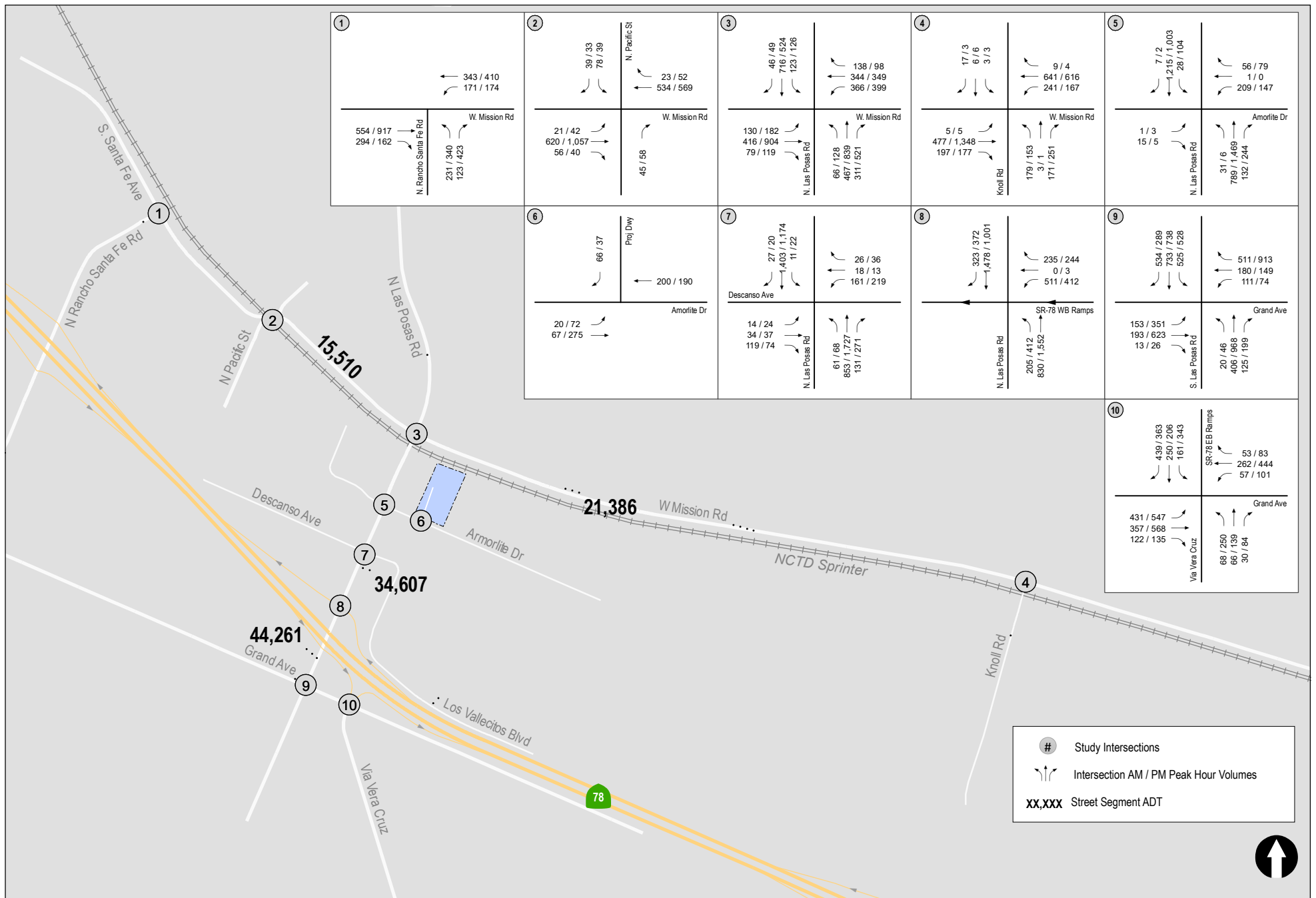


Figure 7-2
Near-Term (Interim Year 2025) + Project Traffic Volumes

8.0 ANALYSIS OF LONG-TERM (HORIZON YEAR 2050) SCENARIOS

The following section presents the analysis of study area intersections and street segments under Long-Term (Horizon Year 2050) conditions without and with the Project.

8.1 Long-Term (Horizon Year 2050) Traffic Volumes

The Long-Term (Horizon Year 2050) street network in the SANDAG ABM2+ Year 2050 model includes the roadways built to their City Mobility Element Classification. For the Year 2050 analysis, no changes to the study area roadway geometry or intersection control shown in *Figure 3-1* were assumed.

To obtain future ADTs for Long-Term (Horizon Year 2050) conditions, the forecasted Year 2050 ADT volumes were used to calculate peak hour volumes based partially on the existing relationship between ADT and peak hour volumes.

Figure 8-1 shows the Long-Term (Horizon Year 2050) traffic volumes. *Figure 8-2* shows the Long-Term (Horizon Year 2050) + Project traffic volumes.

8.2 Long-Term (Horizon Year 2050) Without Project

8.2.1 Intersection Analysis

Table 8-1 summarizes the intersection operations under Long-Term (Horizon Year 2050) without Project conditions. As shown in *Table 8-1*, all the study area intersections are calculated to operate at LOS D or better during both the AM and PM peak hours with the exception of the following intersections:

- Mission Road / Pacific Street – LOS E during the PM peak hour
- Mission Road / Las Posas Road – LOS E during the AM and PM peak hours
- Mission Road / Knoll Road – LOS E during the AM and PM peak hours
- Las Posas Road / Descanso Avenue – LOS F during the AM and PM peak hours
- Las Posas Road / SR-78 WB Ramps – LOS E during the AM and LOS F during the PM peak hour
- Las Posas Road / Grand Avenue – LOS F during the AM and PM peak hours

Appendix F contains the Long-Term (Horizon Year 2050) intersection analysis worksheets.

8.2.2 Segment Operations

Table 8-2 summarizes the street segment operations under Long-Term (Horizon Year 2050) without Project conditions. As shown in *Table 8-2*, all street segments are calculated to operate at LOS C or better.

8.3 Long-Term (Horizon Year 2050) + Project

8.3.1 Intersection Analysis

Table 8-1 summarizes the Long-Term (Horizon Year 2050) + Project intersection operations. As shown in *Table 8-1*, with the addition of project traffic, all the study area intersections are calculated to operate at LOS D or better during both the AM and PM peak hours with the exception of the following intersections:

- Mission Road / Pacific Street – LOS E during the PM peak hour
- Mission Road / Las Posas Road – LOS E during the AM and PM peak hours
- Mission Road / Knoll Road – LOS E during the AM and PM peak hours
- Las Posas Road / Descanso Avenue – LOS F during the AM and PM peak hours
- Las Posas Road / SR-78 WB Ramps – LOS E during the AM and LOS F during the PM peak hour
- Las Posas Road / Grand Avenue – LOS F during the AM and PM peak hours

Based on the established Level of Service Standards outlined in *Section 4.2*, no substantial effects are identified as the Project adds less than 2 seconds of average vehicle delay. Therefore, improvements are not required under this analysis.

Appendix G contains the Long-Term (Horizon Year 2050) + Project intersection analysis worksheets.

8.3.2 Segment Operations

Table 8-2 summarizes the street segment operations under Long-Term (Horizon Year 2050) + Project conditions. As shown in *Table 8-2*, with the addition of project traffic, all street segments are calculated to continue to operate at LOS C or better.

**TABLE 8-1
LONG-TERM (HORIZON YEAR 2050) INTERSECTION OPERATIONS**

Intersection	Control Type	Peak Hour	Long-Term (Horizon Year 2050)		Long-Term (Horizon Year 2050) + Project		Δ^c	Substantial Effect?
			Delay	LOS	Delay	LOS		
1. Mission Rd / Rancho Santa Fe Rd	Signal	AM	34.4	C	34.4	C	0.0	No
		PM	37.3	D	37.5	D	0.2	No
2. Mission Rd / Pacific St	Signal	AM	35.3	D	35.6	D	0.3	No
		PM	75.0	E	76.4	E	1.4	No
3. Mission Rd / Las Posas Rd	Signal	AM	58.9	E	59.4	E	0.5	No
		PM	75.0	E	75.7	E	0.7	No
4. Mission Rd / Knoll Rd	Signal	AM	64.8	E	65.4	E	0.6	No
		PM	71.4	E	71.6	E	0.2	No
5. Armorlite Dr / Las Posas Rd	Signal	AM	32.1	C	46.9	D	14.8	No
		PM	29.0	C	35.4	D	6.4	No
6. Armorlite Dr / Project Drwy	DNE / TWSC ^d	AM	–	–	10.3	B	–	No
		PM	–	–	10.0	A	–	No
7. Las Posas Rd / Descanso Ave	Signal	AM	164.5	F	165.5	F	1.0	No
		PM	161.4	F	162.5	F	1.1	No
8. Las Posas Rd / SR-78 WB Ramps	Signal	AM	74.1	E	75.4	E	1.3	No
		PM	80.7	F	82.5	F	1.8	No
9. Las Posas Rd / Grand Ave	Signal	AM	152.8	F	153.9	F	1.1	No
		PM	202.9	F	203.1	F	0.2	No
10. Grand Ave / SR-78 EB Ramps / Via Vera Cruz	Signal	AM	47.8	D	52.5	D	4.7	No
		PM	52.4	D	54.5	D	2.1	No

Footnotes:

- Average delay expressed in seconds per vehicle.
- Level of Service.
- Δ denotes an increase in delay due to project.
- TWSC – Two-Way Stop Controlled intersection.

General Note:

- DNE – does not exist.

SIGNALIZED		UNSIGNALIZED	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
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
LONG-TERM (HORIZON YEAR 2050) STREET SEGMENT OPERATIONS

Street Segment	Capacity (LOS E) ^a	Long-Term (Horizon Year 2050)			Long-Term (Horizon Year 2050) + Project			Δ^e	Substantial Effect
		ADT ^b	LOS ^c	V/C ^d	ADT	LOS	V/C		
Mission Rd									
Rancho Santa Fe Rd to Las Posas Rd	40,000	16,160	B	0.404	16,280	B	0.407	0.003	No
Las Posas Rd to Knoll Rd	40,000	22,330	C	0.558	22,450	C	0.561	0.003	No
Las Posas Rd									
Mission Rd to SR-78 WB Ramps	60,000	35,320	C	0.589	36,290	C	0.605	0.016	No
Mission Rd to Grand Ave	60,000	45,830	C	0.764	46,440	C	0.774	0.010	No

Footnotes:

- a. Capacities based on San Marcos Roadway Classification & LOS table (See *Appendix B*).
- b. Average Daily Traffic
- c. Level of Service
- d. Volume to Capacity ratio
- e. Δ denotes a project-induced increase in the Volume to Capacity ratio

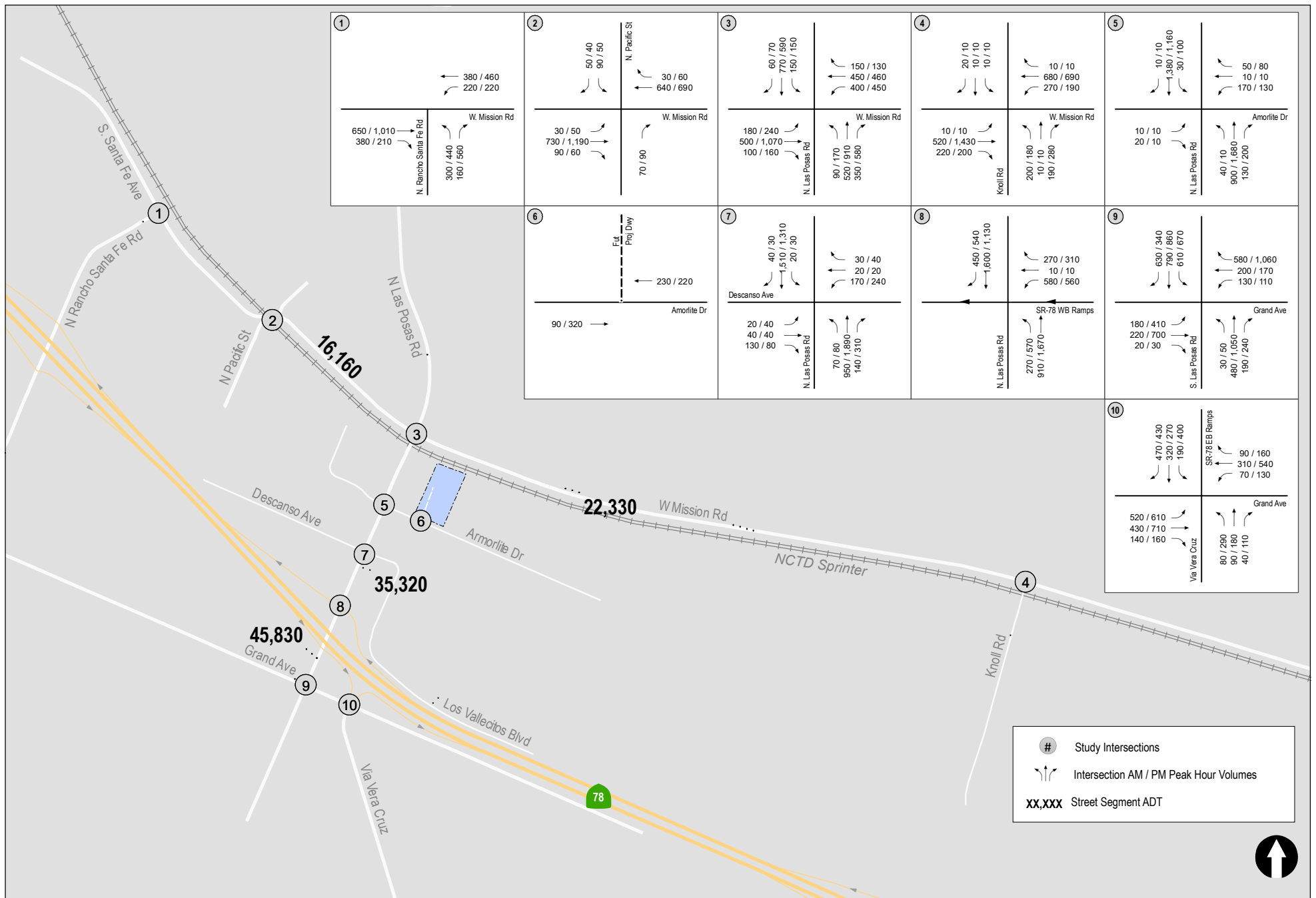


Figure 8-1
Long-Term (Horizon Year 2050) Without Project Traffic Volumes

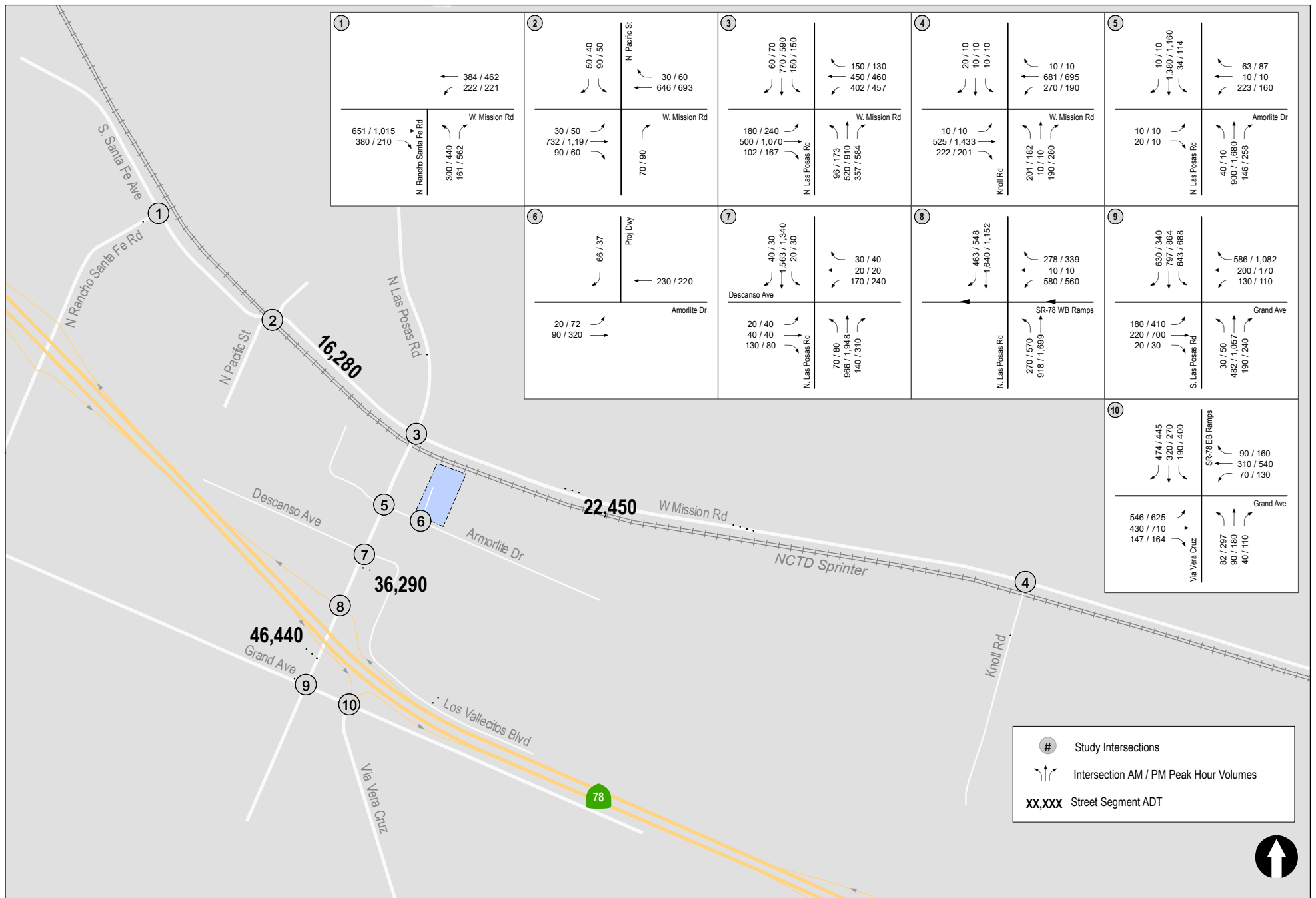


Figure 8-2
Long-Term (Horizon Year 2050) + Project Traffic Volumes

9.0 SITE ACCESS, ON-SITE CIRCULATION, AND PARKING

9.1 Site Access

As described in *Section 2.0*, access to the Project site will be via one (1) unsignalized driveway on Armorlite Drive. The entrance driveway will be ungated and will be 24 feet wide. Secondary emergency-only access will be provided at the northwest corner of the Project site and will be accessed through the adjacent AT&T parcels.

The Project site is currently fronting a 2-lane undivided roadway that primarily serves residents and offices. As shown in *Table 7-2* and *Table 8-1*, the Project driveway is calculated to operate at LOS B and A during the AM and PM peak hours, respectively.

Armorlite Drive is a relatively straight roadway both east and west of the Project site. The Armorlite Drive / Las Posas Road intersection is about 200 feet west of the Project site, which provides a controlled signalized intersection. The remainder of Armorlite Drive, east of the Project site, is half of a mile until it reaches its terminus at Vallecitos De Oro.

Since almost all of the trips leaving the Project site will make a southbound right-turn, drivers will only yield to oncoming vehicles from the east. There will be very few trips leaving the Project site and making a southbound left-turn. In this case, drivers will also yield to oncoming traffic from the east, and the west which is controlled by the signal at the Armorlite Drive / Las Posas Road intersection.

9.2 On-Site Circulation

The Project will provide adequate on-site circulation for passenger vehicles, bicyclists and pedestrians with internal vehicular movement provided via a 24-foot-wide drive aisle.

9.3 Parking

The project will provide 247 parking spaces for residential use (69 garage standard spaces, 102 garage tandem spaces, 18 tuck under spaces and 58 open spaces) and 17 spaces for the commercial use. Commercial parking requirements would be met by providing 7 open parking spaces, and 10 of the residential open spaces will be available for commercial use from 9:00 AM to 5:00 PM to meet the required 17 spaces. The proposed number of parking spaces meets the requirement of the City's Climate Action Plan which calls for a reduction of parking by 27% for project sites withing on half mile of a major transit stop. The project design includes 13 Level 2 electric vehicle (EV) spaces, 62 EV ready spaces and 25 EV capable spaces. The project also includes 34 bicycle parking spaces.

A summary of the parking code requirements and calculations per the *City of San Marcos Municipal Code, Chapter 20.340* are shown in *Table 9-1*. As shown in *Table 9-1*, the project meets the parking requirements.

Appendix H contains excerpts from the City of San Marcos Municipal Code Parking Rate.

TABLE 9-1
CITY OF SAN MARCOS MUNICIPAL CODE PARKING REQUIREMENTS & CALCULATIONS

Parking Code Land Use	Required Off-Street Parking Rate ^a	Project Quantity (dwelling units)	Code Required Parking
Residential Uses			
1-bedroom apartment units	1.5 spaces / dwelling unit	93 DU	140
2-bedroom apartment units	2.0 spaces / dwelling unit	72 DU	144
Guest Parking	1 space / 3 dwelling units	165 DU	55
Subtotal Spaces			339
Cap Reduction	339 x 27% reduction		247
Commercial Uses	1 space / 250 SF gross floor area	5,600 SF	23
Cap Reduction	23 x 27% reduction		17

Footnotes:

a. Rates from the *City of San Marcos Municipal Code, Chapter 20.340*.

General Notes:

1. Parking required = 264 spaces
2. Parking proposed to be provided = 264 spaces

10.0 ACTIVE TRANSPORTATION REVIEW

10.1 Bicycle Network

Currently, the City of San Marcos provides Class I bike lanes via the Inland Rail Trail which runs on the north side of Mission Road west of Pacific Street, on the south side of Mission Road east of Pacific Street, and on the north side of Armorlite Drive between Las Posas Road and Bingham Drive. Class II bike lanes are provided on Mission Road west of Rancho Santa Fe Road and east of Pacific Street, Grand Avenue west of Las Posas Road, Rancho Santa Fe Road, Las Posas Road, Via Vera Cruz and Knoll Road. Class III bike routes are provided on Mission Road between Rancho Santa Fe Road and Pacific Street. Per the *City of San Marcos Bicycle and Pedestrian Master Plan*, there are no plans to add or alter bicycle facilities within the immediate Project vicinity.

Figure 10–1 shows the existing bicycle network.

10.2 Pedestrian Network

Sidewalk connection is provided between the Project site and the Palomar College Station and bus stops. Sidewalks are provided on both sides of Armorlite Drive and other study area roadways except for the south side of Mission Road from Pacific Street to 350 feet west, the north side of Mission Road from Pacific Street to 170 feet west, and the north side of Mission Road from Pacific Street to 670 feet east. Per the *City of San Marcos Bicycle and Pedestrian Master Plan*, there are no plans to add or alter sidewalks within the immediate Project vicinity.

Figure 10–2 shows the existing pedestrian network.

10.3 Transit Network

Transit service is provided to the area via North County Transit District (NCTD). The nearest bus stop is located about 500 feet south of the Project site (2-minute walk), just south of the Armorlite Drive / Las Posas Road intersection. This bus stop serves bus routes 347, 445 and 645. The Palomar College Station, which serves the Sprinter, is located about 1,000 feet east of the Mission Road / Las Posas Road intersection (8-minute walk from the Project site). Continuous sidewalk connectivity is provided between the Project site and these transit stops. A description of the nearest transit service is as follows:

Bus Route 347 provides bus service to the area via Mission Road and Las Posas Road, within the City of San Marcos. During weekdays, headways are 30 minutes for the duration of the day. During Saturdays, headways are 1 hour for the duration of the day.

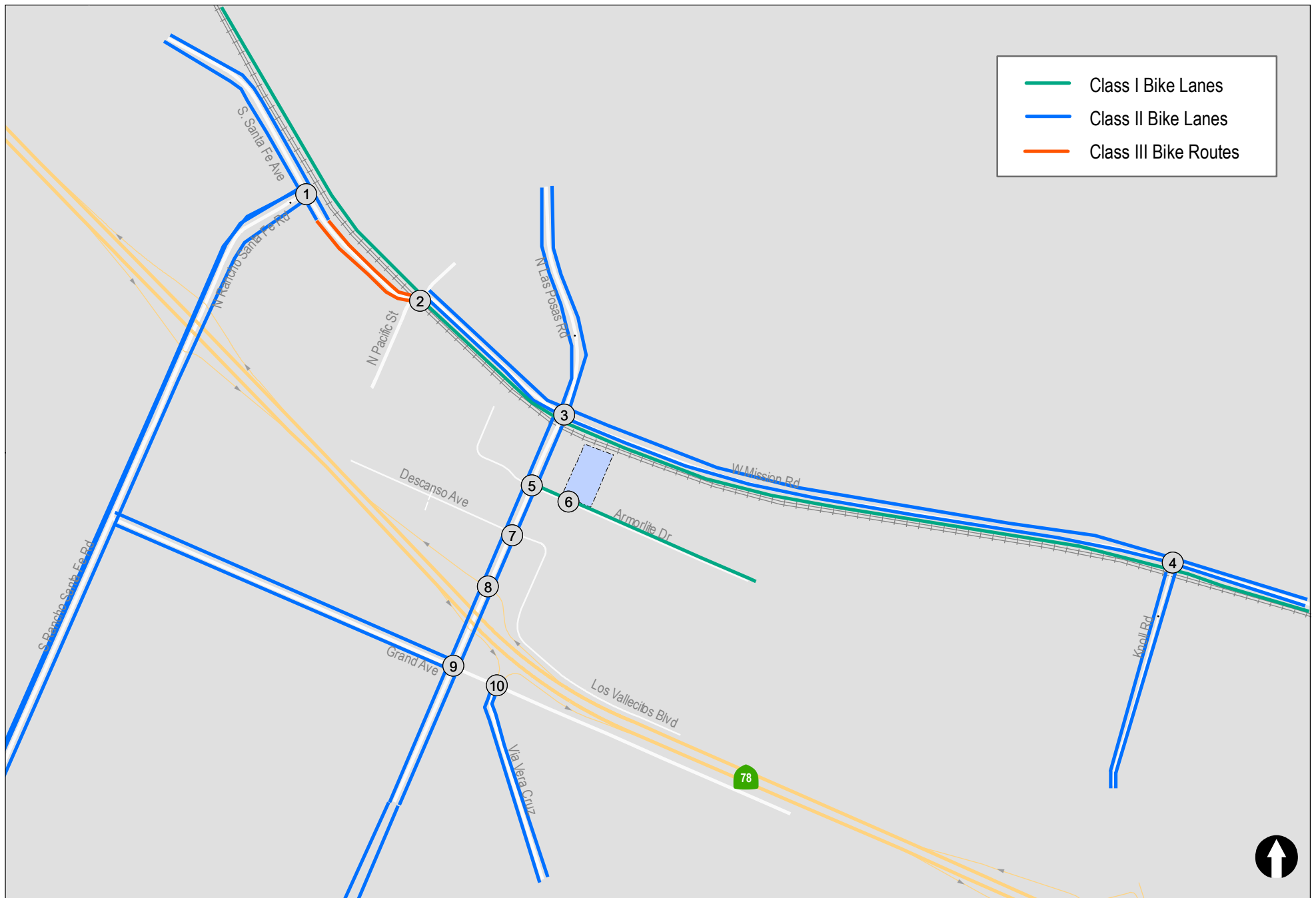
Bus Route 445 provides bus service to the area via Mission Road and Las Posas Road, connecting Carlsbad to San Marcos. During weekdays, headways are 1 hour for the duration of the day. This bus route does not run on weekends.

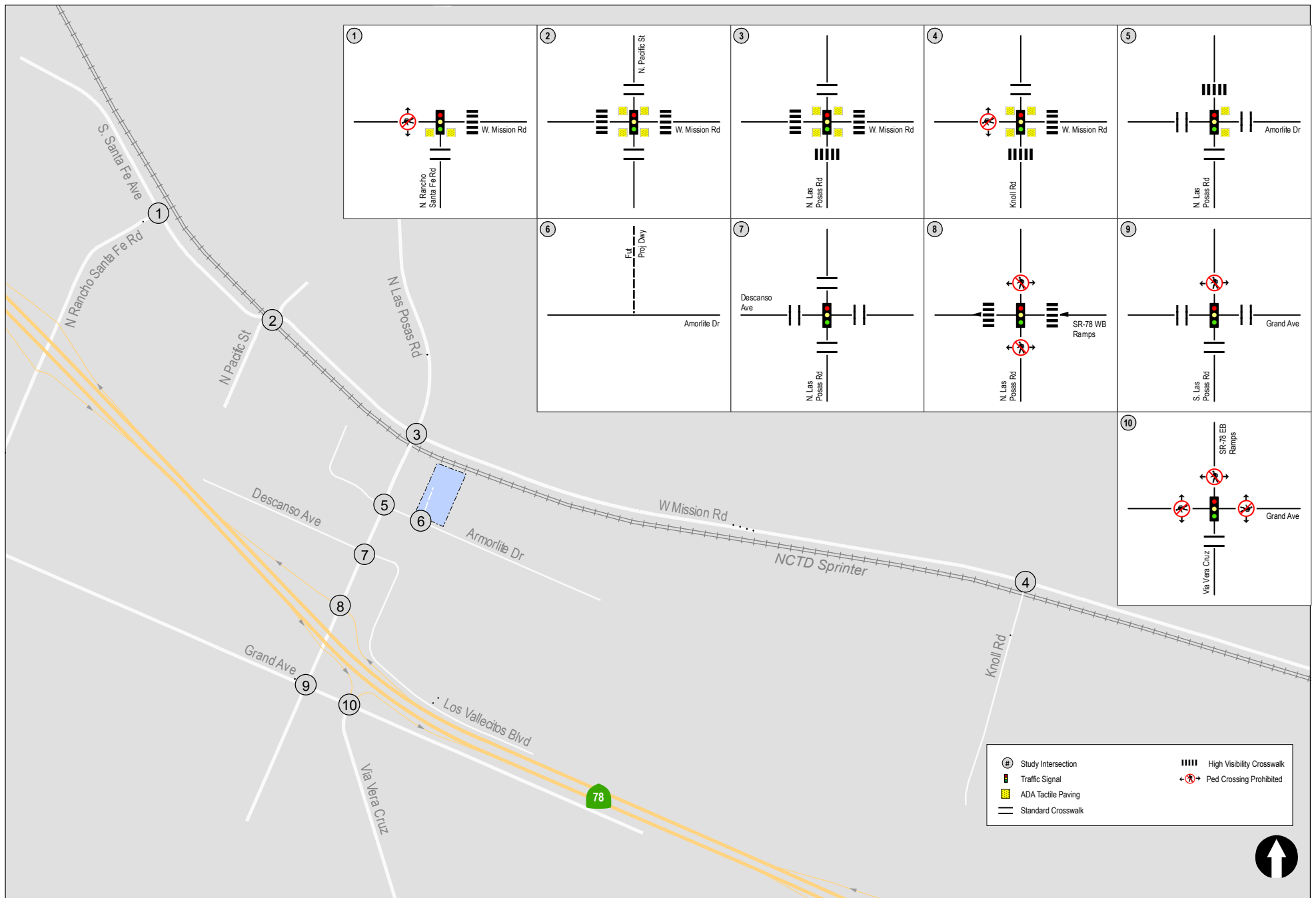
Bus Route 645 provides bus service to the area via Mission Road and Las Posas Road, within the City of San Marcos. During weekdays, there are only 2 services in the morning

starting at 7:50 AM, and only 1 service in the afternoon sometime between 3:30 PM and 3:50 PM.

The **SPRINTER** runs between Escondido and Oceanside. There are fifteen (15) stops along this route. SPRINTER service provides thirty-four (34) daily trips on the weekdays with an additional six (6) trips on Friday nights. It also provides twenty-five (25) daily weekend trips with an additional three (3) trips on Saturday nights.

Appendix I contains the bus route schedule and map.





11.0 CONCLUSIONS

The Project proposes to construct 165 apartment units and 5,600 SF of commercial use at 225 Las Posas Road in the City of San Marcos.

LOCAL TRANSPORTATION ANALYSIS

Intersections

The study area intersections are calculated to operate acceptably at LOS D or better during the AM and PM peak hours under the Existing, Near-Term (Interim Year 2025) without and with Project, and Long-Term (Horizon Year 2050) without and with Project scenarios with exception to the following intersections:

Existing

- Las Posas Road / Descanso Avenue – LOS F during the AM and LOS E during the PM peak hour
- Las Posas Road / Grand Avenue – LOS E during the AM and PM peak hours

Near-Term (Interim Year 2025) without and with Project

- Las Posas Road / Descanso Avenue – LOS F during the AM and PM peak hours
- Las Posas Road / Grand Avenue – LOS F during the AM and PM peak hours

Long-Term (Horizon Year 2050) without and with Project

- Mission Road / Pacific Street – LOS E during the PM peak hour
- Mission Road / Las Posas Road – LOS E during the AM and PM peak hours
- Mission Road / Knoll Road – LOS E during the AM and PM peak hours
- Las Posas Road / Descanso Avenue – LOS F during the AM and PM peak hours
- Las Posas Road / SR-78 WB Ramps – LOS E during the AM and LOS F during the PM peak hour
- Las Posas Road / Grand Avenue – LOS F during the AM and PM peak hours

Based on the established Level of Service Standards outlined in *Section 4.2*, no substantial effects are identified as the Project adds less than 2 seconds of average vehicle delay. Therefore, improvements are not required under any of the analysis scenarios.

Street Segments

The study area street segments are calculated to operate acceptably at LOS D or better under the Existing, Near-Term (Interim Year 2025) without and with Project, and Long-Term (Horizon Year 2050) without and with Project scenarios. Therefore, improvements are not required under any of the analysis scenarios.

TECHNICAL APPENDICES

ARMORLITE LOFTS

San Marcos, California
November 7, 2024

LLG Ref. 3-23-3814

**Linscott, Law &
Greenspan, Engineers**

4542 Ruffner Street
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APPENDICES

APPENDIX

- A. Intersection and Street Segment Manual Count Sheets
- B. City of San Marcos Roadway Classification Table
- C. Existing Intersection Analysis Worksheets
- D. Near-Term (Interim Year 2025) Intersection Analysis Worksheets
- E. Near-Term (Interim Year 2025) + Project Intersection Analysis Worksheets
- F. Long-Term (Horizon Year 2050) Intersection Analysis Worksheets
- G. Long-Term (Horizon Year 2050) + Project Intersection Analysis Worksheets
- H. Excerpts from the City of San Marcos Municipal Code Parking Rate
- I. Bus Route Schedule and Map

APPENDIX A

**INTERSECTION AND STREET SEGMENT MANUAL COUNT
SHEETS**

Intersection Turning Movement - Peak Hour Vehicle Count



Location: #01	File Name: ITM-23-092-01
Intersection: Rancho Santa Fe Road & Mission Road	Project: LLG Ref. 3-23-3814
Date of Count: Thursday September 14, 2023	Armorlite Apartment

AM	- Southbound			Mission Road Westbound			Rancho Santa Fe Road Northbound			Mission Road Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	U-Turns	Thru	Right	
7:00	0	0	0	17	68	0	47	0	15	0	72	46	265
7:15	0	0	0	23	56	0	50	0	33	0	110	67	339
7:30	0	0	0	43	87	0	49	0	32	0	188	71	470
7:45	0	0	0	45	92	0	68	0	24	0	118	60	407
8:00	0	0	0	44	75	0	58	0	24	0	115	90	406
8:15	0	0	0	44	68	0	54	0	25	1	92	48	332
8:30	0	0	0	42	71	0	52	0	30	1	74	47	317
8:45	0	0	0	34	61	0	51	0	29	0	69	57	301
Total	0	0	0	292	578	0	429	0	212	2	838	486	2837
Approach%	-	-	-	33.6	66.4	-	66.9	-	33.1	0.2	63.2	36.7	
Total%	-	-	-	10.3	20.4	-	15.1	-	7.5	0.1	29.5	17.1	

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

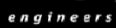
Volume	-	-	-	155	310	-	225	-	113	-	531	288	1,622
Approach%	-	-	-	33.3	66.7	-	66.6	-	33.4	-	64.8	35.2	
Total%	-	-	-	9.6	19.1	-	13.9	-	7.0	-	32.7	17.8	
PHF	#DIV/0!			0.85			0.92			0.79			0.86

PM	- Southbound			Mission Road Westbound			Rancho Santa Fe Road Northbound			Mission Road Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	0	0	0	44	116	0	82	0	83	0	165	42	532
16:15	0	0	0	35	85	0	92	0	101	0	193	36	542
16:30	0	0	0	49	80	0	67	0	102	0	230	38	566
16:45	0	0	0	29	96	0	92	0	110	0	270	42	639
17:00	0	0	0	34	82	0	68	0	89	0	201	43	517
17:15	0	0	0	35	95	0	81	0	97	0	161	41	510
17:30	0	0	0	33	73	0	74	0	94	0	214	55	543
17:45	0	0	0	33	103	0	67	0	105	0	147	33	488
Total	0	0	0	292	730	0	623	0	781	0	1581	330	4337
Approach%	-	-	-	28.6	71.4	-	44.4	-	55.6	-	82.7	17.3	
Total%	-	-	-	6.7	16.8	-	14.4	-	18.0	-	36.5	7.6	

PM Intersection Peak Hour: 16:00 to 17:00

Volume	-	-	-	157	377	-	333	-	396	-	858	158	2,279
Approach%	-	-	-	29.4	70.6	-	45.7	-	54.3	-	84.4	15.6	
Total%	-	-	-	6.9	16.5	-	14.6	-	17.4	-	37.6	6.9	
PHF	#DIV/0!			0.83			0.90			0.81			0.89

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN 	Location: #01	File Name: ITM-23-092-01
	Intersection: Rancho Santa Fe Road & Mission Road	Project: LLG Ref. 3-23-3814
	Date of Count: Thursday September 14, 2023	Armorlite Apartment

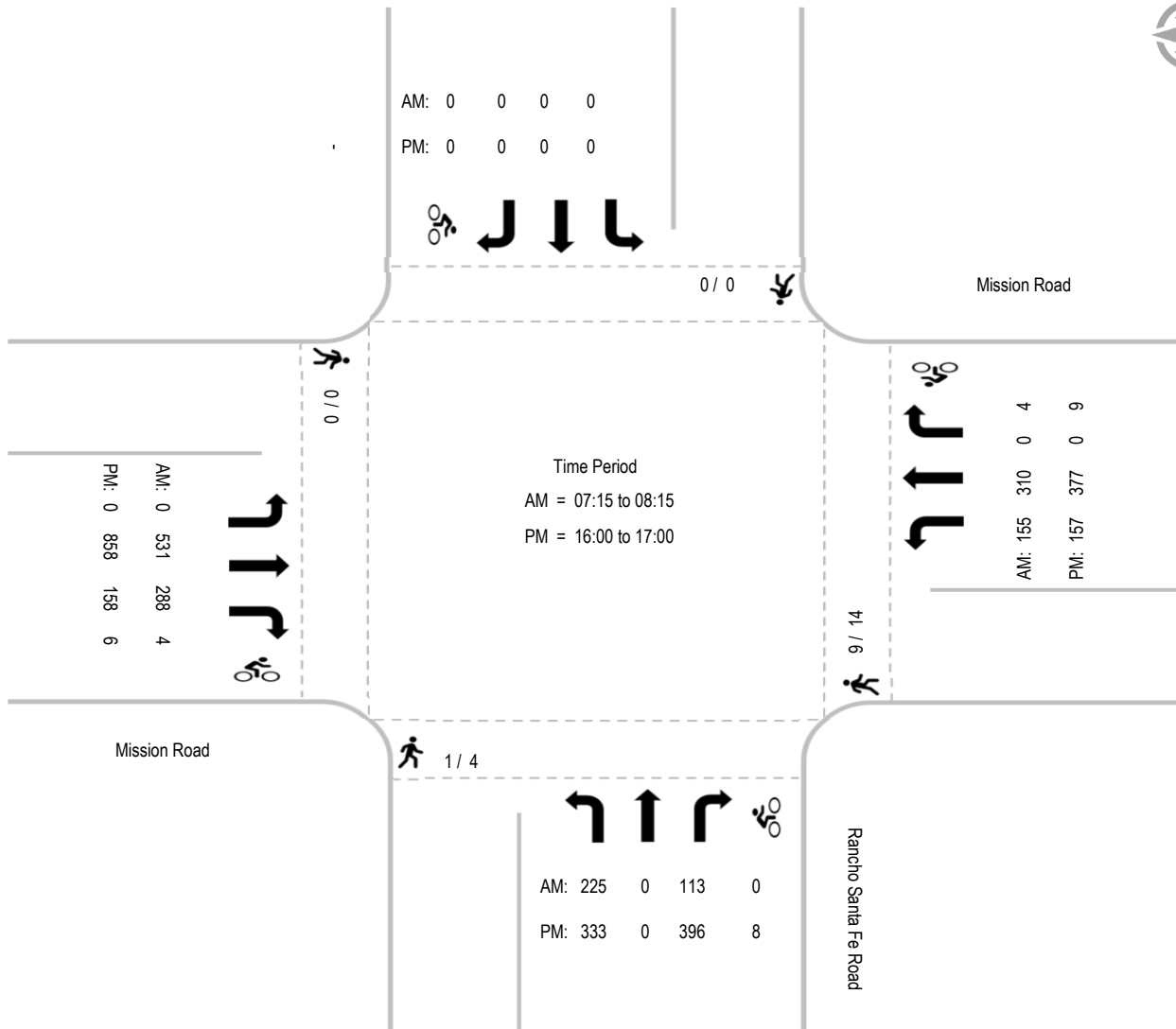
AM	- Southbound				Mission Road Westbound				Rancho Santa Fe Road Northbound				Mission Road Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	1
7:15	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:45	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	2	1
8:00	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	4	0
8:15	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1	1
8:30	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	2	2
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				9				1				0				10	
Bike Total		0	0	0		0	4	0		0	0	0		0	4	0		8

PM	- Southbound				Mission Road Westbound				Rancho Santa Fe Road Northbound				Mission Road 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	1	0	1	0	0	0	0	0	0	0	1	1
16:15	0	0	0	0	7	0	2	0	2	3	0	1	0	0	1	0	9	7
16:30	0	0	0	0	0	0	2	0	0	1	0	1	0	0	2	0	0	6
16:45	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	1	0	4
17:00	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	3
17:15	0	0	0	0	2	0	1	0	1	0	0	1	0	0	0	0	3	2
17:30	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0
17:45	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3	0
Ped Total	0				14				4				0				18	
Bike Total		0	0	0		0	9	0		4	0	4		0	4	2		23

Intersection Turning Movement - Peak Hour Summary



Location:	#01	File Name:	ITM-23-092-01
Intersection:	Rancho Santa Fe Road & Mission Road	Project:	LLG Ref. 3-23-3814
Date of Count:	Thursday September 14, 2023		Armorlite Apartment



City of San Marcos
N/S: Pacific Street
E/W: Mission Road
Weather: Clear

File Name : 02_SNM_Pac_Mis AM
Site Code : 231019
Start Date : 10/25/2023
Page No : 1

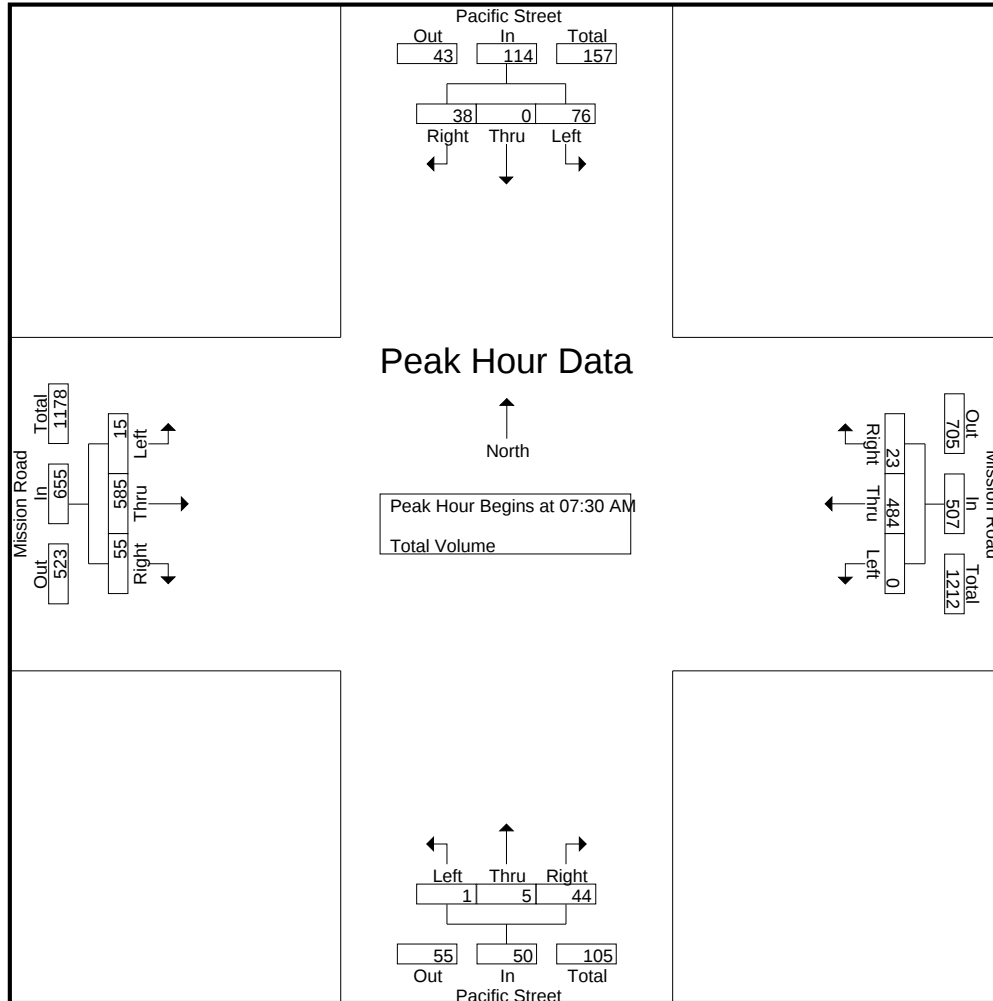
Groups Printed- Total Volume

	Pacific Street Southbound				Mission Road Westbound				Pacific Street Northbound				Mission Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	9	0	11	20	0	63	5	68	0	1	4	5	2	73	8	83	176
07:15 AM	15	0	12	27	0	110	6	116	0	0	12	12	0	117	7	124	279
07:30 AM	14	0	8	22	0	106	6	112	1	1	10	12	3	184	13	200	346
07:45 AM	25	0	13	38	0	156	7	163	0	2	15	17	2	158	13	173	391
Total	63	0	44	107	0	435	24	459	1	4	41	46	7	532	41	580	1192
08:00 AM	19	0	5	24	0	104	6	110	0	1	12	13	4	122	12	138	285
08:15 AM	18	0	12	30	0	118	4	122	0	1	7	8	6	121	17	144	304
08:30 AM	11	0	11	22	0	78	14	92	0	1	9	10	5	128	11	144	268
08:45 AM	9	0	3	12	0	77	13	90	0	0	0	0	5	90	9	104	206
Total	57	0	31	88	0	377	37	414	0	3	28	31	20	461	49	530	1063
Grand Total	120	0	75	195	0	812	61	873	1	7	69	77	27	993	90	1110	2255
Apprch %	61.5	0	38.5		0	93	7		1.3	9.1	89.6		2.4	89.5	8.1		
Total %	5.3	0	3.3	8.6	0	36	2.7	38.7	0	0.3	3.1	3.4	1.2	44	4	49.2	

	Pacific Street Southbound				Mission Road Westbound				Pacific Street Northbound				Mission Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	14	0	8	22	0	106	6	112	1	1	10	12	3	184	13	200	346
07:45 AM	25	0	13	38	0	156	7	163	0	2	15	17	2	158	13	173	391
08:00 AM	19	0	5	24	0	104	6	110	0	1	12	13	4	122	12	138	285
08:15 AM	18	0	12	30	0	118	4	122	0	1	7	8	6	121	17	144	304
Total Volume	76	0	38	114	0	484	23	507	1	5	44	50	15	585	55	655	1326
% App. Total	66.7	0	33.3		0	95.5	4.5		2	10	88		2.3	89.3	8.4		
PHF	.760	.000	.731	.750	.000	.776	.821	.778	.250	.625	.733	.735	.625	.795	.809	.819	.848

City of San Marcos
N/S: Pacific Street
E/W: Mission Road
Weather: Clear

File Name : 02_SNM_Pac_Mis AM
Site Code : 231019
Start Date : 10/25/2023
Page No : 2



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

	07:30 AM				07:30 AM				07:15 AM				07:30 AM			
+0 mins.	14	0	8	22	0	106	6	112	0	0	12	12	3	184	13	200
+15 mins.	25	0	13	38	0	156	7	163	1	1	10	12	2	158	13	173
+30 mins.	19	0	5	24	0	104	6	110	0	2	15	17	4	122	12	138
+45 mins.	18	0	12	30	0	118	4	122	0	1	12	13	6	121	17	144
Total Volume	76	0	38	114	0	484	23	507	1	4	49	54	15	585	55	655
% App. Total	66.7	0	33.3		0	95.5	4.5		1.9	7.4	90.7		2.3	89.3	8.4	
PHF	.760	.000	.731	.750	.000	.776	.821	.778	.250	.500	.817	.794	.625	.795	.809	.819

City of San Marcos
N/S: Pacific Street
E/W: Mission Road
Weather: Clear

File Name : 02_SNM_Pac_Mis PM
Site Code : 231019
Start Date : 10/25/2023
Page No : 1

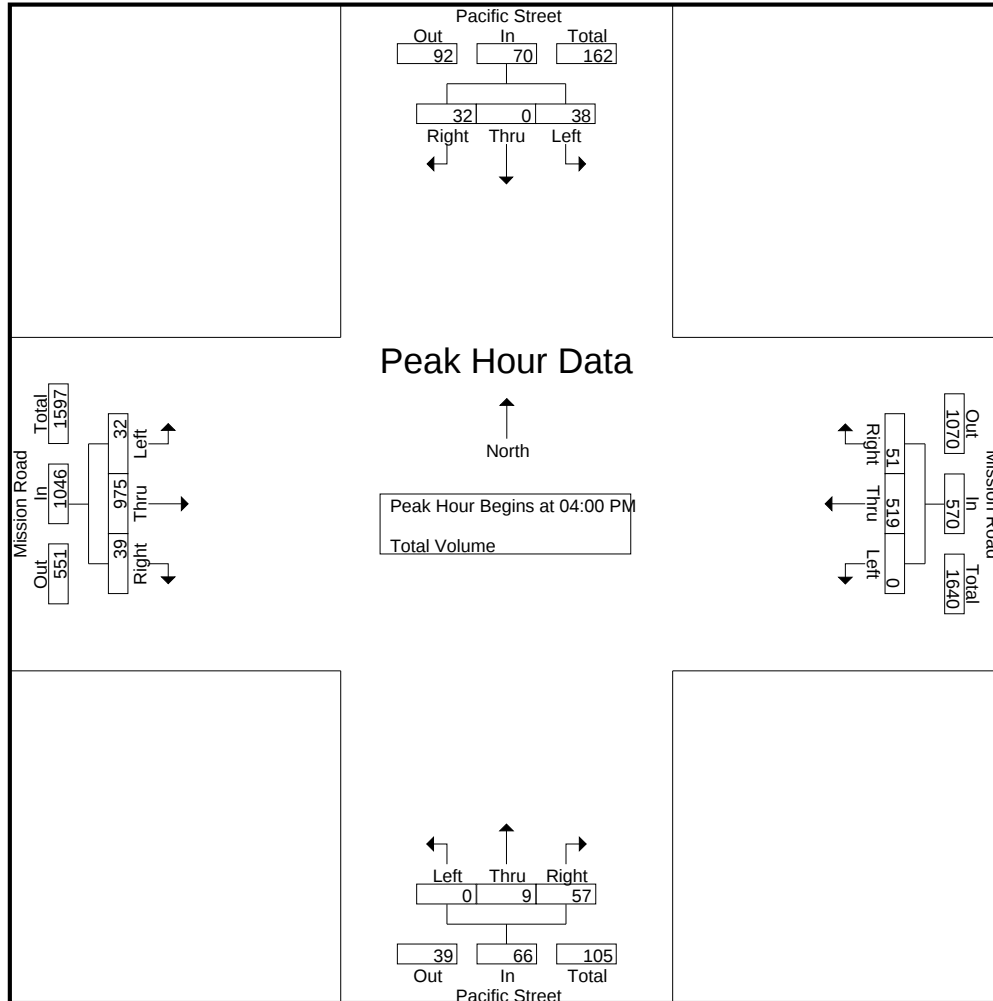
Groups Printed- Total Volume

	Pacific Street Southbound				Mission Road Westbound				Pacific Street Northbound				Mission Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	13	0	6	19	0	138	18	156	0	1	17	18	11	223	14	248	441
04:15 PM	7	0	13	20	0	126	10	136	0	2	16	18	8	273	12	293	467
04:30 PM	11	0	7	18	0	117	13	130	0	1	7	8	7	227	3	237	393
04:45 PM	7	0	6	13	0	138	10	148	0	5	17	22	6	252	10	268	451
Total	38	0	32	70	0	519	51	570	0	9	57	66	32	975	39	1046	1752
05:00 PM	10	0	14	24	0	161	11	172	0	1	17	18	9	201	12	222	436
05:15 PM	12	0	12	24	0	137	15	152	0	3	8	11	13	230	6	249	436
05:30 PM	7	0	13	20	0	101	8	109	0	0	20	20	6	194	3	203	352
05:45 PM	4	0	11	15	0	107	18	125	0	3	14	17	19	209	4	232	389
Total	33	0	50	83	0	506	52	558	0	7	59	66	47	834	25	906	1613
Grand Total	71	0	82	153	0	1025	103	1128	0	16	116	132	79	1809	64	1952	3365
Apprch %	46.4	0	53.6		0	90.9	9.1		0	12.1	87.9		4	92.7	3.3		
Total %	2.1	0	2.4	4.5	0	30.5	3.1	33.5	0	0.5	3.4	3.9	2.3	53.8	1.9	58	

	Pacific Street Southbound				Mission Road Westbound				Pacific Street Northbound				Mission Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	13	0	6	19	0	138	18	156	0	1	17	18	11	223	14	248	441
04:15 PM	7	0	13	20	0	126	10	136	0	2	16	18	8	273	12	293	467
04:30 PM	11	0	7	18	0	117	13	130	0	1	7	8	7	227	3	237	393
04:45 PM	7	0	6	13	0	138	10	148	0	5	17	22	6	252	10	268	451
Total Volume	38	0	32	70	0	519	51	570	0	9	57	66	32	975	39	1046	1752
% App. Total	54.3	0	45.7		0	91.1	8.9		0	13.6	86.4		3.1	93.2	3.7		
PHF	.731	.000	.615	.875	.000	.940	.708	.913	.000	.450	.838	.750	.727	.893	.696	.892	.938

City of San Marcos
N/S: Pacific Street
E/W: Mission Road
Weather: Clear

File Name : 02_SNM_Pac_Mis PM
Site Code : 231019
Start Date : 10/25/2023
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Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	05:00 PM				04:30 PM				04:45 PM				04:00 PM			
+0 mins.	10	0	14	24	0	117	13	130	0	5	17	22	11	223	14	248
+15 mins.	12	0	12	24	0	138	10	148	0	1	17	18	8	273	12	293
+30 mins.	7	0	13	20	0	161	11	172	0	3	8	11	7	227	3	237
+45 mins.	4	0	11	15	0	137	15	152	0	0	20	20	6	252	10	268
Total Volume	33	0	50	83	0	553	49	602	0	9	62	71	32	975	39	1046
% App. Total	39.8	0	60.2		0	91.9	8.1		0	12.7	87.3		3.1	93.2	3.7	
PHF	.688	.000	.893	.865	.000	.859	.817	.875	.000	.450	.775	.807	.727	.893	.696	.892

Location: San Marcos
 N/S: Pacific Street
 E/W: Mission Road



Date: 10/25/2023
 Day: Wednesday

PEDESTRIANS

	North Leg Pacific Street	East Leg Mission Road	South Leg Pacific Street	West Leg Mission Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	1	0	0	0	1
7:15 AM	1	0	1	2	4
7:30 AM	1	0	3	0	4
7:45 AM	0	0	1	0	1
8:00 AM	1	0	0	4	5
8:15 AM	0	0	0	0	0
8:30 AM	1	0	1	2	4
8:45 AM	0	0	1	2	3
TOTAL VOLUMES:	5	0	7	10	22

	North Leg Pacific Street	East Leg Mission Road	South Leg Pacific Street	West Leg Mission Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	1	0	5	3	9
4:30 PM	0	0	0	1	1
4:45 PM	0	0	2	3	5
5:00 PM	0	0	0	1	1
5:15 PM	1	0	3	5	9
5:30 PM	2	0	5	4	11
5:45 PM	3	0	3	6	12
TOTAL VOLUMES:	7	0	18	23	48

Location: San Marcos
 N/S: Pacific Street
 E/W: Mission Road



Date: 10/25/2023
 Day: Wednesday

BICYCLES

	Southbound Pacific Street			Westbound Mission Road			Northbound Pacific Street			Eastbound Mission Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	2	0	0	0	2	0	0	0	1	0	0	0	5
7:15 AM	0	0	0	0	1	0	0	0	0	0	2	0	3
7:30 AM	0	0	0	1	0	0	0	0	1	0	0	0	2
7:45 AM	0	1	0	0	1	0	0	0	1	0	1	0	4
8:00 AM	1	2	0	0	0	0	0	0	0	0	2	0	5
8:15 AM	3	0	0	0	3	0	0	0	1	0	0	0	7
8:30 AM	1	0	1	0	0	0	0	0	0	0	1	0	3
8:45 AM	2	0	0	0	0	0	0	0	1	0	1	0	4
TOTAL VOLUMES:	9	3	1	1	7	0	0	0	5	0	7	0	33

	Southbound Pacific Street			Westbound Mission Road			Northbound Pacific Street			Eastbound Mission Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	1	0	0	0	1	0	0	0	2
4:15 PM	0	0	0	1	5	0	0	0	0	1	3	0	10
4:30 PM	0	0	0	0	4	0	0	0	0	0	0	0	4
4:45 PM	0	0	0	1	2	0	0	0	1	0	3	0	7
5:00 PM	0	0	0	1	3	0	0	0	0	0	0	0	4
5:15 PM	0	0	0	0	1	2	0	2	0	0	0	0	5
5:30 PM	1	0	0	0	1	0	0	0	1	0	0	0	3
5:45 PM	0	0	0	2	0	1	0	0	1	1	1	0	6
TOTAL VOLUMES:	1	0	0	5	17	3	0	2	4	2	7	0	41

Intersection Turning Movement - Peak Hour Vehicle Count



Location: #02
 Intersection: Las Posas Road & Mission Road
 Date of Count: Thursday September 14, 2023

File Name: ITM-23-092-02
 Project: LLG Ref. 3-23-3814
 Armorlite Apartment

AM	Las Posas Road Southbound			Mission Road Westbound			Las Posas Road Northbound			Mission Road Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	20	140	8	56	52	13	11	84	33	16	58	17	508
7:15	29	143	2	55	59	20	4	88	60	26	102	19	607
7:30	42	145	14	80	86	29	7	120	85	24	135	16	783
7:45	23	153	5	93	105	35	14	128	83	47	115	23	824
8:00	22	154	6	96	75	28	9	89	68	23	90	13	673
8:15	23	165	9	75	69	39	8	89	41	30	66	10	624
8:30	31	170	19	74	69	30	14	81	40	13	51	11	603
8:45	24	140	10	56	54	15	20	64	51	19	64	12	529
Total	214	1210	73	585	569	209	87	743	461	198	681	121	5151
Approach%	14.3	80.8	4.9	42.9	41.7	15.3	6.7	57.6	35.7	19.8	68.1	12.1	
Total%	4.2	23.5	1.4	11.4	11.0	4.1	1.7	14.4	8.9	3.8	13.2	2.3	

AM Intersection Peak Hour: 07:30 to 08:30

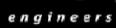
Volume	110	617	34	344	335	131	38	426	277	124	406	62	2,904
Approach%	14.5	81.1	4.5	42.5	41.4	16.2	5.1	57.5	37.4	20.9	68.6	10.5	
Total%	3.8	21.2	1.2	11.8	11.5	4.5	1.3	14.7	9.5	4.3	14.0	2.1	
PHF			0.95			0.87			0.82			0.80	0.88

PM	Las Posas Road Southbound			Mission Road Westbound			Las Posas Road Northbound			Mission Road Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	34	97	18	53	104	18	24	165	109	32	220	13	887
16:15	30	132	7	77	95	33	21	161	119	35	204	33	947
16:30	19	119	14	65	93	22	26	170	119	38	208	16	909
16:45	20	133	12	93	84	18	19	166	97	49	216	14	921
17:00	26	109	6	89	88	23	26	162	111	33	240	21	934
17:15	37	134	8	91	87	19	22	173	136	38	213	18	976
17:30	35	94	16	74	81	23	27	219	136	46	215	19	985
17:45	20	135	10	70	69	26	22	181	112	39	165	12	861
Total	221	953	91	612	701	182	187	1397	939	310	1681	146	7420
Approach%	17.5	75.3	7.2	40.9	46.9	12.2	7.4	55.4	37.2	14.5	78.7	6.8	
Total%	3.0	12.8	1.2	8.2	9.4	2.5	2.5	18.8	12.7	4.2	22.7	2.0	

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

Volume	118	470	42	347	340	83	94	720	480	166	884	72	3,816
Approach%	18.7	74.6	6.7	45.1	44.2	10.8	7.3	55.6	37.1	14.8	78.8	6.4	
Total%	3.1	12.3	1.1	9.1	8.9	2.2	2.5	18.9	12.6	4.4	23.2	1.9	
PHF			0.88			0.96			0.85			0.95	0.97

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN 	Location: #02	File Name: ITM-23-092-02
	Intersection: Las Posas Road & Mission Road	Project: LLG Ref. 3-23-3814
	Date of Count: Thursday September 14, 2023	Armorlite Apartment

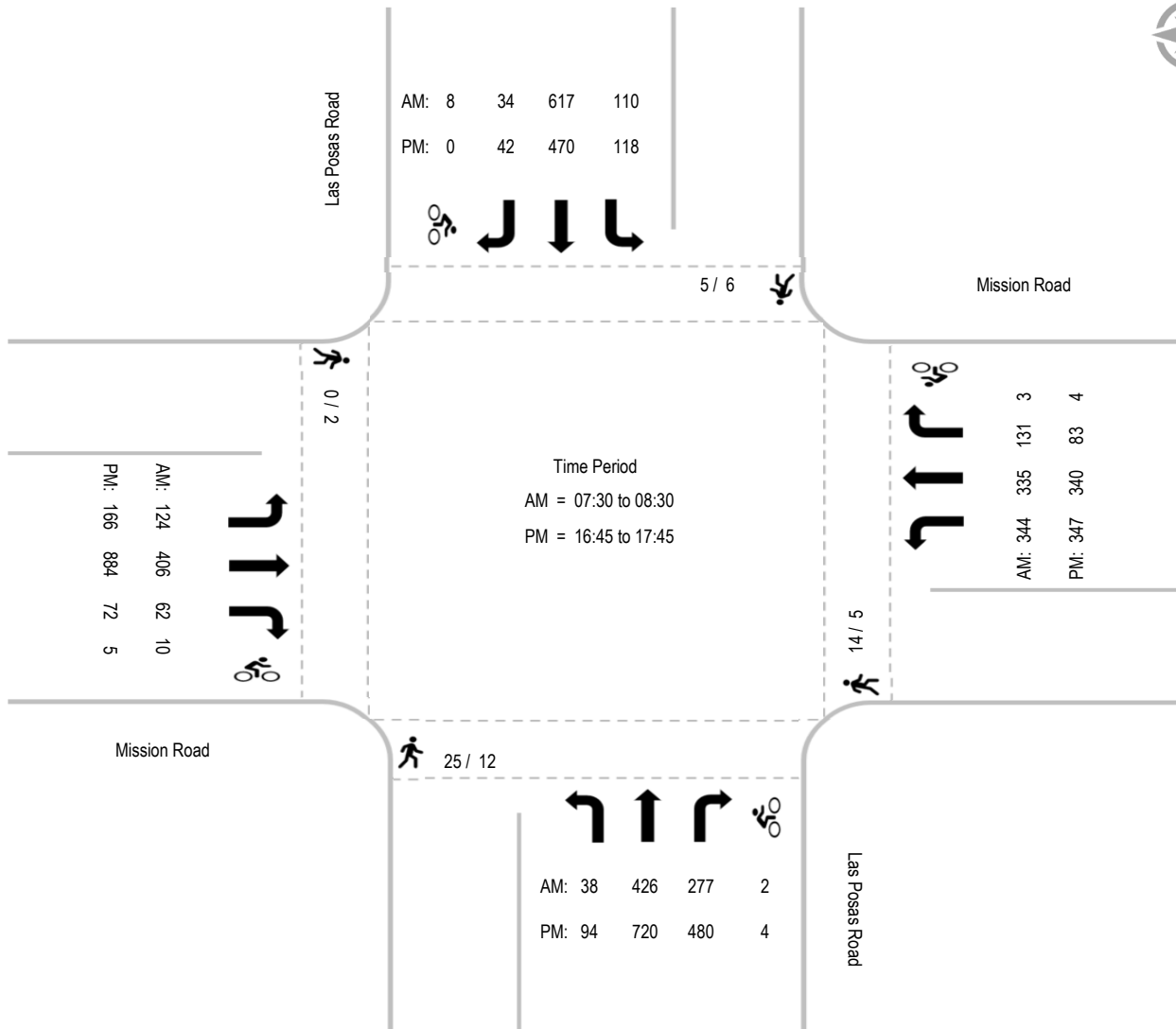
AM	Las Posas Road Southbound				Mission Road Westbound				Las Posas Road Northbound				Mission Road Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	1	0	1	0	0	0	1	0	0	0	0	0	0	0	3	0	1	5
7:15	0	0	1	0	0	0	1	0	2	0	1	0	0	0	1	0	2	4
7:30	1	1	0	0	0	0	0	0	4	0	0	0	0	0	0	0	5	1
7:45	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	2	1
8:00	0	0	2	0	2	0	1	0	5	0	1	0	0	0	0	0	7	4
8:15	0	0	1	0	1	0	0	0	1	0	0	0	0	0	2	0	2	3
8:30	2	0	1	0	0	0	0	0	5	0	0	0	0	0	2	0	7	3
8:45	1	0	0	0	11	0	0	0	6	0	0	0	0	0	2	0	18	2
Ped Total	5				14				25				0				44	
Bike Total		1	7	0		0	3	0		0	2	0		0	10	0		23

PM	Las Posas Road Southbound				Mission Road Westbound				Las Posas Road Northbound				Mission Road 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	2	0	0	0	0	0	0	2
16:15	0	0	0	0	0	0	2	0	3	0	1	0	0	0	0	0	3	3
16:30	0	0	0	0	0	0	0	0	2	0	0	0	1	0	1	0	3	1
16:45	3	0	0	0	2	0	0	0	0	0	1	0	0	0	0	1	5	2
17:00	3	0	0	0	2	0	0	0	1	0	0	0	0	0	1	0	6	1
17:15	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	1	2
17:30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
17:45	0	0	0	0	1	0	1	0	4	0	0	0	1	0	1	0	6	2
Ped Total	6				5				12				2				25	
Bike Total		0	0	0		1	3	0		0	4	0		0	4	1		13

Intersection Turning Movement - Peak Hour Summary



Location: #02	File Name: ITM-23-092-02
Intersection: Las Posas Road & Mission Road	Project: LLG Ref. 3-23-3814
Date of Count: Thursday September 14, 2023	Armorlite Apartment



Intersection Turning Movement - Peak Hour Vehicle Count



Location: #03
Intersection: Knoll Road & Mission Road
Date of Count: Thursday September 14, 2023

File Name: ITM-23-092-03
Project: LLG Ref. 3-23-3814
Armorlite Apartment

AM	Knoll Road Southbound			Mission Road Westbound			Knoll Road Northbound			Mission Road Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	0	0	0	34	97	0	35	0	19	0	50	19	254
7:15	0	0	0	39	117	0	48	2	20	0	86	26	338
7:30	2	1	5	49	143	1	71	0	45	0	112	61	490
7:45	1	2	5	69	164	2	48	2	37	0	124	82	536
8:00	0	2	5	52	156	2	24	1	40	0	118	22	422
8:15	0	1	2	61	152	4	28	0	45	0	85	16	394
8:30	0	0	0	64	163	4	37	1	27	0	86	20	402
8:45	0	1	3	55	104	0	32	2	31	0	89	15	332
Total	3	7	20	423	1096	13	323	8	264	0	750	261	3168
Approach%	10.0	23.3	66.7	27.6	71.5	0.8	54.3	1.3	44.4	-	74.2	25.8	
Total%	0.1	0.2	0.6	13.4	34.6	0.4	10.2	0.3	8.3	-	23.7	8.2	

AM Intersection Peak Hour: 07:30 to 08:30

Volume	3	6	17	231	615	9	171	3	167	-	439	181	1,842
Approach%	11.5	23.1	65.4	27.0	71.9	1.1	50.1	0.9	49.0	-	70.8	29.2	
Total%	0.2	0.3	0.9	12.5	33.4	0.5	9.3	0.2	9.1	-	23.8	9.8	
PHF			0.81			0.91			0.73			0.75	0.86

PM	Knoll Road Southbound			Mission Road Westbound			Knoll Road Northbound			Mission Road Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	0	2	0	34	127	1	36	0	63	0	292	39	594
16:15	2	3	0	36	132	2	33	0	64	0	327	35	634
16:30	1	1	1	46	149	1	34	0	70	0	308	51	662
16:45	0	0	2	46	154	0	30	1	44	0	367	38	682
17:00	1	1	0	27	137	0	44	0	65	0	288	28	591
17:15	2	1	1	36	151	0	54	1	49	0	291	26	612
17:30	0	1	0	38	137	0	52	1	52	0	283	39	603
17:45	1	1	0	39	144	3	56	0	41	0	252	41	578
Total	7	10	4	302	1131	7	339	3	448	0	2408	297	4956
Approach%	33.3	47.6	19.0	21.0	78.5	0.5	42.9	0.4	56.7	-	89.0	11.0	
Total%	0.1	0.2	0.1	6.1	22.8	0.1	6.8	0.1	9.0	-	48.6	6.0	

PM Intersection Peak Hour: 16:00 to 17:00

Volume	3	6	3	162	562	4	133	1	241	-	1,294	163	2,572
Approach%	25.0	50.0	25.0	22.3	77.2	0.5	35.5	0.3	64.3	-	88.8	11.2	
Total%	0.1	0.2	0.1	6.3	21.9	0.2	5.2	0.0	9.4	-	50.3	6.3	
PHF			0.60			0.91			0.90			0.90	0.94

Intersection Turning Movement - Bicycle & Pedestrian Count



Location: #03	File Name: ITM-23-092-03
Intersection: Knoll Road & Mission Road	Project: LLG Ref. 3-23-3814
Date of Count: Thursday September 14, 2023	Armorlite Apartment

AM	Knoll Road Southbound				Mission Road Westbound				Knoll Road Northbound				Mission Road 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	4	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	7	0
7:15	4	0	0	0	2	1	2	0	1	0	0	0	0	0	3	0	7	6
7:30	4	0	0	0	3	0	0	0	21	0	0	0	0	0	0	0	28	0
7:45	2	0	0	0	1	0	1	0	30	0	0	0	0	0	0	0	33	1
8:00	2	0	0	0	2	0	1	0	1	0	0	0	0	0	1	0	5	2
8:15	0	0	0	0	0	0	0	0	3	0	0	0	0	0	1	0	3	1
8:30	0	0	0	0	0	0	1	0	2	0	0	0	0	0	2	0	2	3
8:45	2	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	11	0
Ped Total	18				10				68				0				96	
Bike Total		0	0	0		1	5	0		0	0	0		0	7	0		13

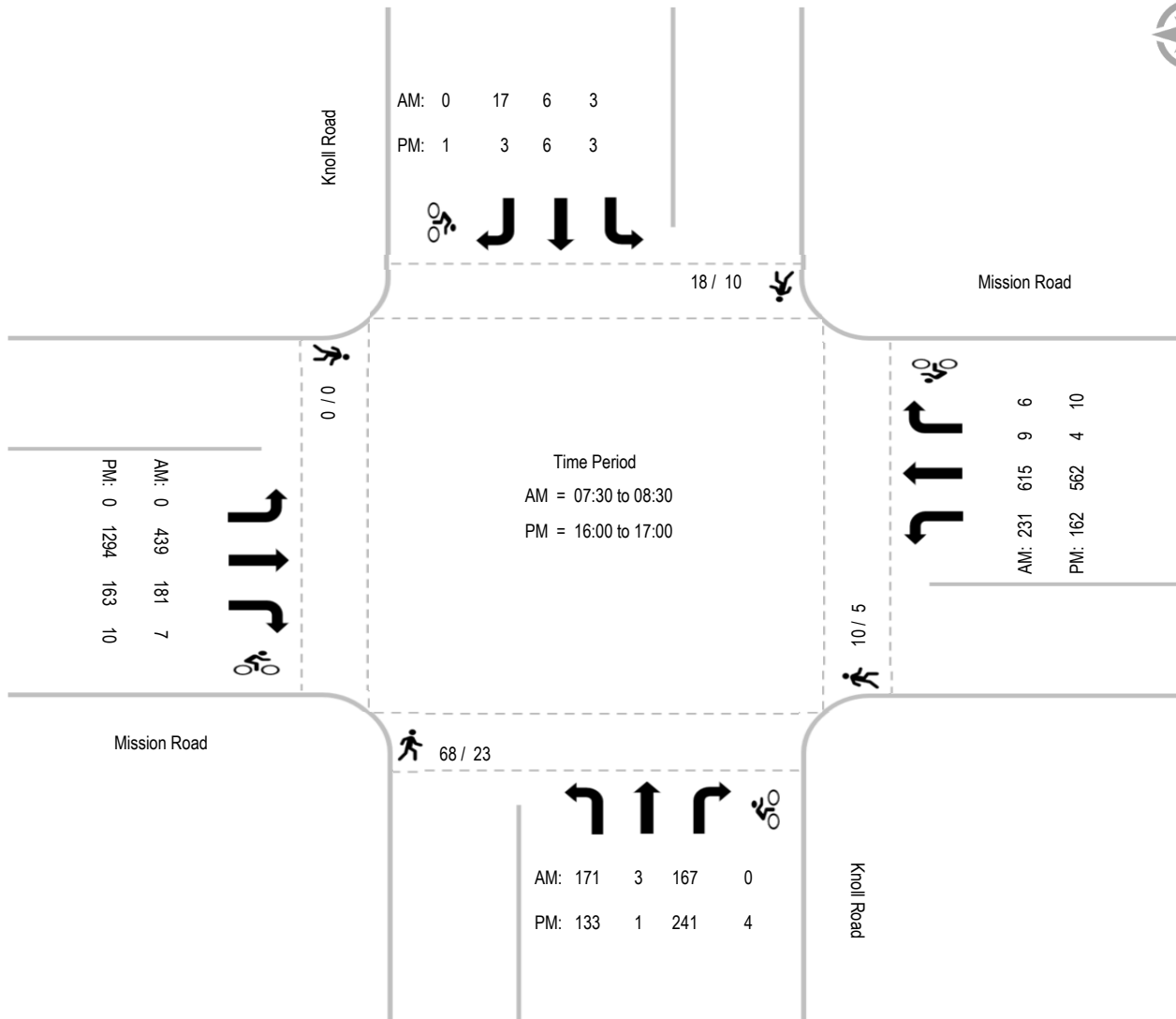
PM	Knoll Road Southbound				Mission Road Westbound				Knoll Road Northbound				Mission Road Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
16:15	4	0	0	1	0	0	1	2	0	0	0	0	0	0	1	0	4	5
16:30	0	0	0	0	0	0	1	0	4	0	0	0	0	0	1	0	4	2
16:45	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
17:00	0	0	0	0	0	0	2	0	0	0	0	1	0	0	3	0	0	6
17:15	1	0	0	0	1	0	0	0	11	0	0	0	0	0	3	0	13	3
17:30	3	0	0	0	0	1	1	0	7	0	0	1	0	0	2	0	10	5
17:45	1	0	0	0	4	1	1	0	1	0	0	0	0	0	0	0	6	2
Ped Total	10				5				23				0				38	
Bike Total		0	0	1		2	6	2		1	0	3		0	10	0		25

Intersection Turning Movement - Peak Hour Summary



Location: #03
 Intersection: Knoll Road & Mission Road
 Date of Count: Thursday September 14, 2023

File Name: ITM-23-092-03
 Project: LLG Ref. 3-23-3814
 Armorlite Apartment



Intersection Turning Movement - Peak Hour Vehicle Count



Location: #04	File Name: ITM-23-092-04
Intersection: Los Posas Road & Armorlite Drive	Project: LLG Ref. 3-23-3814
Date of Count: Thursday September 14, 2023	Armorlite Apartment

AM	Las Posas Road Southbound			Armorlite Drive Westbound			Las Posas Road Northbound			Armorlite Drive Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	6	204	7	25	1	4	2	116	25	0	0	9	399
7:15	12	218	10	39	0	5	4	143	20	2	2	1	456
7:30	3	245	1	42	0	10	11	202	21	0	0	2	537
7:45	6	319	2	40	1	6	3	218	29	0	0	4	628
8:00	9	272	1	37	0	17	9	146	32	1	0	4	528
8:15	6	241	3	34	0	9	7	131	32	0	0	5	468
8:30	7	242	4	42	0	15	7	121	29	1	0	4	472
8:45	16	234	4	26	0	12	4	134	39	0	0	6	475
Total	65	1975	32	285	2	78	47	1211	227	4	2	35	3963
Approach%	3.1	95.3	1.5	78.1	0.5	21.4	3.2	81.5	15.3	9.8	4.9	85.4	
Total%	1.6	49.8	0.8	7.2	0.1	2.0	1.2	30.6	5.7	0.1	0.1	0.9	

AM Intersection Peak Hour: 07:30 to 08:30

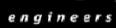
Volume	24	1,077	7	153	1	42	30	697	114	1	-	15	2,161
Approach%	2.2	97.2	0.6	78.1	0.5	21.4	3.6	82.9	13.6	6.3	-	93.8	
Total%	1.1	49.8	0.3	7.1	0.0	1.9	1.4	32.3	5.3	0.0	-	0.7	
PHF			0.85			0.91			0.84			0.80	0.86

PM	Las Posas Road Southbound			Armorlite Drive Westbound			Las Posas Road Northbound			Armorlite Drive Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	14	166	2	40	0	13	3	283	29	0	0	7	557
16:15	15	215	1	23	0	11	2	309	30	3	2	4	615
16:30	26	167	1	39	0	15	6	289	45	3	0	6	597
16:45	25	236	0	29	0	20	3	322	54	0	0	2	691
17:00	18	219	2	29	0	15	0	290	41	2	0	0	616
17:15	20	213	0	27	0	18	1	307	41	1	0	2	630
17:30	19	194	0	30	0	16	2	358	46	0	0	1	666
17:45	18	203	1	28	0	13	1	316	77	0	0	1	658
Total	155	1613	7	245	0	121	18	2474	363	9	2	23	5030
Approach%	8.7	90.9	0.4	66.9	-	33.1	0.6	86.7	12.7	26.5	5.9	67.6	
Total%	3.1	32.1	0.1	4.9	-	2.4	0.4	49.2	7.2	0.2	0.0	0.5	

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

Volume	82	862	2	115	-	69	6	1,277	182	3	-	5	2,603
Approach%	8.7	91.1	0.2	62.5	-	37.5	0.4	87.2	12.4	37.5	-	62.5	
Total%	3.2	33.1	0.1	4.4	-	2.7	0.2	49.1	7.0	0.1	-	0.2	
PHF			0.91			0.94			0.90			0.67	0.94

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN 	Location: #04	File Name: ITM-23-092-04
	Intersection: Los Posas Road & Armorlite Drive	Project: LLG Ref. 3-23-3814
	Date of Count: Thursday September 14, 2023	Armorlite Apartment

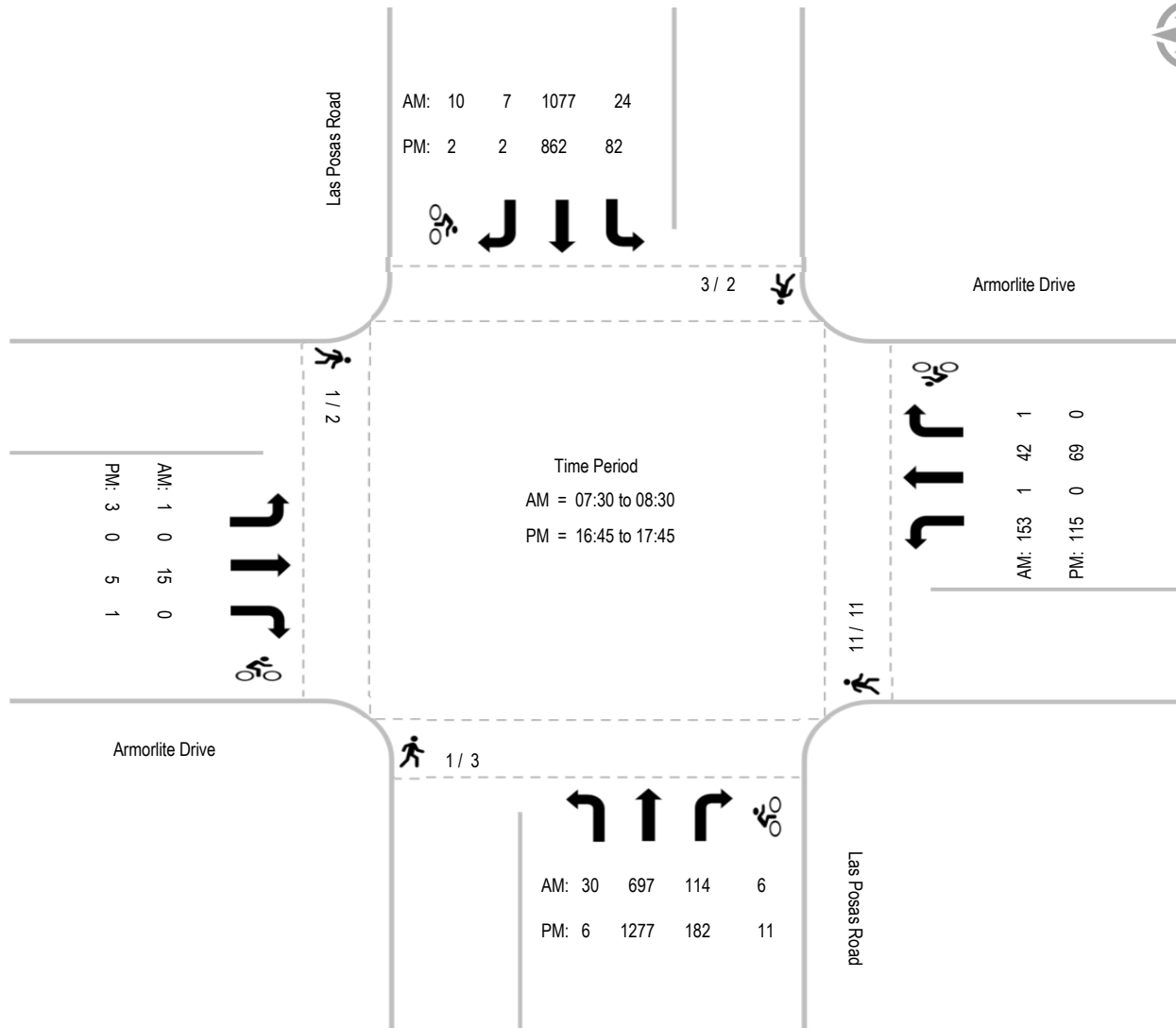
AM	Las Posas Road Southbound				Armorlite Drive Westbound				Las Posas Road Northbound				Armorlite Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
7:15	0	0	3	0	2	1	0	0	0	0	0	0	0	0	0	0	2	4
7:30	0	0	1	0	1	0	0	0	0	0	2	1	0	0	0	0	1	4
7:45	0	0	2	0	2	0	0	0	0	0	2	0	0	0	0	0	2	4
8:00	1	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	2	2
8:15	1	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	2	2
8:30	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3	0
8:45	0	0	1	0	1	0	0	0	1	0	0	0	1	0	0	0	3	1
Ped Total	3				11				1				1				16	
Bike Total		0	10	0		1	0	0		0	5	1		0	0	0		17

PM	Las Posas Road Southbound				Armorlite Drive Westbound				Las Posas Road Northbound				Armorlite Drive 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	1	0	2	0	0	0	0	0	1	2
16:15	0	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	2	1
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
16:45	0	0	0	0	3	0	0	0	0	0	3	0	0	0	0	0	3	3
17:00	0	0	0	0	5	0	0	0	1	0	0	0	2	0	0	0	8	0
17:15	2	0	0	0	2	0	0	0	0	0	0	1	0	0	0	0	4	1
17:30	0	0	1	0	0	0	0	0	0	2	1	0	0	0	0	0	0	4
17:45	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
Ped Total	2				11				3				2				18	
Bike Total		0	2	0		0	0	0		2	7	2		0	1	0		14

Intersection Turning Movement - Peak Hour Summary



Location:	#04	File Name:	ITM-23-092-04
Intersection:	Los Posas Road & Armorlite Drive	Project:	LLG Ref. 3-23-3814
Date of Count:	Thursday September 14, 2023		Armorlite Apartment



City of San Marcos
N/S: Las Posas Road
E/W: Descanso Ave/Furniture Row
Weather: Clear

File Name : 01_SNM_LP_DS AM
Site Code : 231019
Start Date : 10/25/2023
Page No : 1

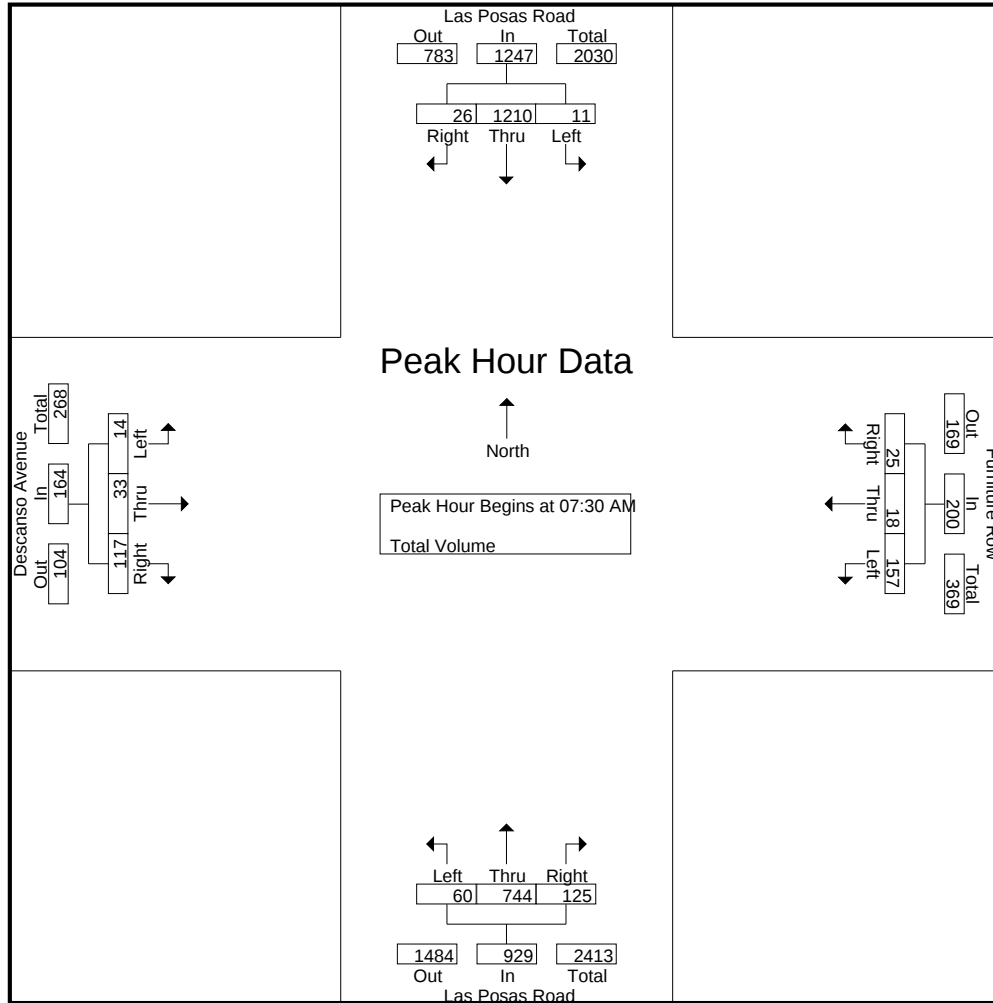
Groups Printed- Total Volume

	Las Posas Road Southbound				Furniture Row Westbound				Las Posas Road Northbound				Descanso Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	1	238	13	252	23	1	5	29	15	112	24	151	3	3	11	17	449
07:15 AM	5	223	2	230	33	10	6	49	22	158	31	211	0	6	12	18	508
07:30 AM	1	295	8	304	38	3	9	50	12	196	24	232	2	8	20	30	616
07:45 AM	5	303	5	313	52	8	9	69	14	193	27	234	3	8	31	42	658
Total	12	1059	28	1099	146	22	29	197	63	659	106	828	8	25	74	107	2231
08:00 AM	3	309	6	318	46	4	5	55	22	178	31	231	4	6	38	48	652
08:15 AM	2	303	7	312	21	3	2	26	12	177	43	232	5	11	28	44	614
08:30 AM	2	235	5	242	30	10	1	41	21	138	57	216	2	10	15	27	526
08:45 AM	4	220	5	229	43	7	3	53	19	166	38	223	4	5	22	31	536
Total	11	1067	23	1101	140	24	11	175	74	659	169	902	15	32	103	150	2328
Grand Total	23	2126	51	2200	286	46	40	372	137	1318	275	1730	23	57	177	257	4559
Apprch %	1	96.6	2.3		76.9	12.4	10.8		7.9	76.2	15.9		8.9	22.2	68.9		
Total %	0.5	46.6	1.1	48.3	6.3	1	0.9	8.2	3	28.9	6	37.9	0.5	1.3	3.9	5.6	

	Las Posas Road Southbound				Furniture Row Westbound				Las Posas Road Northbound				Descanso Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	1	295	8	304	38	3	9	50	12	196	24	232	2	8	20	30	616
07:45 AM	5	303	5	313	52	8	9	69	14	193	27	234	3	8	31	42	658
08:00 AM	3	309	6	318	46	4	5	55	22	178	31	231	4	6	38	48	652
08:15 AM	2	303	7	312	21	3	2	26	12	177	43	232	5	11	28	44	614
Total Volume	11	1210	26	1247	157	18	25	200	60	744	125	929	14	33	117	164	2540
% App. Total	0.9	97	2.1		78.5	9	12.5		6.5	80.1	13.5		8.5	20.1	71.3		
PHF	.550	.979	.813	.980	.755	.563	.694	.725	.682	.949	.727	.993	.700	.750	.770	.854	.965

City of San Marcos
N/S: Las Posas Road
E/W: Descanso Ave/Furniture Row
Weather: Clear

File Name : 01_SNM_LP_DS AM
Site Code : 231019
Start Date : 10/25/2023
Page No : 2



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

	07:30 AM				07:15 AM				07:30 AM				07:30 AM			
+0 mins.	1	295	8	304	33	10	6	49	12	196	24	232	2	8	20	30
+15 mins.	5	303	5	313	38	3	9	50	14	193	27	234	3	8	31	42
+30 mins.	3	309	6	318	52	8	9	69	22	178	31	231	4	6	38	48
+45 mins.	2	303	7	312	46	4	5	55	12	177	43	232	5	11	28	44
Total Volume	11	1210	26	1247	169	25	29	223	60	744	125	929	14	33	117	164
% App. Total	0.9	97	2.1		75.8	11.2	13		6.5	80.1	13.5		8.5	20.1	71.3	
PHF	.550	.979	.813	.980	.813	.625	.806	.808	.682	.949	.727	.993	.700	.750	.770	.854

City of San Marcos
N/S: Las Posas Road
E/W: Descanso Ave/Furniture Row
Weather: Clear

File Name : 01_SNM_LP_DS PM
Site Code : 231019
Start Date : 10/25/2023
Page No : 1

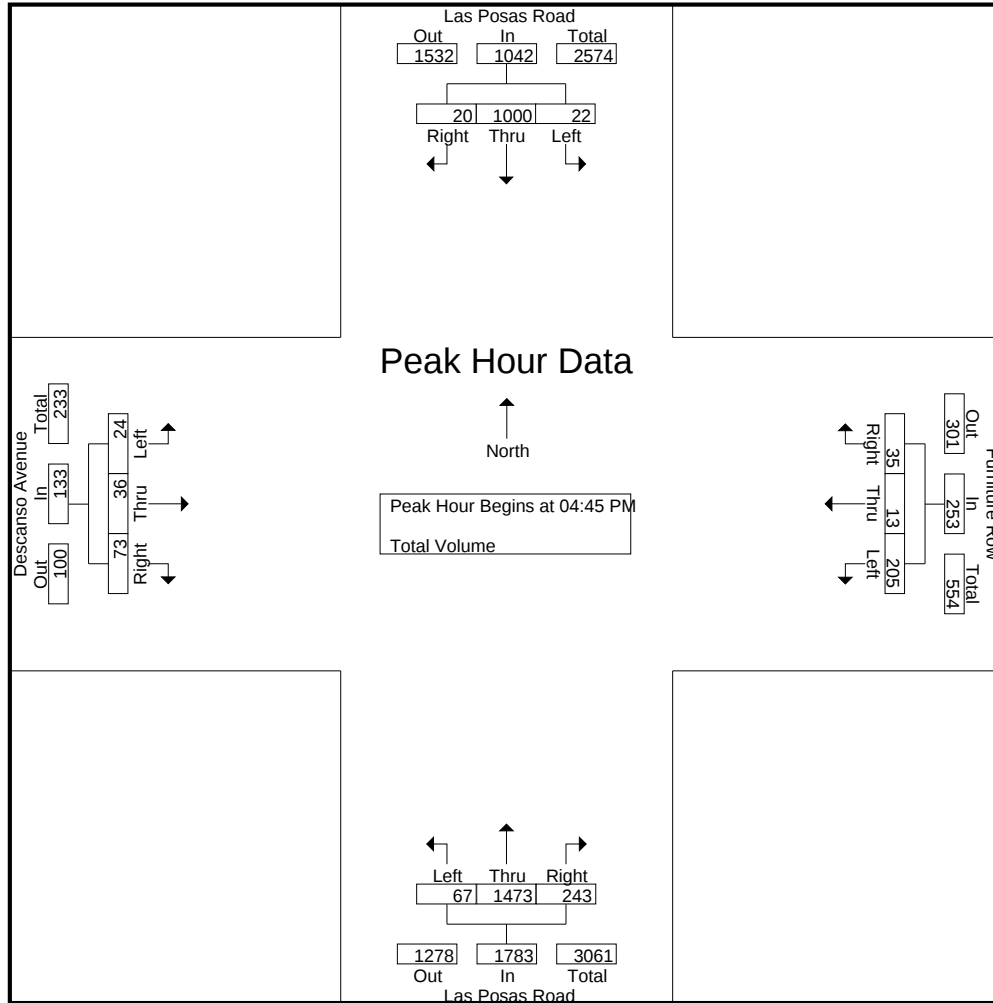
Groups Printed- Total Volume

	Las Posas Road Southbound				Furniture Row Westbound				Las Posas Road Northbound				Descanso Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	4	246	6	256	47	4	7	58	14	331	63	408	4	15	30	49	771
04:15 PM	8	223	4	235	46	12	4	62	25	327	44	396	8	6	32	46	739
04:30 PM	4	239	5	248	39	6	7	52	19	367	49	435	5	13	27	45	780
04:45 PM	8	206	4	218	45	4	5	54	14	344	56	414	8	11	16	35	721
Total	24	914	19	957	177	26	23	226	72	1369	212	1653	25	45	105	175	3011
05:00 PM	6	286	8	300	57	3	12	72	20	361	48	429	4	10	25	39	840
05:15 PM	3	259	4	266	46	1	12	59	15	386	62	463	5	11	19	35	823
05:30 PM	5	249	4	258	57	5	6	68	18	382	77	477	7	4	13	24	827
05:45 PM	8	212	4	224	41	8	3	52	8	340	64	412	6	5	19	30	718
Total	22	1006	20	1048	201	17	33	251	61	1469	251	1781	22	30	76	128	3208
Grand Total	46	1920	39	2005	378	43	56	477	133	2838	463	3434	47	75	181	303	6219
Apprch %	2.3	95.8	1.9		79.2	9	11.7		3.9	82.6	13.5		15.5	24.8	59.7		
Total %	0.7	30.9	0.6	32.2	6.1	0.7	0.9	7.7	2.1	45.6	7.4	55.2	0.8	1.2	2.9	4.9	

	Las Posas Road Southbound				Furniture Row Westbound				Las Posas Road Northbound				Descanso Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	8	206	4	218	45	4	5	54	14	344	56	414	8	11	16	35	721
05:00 PM	6	286	8	300	57	3	12	72	20	361	48	429	4	10	25	39	840
05:15 PM	3	259	4	266	46	1	12	59	15	386	62	463	5	11	19	35	823
05:30 PM	5	249	4	258	57	5	6	68	18	382	77	477	7	4	13	24	827
Total Volume	22	1000	20	1042	205	13	35	253	67	1473	243	1783	24	36	73	133	3211
% App. Total	2.1	96	1.9		81	5.1	13.8		3.8	82.6	13.6		18	27.1	54.9		
PHF	.688	.874	.625	.868	.899	.650	.729	.878	.838	.954	.789	.934	.750	.818	.730	.853	.956

City of San Marcos
N/S: Las Posas Road
E/W: Descanso Ave/Furniture Row
Weather: Clear

File Name : 01_SNM_LP_DS PM
Site Code : 231019
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Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				04:45 PM				04:45 PM				04:00 PM			
+0 mins.	6	286	8	300	45	4	5	54	14	344	56	414	4	15	30	49
+15 mins.	3	259	4	266	57	3	12	72	20	361	48	429	8	6	32	46
+30 mins.	5	249	4	258	46	1	12	59	15	386	62	463	5	13	27	45
+45 mins.	8	212	4	224	57	5	6	68	18	382	77	477	8	11	16	35
Total Volume	22	1006	20	1048	205	13	35	253	67	1473	243	1783	25	45	105	175
% App. Total	2.1	96	1.9		81	5.1	13.8		3.8	82.6	13.6		14.3	25.7	60	
PHF	.688	.879	.625	.873	.899	.650	.729	.878	.838	.954	.789	.934	.781	.750	.820	.893

Location: San Marcos
 N/S: Las Posas Road
 E/W: Descanso Ave/Furniture Row



Date: 10/25/2023
 Day: Wednesday

PEDESTRIANS

	North Leg Las Posas Road	East Leg Furniture Row	South Leg Las Posas Road	West Leg Descanso Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	1	0	0	1
7:15 AM	0	3	0	0	3
7:30 AM	0	1	0	0	1
7:45 AM	0	1	1	1	3
8:00 AM	0	0	0	0	0
8:15 AM	1	2	0	0	3
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	2	2
TOTAL VOLUMES:	1	8	1	3	13

	North Leg Las Posas Road	East Leg Furniture Row	South Leg Las Posas Road	West Leg Descanso Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	3	1	0	4
4:15 PM	0	1	0	1	2
4:30 PM	0	3	0	0	3
4:45 PM	1	0	0	2	3
5:00 PM	0	0	0	0	0
5:15 PM	0	1	0	0	1
5:30 PM	0	0	0	1	1
5:45 PM	1	0	0	0	1
TOTAL VOLUMES:	2	8	1	4	15

Location: San Marcos
 N/S: Las Posas Road
 E/W: Descanso Ave/Furniture Row



Date: 10/25/2023
 Day: Wednesday

BICYCLES

	Southbound Las Posas Road			Westbound Furniture Row			Northbound Las Posas Road			Eastbound Descanso Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	1	0	0	0	0	0	1	0	0	2
7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	1	0	0	0	0	0	1	0	0	0	0	2
7:45 AM	0	1	0	0	0	0	0	3	0	0	0	0	4
8:00 AM	0	1	0	0	1	0	0	0	2	0	0	0	4
8:15 AM	0	1	0	0	0	0	0	0	1	0	0	0	2
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	7	0	1	1	0	0	4	3	1	0	0	17

	Southbound Las Posas Road			Westbound Furniture Row			Northbound Las Posas Road			Eastbound Descanso Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	1	0	1	2	0	0	0	4
4:15 PM	0	5	0	0	0	0	0	3	0	0	0	0	8
4:30 PM	0	0	0	0	0	0	0	0	1	0	0	0	1
4:45 PM	0	2	0	0	0	0	0	3	0	0	1	1	7
5:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
5:15 PM	0	2	0	1	0	0	0	1	0	0	1	0	5
5:30 PM	0	2	0	1	0	0	0	0	0	0	0	0	3
5:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
TOTAL VOLUMES:	0	11	0	2	0	1	0	9	3	0	3	1	30

Intersection Turning Movement - Peak Hour Vehicle Count



Location: #05
Intersection: Los Posas Road and SR-78 westbound ramps
Date of Count: Thursday September 14, 2023

File Name: ITM-23-092-05
Project: LLG Ref. 3-23-3814
Armorlite Apartment

AM	Las Posas Road Southbound			SR-78 WB Ramps Westbound			Las Posas Road Northbound			SR-78 WB Ramps Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	0	213	53	76	0	62	27	114	0	0	0	0	545
7:15	0	216	75	82	0	53	28	143	0	0	0	0	597
7:30	0	267	58	95	0	57	33	204	0	0	0	0	714
7:45	0	368	75	101	0	68	46	211	0	0	0	0	869
8:00	0	335	77	142	0	38	38	163	0	0	0	0	793
8:15	0	348	72	117	0	41	44	168	0	0	0	0	790
8:30	0	245	95	93	0	41	47	154	0	0	0	0	675
8:45	0	231	90	77	0	50	46	182	0	0	0	0	676
Total	0	2223	595	783	0	410	309	1339	0	0	0	0	5659
Approach%	-	78.9	21.1	65.6	-	34.4	18.8	81.3	-	-	-	-	
Total%	-	39.3	10.5	13.8	-	7.2	5.5	23.7	-	-	-	-	

AM Intersection Peak Hour: 07:30 to 08:30

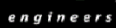
Volume	-	1,318	282	455	-	204	161	746	-	-	-	-	3,166
Approach%	-	82.4	17.6	69.0	-	31.0	17.8	82.2	-	-	-	-	
Total%	-	41.6	8.9	14.4	-	6.4	5.1	23.6	-	-	-	-	
PHF			0.90			0.92			0.88			#DIV/0!	0.91

PM	Las Posas Road Southbound			SR-78 WB Ramps Westbound			Las Posas Road Northbound			SR-78 WB Ramps Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	0	170	92	61	1	38	111	336	0	0	0	0	809
16:15	0	231	78	62	1	30	102	346	0	0	0	0	850
16:30	0	186	94	72	2	40	85	370	0	0	0	0	849
16:45	0	222	76	78	0	26	77	330	0	0	0	0	809
17:00	0	207	93	61	0	46	93	329	0	0	0	0	829
17:15	0	195	82	67	2	37	86	365	0	0	0	0	834
17:30	0	193	85	51	0	43	77	377	0	0	0	0	826
17:45	0	212	75	57	0	58	60	372	0	0	0	0	834
Total	0	1616	675	509	6	318	691	2825	0	0	0	0	6640
Approach%	-	70.5	29.5	61.1	0.7	38.2	19.7	80.3	-	-	-	-	
Total%	-	24.3	10.2	7.7	0.1	4.8	10.4	42.5	-	-	-	-	

PM Intersection Peak Hour: 16:15 to 17:15

Volume	-	846	341	273	3	142	357	1,375	-	-	-	-	3,337
Approach%	-	71.3	28.7	65.3	0.7	34.0	20.6	79.4	-	-	-	-	
Total%	-	25.4	10.2	8.2	0.1	4.3	10.7	41.2	-	-	-	-	
PHF			0.96			0.92			0.95			#DIV/0!	0.98

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN 	Location: #05	File Name: ITM-23-092-05
	Intersection: Los Posas Road and SR-78 westbound ramps	Project: LLG Ref. 3-23-3814
	Date of Count: Thursday September 14, 2023	Armorlite Apartment

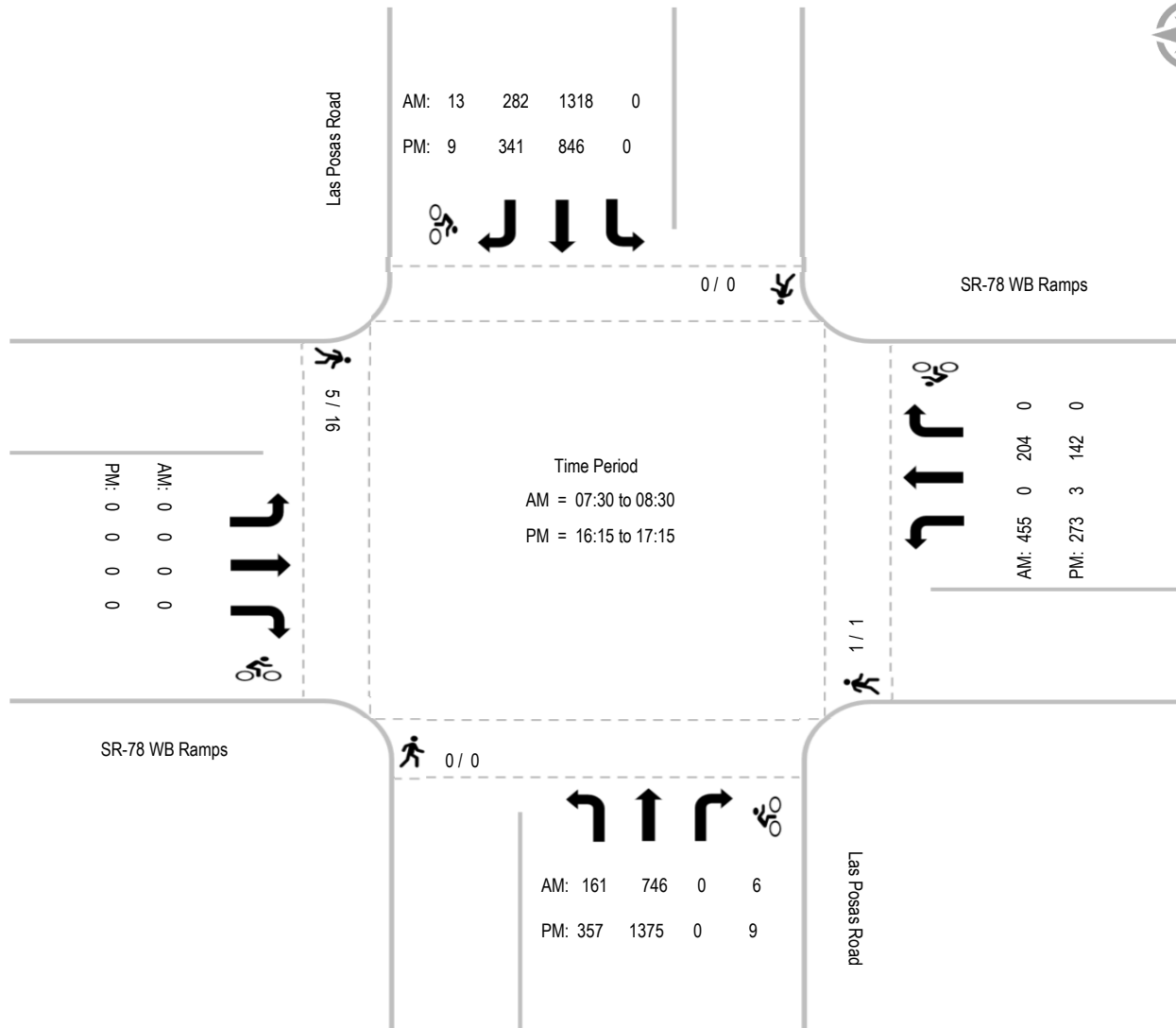
AM	Las Posas Road Southbound				SR-78 WB Ramps Westbound				Las Posas Road Northbound				SR-78 WB Ramps Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	0	4	0	0	0	0	0	0	0	0	0	1	0	0	0	1	4
7:30	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	4
7:45	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
8:00	0	0	3	0	0	0	0	0	0	0	1	0	1	0	0	0	1	4
8:15	0	0	3	0	0	0	0	0	0	0	1	0	1	0	0	0	1	4
8:30	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:45	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	3	0
Ped Total	0				1				0				5				6	
Bike Total		0	13	0		0	0	0		0	6	0		0	0	0		19

PM	Las Posas Road Southbound				SR-78 WB Ramps Westbound				Las Posas Road Northbound				SR-78 WB Ramps 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	1	0	0	0	0	0	0	0	3	0	1	0	0	0	1	4
16:15	0	0	2	0	0	0	0	0	0	0	1	0	4	0	0	0	4	3
16:30	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0
16:45	0	0	4	0	0	0	0	0	0	0	2	0	2	0	0	0	2	6
17:00	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	6	0
17:15	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
17:30	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
17:45	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	1	2
Ped Total	0				1				0				16				17	
Bike Total		0	9	0		0	0	0		0	9	0		0	0	0		18

Intersection Turning Movement - Peak Hour Summary



Location:	#05	File Name:	ITM-23-092-05
Intersection:	Los Posas Road and SR-78 westbound ramps	Project:	LLG Ref. 3-23-3814
Date of Count:	Thursday September 14, 2023		Armorlite Apartment



Intersection Turning Movement - Peak Hour Vehicle Count



Location: #06	File Name: ITM-23-092-06
Intersection: Grand Avenue & South Las Posas Road	Project: LLG Ref. 3-23-3814
Date of Count: Thursday September 14, 2023	Armorlite Apartment

AM	South Las Posas Road Southbound			Grand Avenue Westbound			South Las Posas Road Northbound			Grand Avenue Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	98	118	71	4	21	97	2	46	23	20	24	1	525
7:15	97	131	90	14	21	113	5	59	10	17	22	1	580
7:30	68	168	105	32	39	131	4	77	15	30	28	2	699
7:45	117	184	151	26	42	131	5	103	20	30	35	2	846
8:00	87	184	167	28	54	97	3	76	19	40	59	6	820
8:15	101	146	100	17	41	90	8	85	19	50	67	3	727
8:30	91	134	85	11	18	108	1	77	17	16	47	7	612
8:45	105	126	71	14	34	131	7	75	20	22	49	9	663
Total	764	1191	840	146	270	898	35	598	143	225	331	31	5472
Approach%	27.3	42.6	30.1	11.1	20.5	68.3	4.5	77.1	18.4	38.3	56.4	5.3	
Total%	14.0	21.8	15.4	2.7	4.9	16.4	0.6	10.9	2.6	4.1	6.0	0.6	

AM Intersection Peak Hour: 07:30 to 08:30

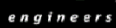
Volume	373	682	523	103	176	449	20	341	73	150	189	13	3,092
Approach%	23.6	43.2	33.1	14.1	24.2	61.7	4.6	78.6	16.8	42.6	53.7	3.7	
Total%	12.1	22.1	16.9	3.3	5.7	14.5	0.6	11.0	2.4	4.9	6.1	0.4	
PHF			0.87			0.90			0.85			0.73	0.92

PM	South Las Posas Road Southbound			Grand Avenue Westbound			South Las Posas Road Northbound			Grand Avenue Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	82	111	59	9	36	184	8	251	83	65	121	9	1018
16:15	86	133	60	10	37	165	9	239	63	91	116	8	1017
16:30	91	111	66	9	38	174	16	220	50	105	123	2	1005
16:45	92	144	74	10	39	179	10	225	38	75	111	11	1008
17:00	77	124	80	11	39	195	10	209	41	93	129	7	1015
17:15	82	250	63	16	30	201	9	248	43	71	248	5	1266
17:30	75	134	52	6	33	239	6	231	41	73	96	5	991
17:45	100	114	41	10	32	217	14	203	43	65	69	11	919
Total	685	1121	495	81	284	1554	82	1826	402	638	1013	58	8239
Approach%	29.8	48.7	21.5	4.2	14.8	81.0	3.5	79.0	17.4	37.3	59.3	3.4	
Total%	8.3	13.6	6.0	1.0	3.4	18.9	1.0	22.2	4.9	7.7	12.3	0.7	

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

Volume	342	629	283	46	146	749	45	902	172	344	611	25	4,294
Approach%	27.3	50.2	22.6	4.9	15.5	79.6	4.0	80.6	15.4	35.1	62.3	2.6	
Total%	8.0	14.6	6.6	1.1	3.4	17.4	1.0	21.0	4.0	8.0	14.2	0.6	
PHF			0.79			0.95			0.93			0.76	0.85

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN 	Location:	#06	File Name:	ITM-23-092-06
	Intersection:	Grand Avenue & South Las Posas Road	Project:	LLG Ref. 3-23-3814
	Date of Count:	Thursday September 14, 2023		Armorlite Apartment

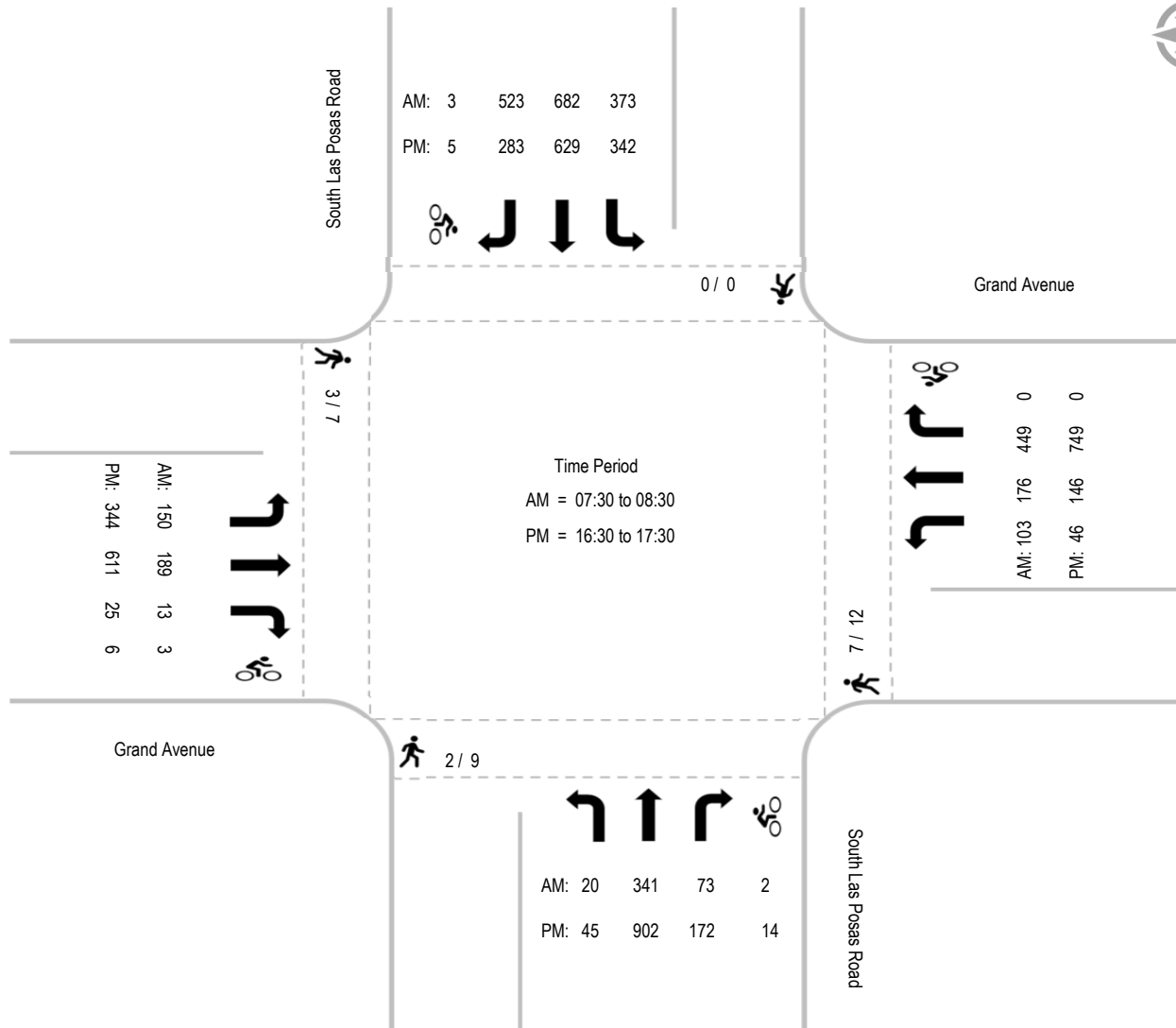
AM	South Las Posas Road Southbound				Grand Avenue Westbound				South Las Posas Road Northbound				Grand Avenue Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
7:15	0	0	1	1	1	0	0	0	0	0	0	0	1	0	0	0	2	2
7:30	0	0	0	0	2	0	0	0	0	0	0	0	0	1	0	0	2	1
7:45	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	1	2
8:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	1
8:15	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	1
8:30	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
8:45	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	3	0
Ped Total	0				7				2				3				12	
Bike Total		0	2	1		0	0	0		0	2	0		2	0	1		8

PM	South Las Posas Road Southbound				Grand Avenue Westbound				South Las Posas Road Northbound				Grand Avenue 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	1	0	2	0	1	1	0	0	2	3
16:15	0	0	0	1	2	0	0	0	0	0	0	0	1	0	0	0	3	1
16:30	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	0	4
16:45	0	0	0	2	0	0	0	0	0	0	3	0	1	0	1	0	1	6
17:00	0	0	0	0	5	0	0	0	1	0	1	0	2	1	1	0	8	3
17:15	0	0	1	0	2	0	0	0	3	0	0	0	0	0	0	0	5	1
17:30	0	0	0	0	0	0	0	0	2	0	2	0	2	0	0	0	4	2
17:45	0	0	1	0	3	0	0	0	2	0	3	0	0	0	1	0	5	5
Ped Total	0				12				9				7				28	
Bike Total		0	2	3		0	0	0		0	14	0		2	4	0		25

Intersection Turning Movement - Peak Hour Summary



Location: #06	File Name: ITM-23-092-06
Intersection: Grand Avenue & South Las Posas Road	Project: LLG Ref. 3-23-3814
Date of Count: Thursday September 14, 2023	Armorlite Apartment



Intersection Turning Movement - Peak Hour Vehicle Count



Location: #07	File Name: ITM-23-092-07
Intersection: Grand Avenue & SR-78 Eastbound Ramps & Via Vera Cruz	Project: LLG Ref. 3-23-3814
Date of Count: Thursday September 14, 2023	Armorlite Apartment

AM	SR-78 EB Ramps Southbound			Grand Avenue Westbound			Via Vera Cruz Northbound			Grand Avenue Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	20	47	83	3	28	3	8	11	5	61	57	19	345
7:15	26	50	90	6	34	3	11	15	8	66	64	24	397
7:30	39	65	104	15	57	5	19	19	6	79	77	27	512
7:45	37	53	113	17	61	7	15	18	8	83	82	21	515
8:00	34	55	100	10	52	4	14	12	8	63	65	28	445
8:15	31	72	94	14	55	6	12	16	7	77	73	26	483
8:30	35	53	111	18	56	4	14	20	9	71	73	23	487
8:45	36	47	95	15	52	3	15	22	12	64	68	18	447
Total	258	442	790	98	395	35	108	133	63	564	559	186	3631
Approach%	17.3	29.7	53.0	18.6	74.8	6.6	35.5	43.8	20.7	43.1	42.7	14.2	
Total%	7.1	12.2	21.8	2.7	10.9	1.0	3.0	3.7	1.7	15.5	15.4	5.1	

AM Intersection Peak Hour: 07:30 to 08:30

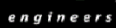
Volume	141	245	411	56	225	22	60	65	29	302	297	102	1,955
Approach%	17.7	30.7	51.6	18.5	74.3	7.3	39.0	42.2	18.8	43.1	42.4	14.6	
Total%	7.2	12.5	21.0	2.9	11.5	1.1	3.1	3.3	1.5	15.4	15.2	5.2	
PHF			0.96			0.89			0.88			0.94	0.95

PM	SR-78 EB Ramps Southbound			Grand Avenue Westbound			Via Vera Cruz Northbound			Grand Avenue Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	75	55	81	22	88	5	67	47	24	129	109	30	732
16:15	74	45	65	21	84	1	61	36	16	117	108	23	651
16:30	76	38	74	27	90	2	53	31	21	119	121	33	685
16:45	73	64	60	29	101	2	41	22	21	101	102	34	650
17:00	69	42	80	17	97	4	47	44	14	111	104	29	658
17:15	82	52	103	14	103	0	51	31	11	88	92	36	663
17:30	81	45	107	25	107	3	51	48	19	92	99	23	700
17:45	77	44	97	20	94	2	41	40	13	68	90	28	614
Total	607	385	667	175	764	19	412	299	139	825	825	236	5353
Approach%	36.6	23.2	40.2	18.3	79.7	2.0	48.5	35.2	16.4	43.7	43.7	12.5	
Total%	11.3	7.2	12.5	3.3	14.3	0.4	7.7	5.6	2.6	15.4	15.4	4.4	

PM Intersection Peak Hour: 16:00 to 17:00

Volume	298	202	280	99	363	10	222	136	82	466	440	120	2,718
Approach%	38.2	25.9	35.9	21.0	76.9	2.1	50.5	30.9	18.6	45.4	42.9	11.7	
Total%	11.0	7.4	10.3	3.6	13.4	0.4	8.2	5.0	3.0	17.1	16.2	4.4	
PHF			0.92			0.89			0.80			0.94	0.93

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN 	Location: #07	File Name: ITM-23-092-07
	Intersection: Grand Avenue & SR-78 Eastbound Ramps & Via Vera Cruz	Project: LLG Ref. 3-23-3814
	Date of Count: Thursday September 14, 2023	Armorlite Apartment

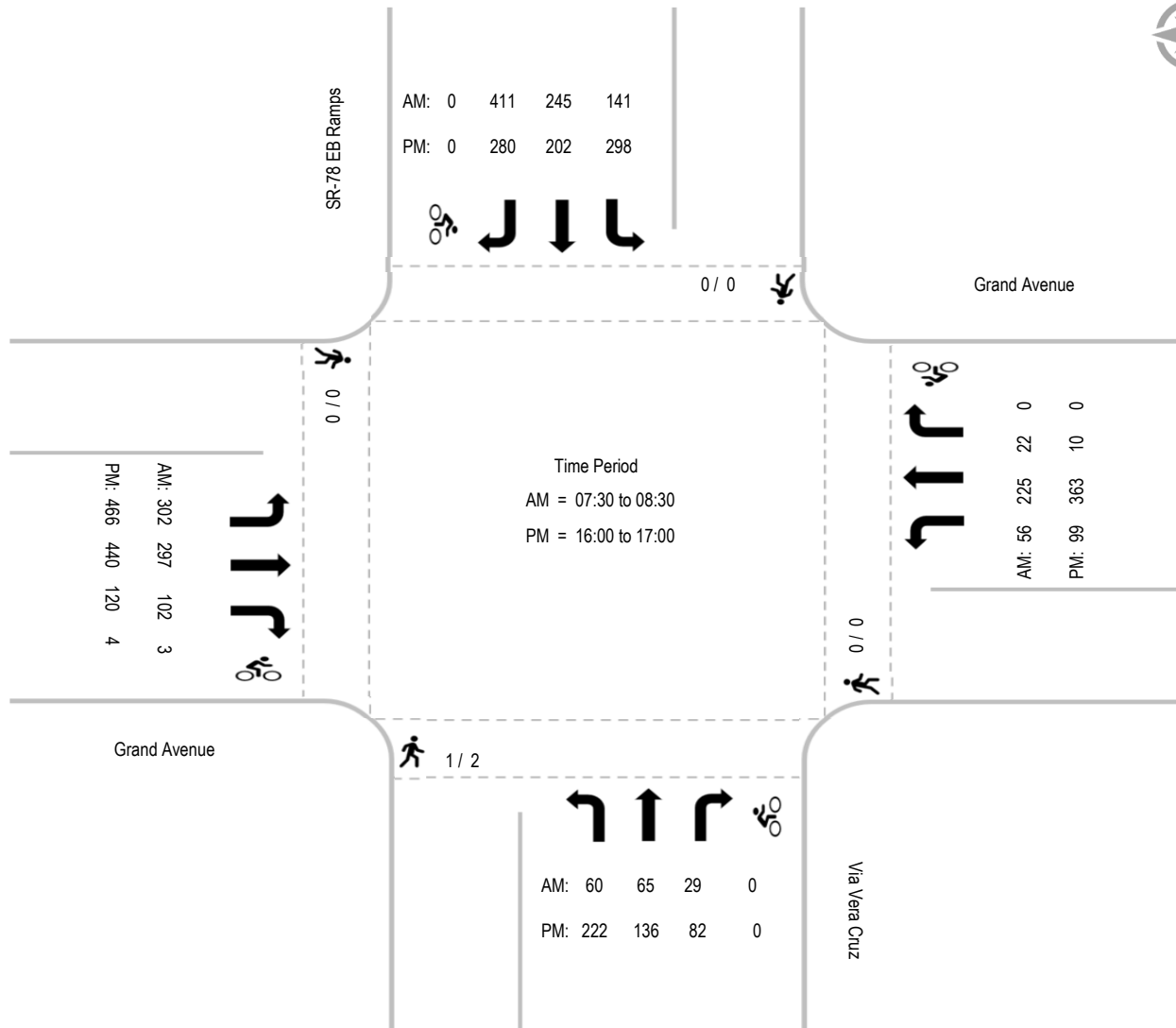
AM	SR-78 EB Ramps Southbound				Grand Avenue Westbound				Via Vera Cruz Northbound				Grand Avenue Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0	0	0	0	0	0	0	0	1	0	0	1
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Ped Total	0				0				1				0				1	
Bike Total		0	0	0		0	0	0		0	0	0		0	3	0		3

PM	SR-78 EB Ramps Southbound				Grand Avenue Westbound				Via Vera Cruz Northbound				Grand Avenue 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	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	0	0	0	0	2	0	0	0	0	0	2	1	2	3
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Ped Total	0				0				2				0				2	
Bike Total		0	0	0		0	0	0		0	0	0		0	3	1		4

Intersection Turning Movement - Peak Hour Summary



Location: #07	File Name: ITM-23-092-07
Intersection: Grand Avenue & SR-78 Eastbound Ramps & Via Vera Cruz	Project: LLG Ref. 3-23-3814
Date of Count: Thursday September 14, 2023	Armorlite Apartment



Linscott, Law & Greenspan, Engineers

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

Average Daily Traffic

Location: **Loc A: Mission Road between Pacific Street & Las Posas Road**

Date: Thursday, September 15, 2023						Total Daily Volume: 14200											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
112	73	26	25	63	193	394	1019	813	674	614	542	734	758	1110	1397	1620	1493	826	630	454	317	198	115
38	27	13	2	3	32	72	179	231	186	143	148	189	184	206	337	411	373	279	182	123	84	65	33
42	15	4	3	7	36	91	228	207	199	148	147	183	190	265	320	387	414	200	130	121	96	45	30
16	22	3	11	22	39	111	293	187	154	154	135	176	198	313	355	424	387	186	152	115	69	53	23
16	9	6	9	31	86	120	319	188	135	169	112	186	186	326	385	398	319	161	166	95	68	35	29

Date: Thursday, September 15, 2023						Total Daily Volume: 8320												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				
81	49	15	12	36	79	225	626	424	397	332	287	367	415	641	949	1098	1013	452	286	220	155	99	62				
30	20	8	2	0	12	40	104	127	113	78	74	101	102	138	243	265	251	157	83	62	46	32	14				
30	9	2	0	3	9	57	152	117	113	83	69	98	101	156	224	260	290	104	67	58	38	24	13				
11	13	3	5	13	18	58	186	82	87	86	77	83	101	165	239	291	265	100	62	52	34	30	13				
10	7	2	5	20	40	70	184	98	84	85	67	85	111	182	243	282	207	91	74	48	37	13	22				

Date: Thursday, September 15, 2023						Total Daily Volume: 5880											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			
31	24	11	13	27	114	169	393	389	277	282	255	367	343	469	448	522	480	374	344	234	162	99	53			
8	7	5	0	3	20	32	75	104	73	65	74	88	82	68	94	146	122	122	99	61	38	33	19			
12	6	2	3	4	27	34	76	90	86	65	78	85	89	109	96	127	124	96	63	63	58	21	17			
5	9	0	6	9	21	53	107	105	67	68	58	93	97	148	116	133	122	86	90	63	35	23	10			
6	2	4	4	11	46	50	135	90	51	84	45	101	75	144	142	116	112	70	92	47	31	22	7			

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

Average Daily Traffic

Location: **Loc B: Mission Road between Las Posas Road & Palomar College**

Date: Thursday, September 15, 2023						Total Daily Volume: 19964										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		
90	66	25	31	82	226	543	1583	1315	951	826	860	1067	960	1707	1991	2176	2212	1087	913	574	382	193	104		
33	21	3	1	4	37	90	257	392	245	187	275	218	228	285	448	551	535	362	229	178	134	72	31		
31	10	9	7	12	56	107	359	353	302	181	228	254	249	423	498	559	598	289	188	141	95	43	24		
8	21	5	12	28	50	160	468	304	223	190	186	307	209	539	493	548	577	229	212	134	77	45	23		
18	14	8	11	38	83	186	499	266	181	268	171	288	274	460	552	518	502	207	284	121	76	33	26		

Date: Thursday, September 15, 2023						Total Daily Volume: 11573										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		
64	40	9	11	29	72	254	853	613	556	478	481	609	568	992	1343	1440	1515	582	421	287	203	100	53		
29	18	2	1	0	12	38	120	189	146	111	153	121	139	190	310	374	365	211	112	79	77	38	16		
21	5	4	3	4	11	55	205	150	182	106	136	157	139	267	362	367	408	146	107	71	44	21	8		
4	11	1	4	10	19	68	272	132	125	104	93	172	130	268	323	358	402	119	101	65	42	28	10		
10	6	2	3	15	30	93	256	142	103	157	99	159	160	267	348	341	340	106	101	72	40	13	19		

Date: Thursday, September 15, 2023						Total Daily Volume: 8391										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		
26	26	16	20	53	154	289	730	702	395	348	379	458	392	715	648	736	697	505	492	287	179	93	51		
4	3	1	0	4	25	52	137	203	99	76	122	97	89	95	138	177	170	151	117	99	57	34	15		
10	5	5	4	8	45	52	154	203	120	75	92	97	110	156	136	192	190	143	81	70	51	22	16		
4	10	4	8	18	31	92	196	172	98	86	93	135	79	271	170	190	175	110	111	69	35	17	13		
8	8	6	8	23	53	93	243	124	78	111	72	129	114	193	204	177	162	101	183	49	36	20	7		

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

Average Daily Traffic

Location: **Loc C: Las Posas Road between Armorlite Drive & Descanso Avenue**

Date: Thursday, September 15, 2023						Total Daily Volume: 29710										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		
135	108	113	110	241	432	995	2002	1911	1664	1514	1851	1939	1670	1986	2303	2393	2538	1828	1456	1125	771	387	238		
38	33	32	22	34	73	149	403	530	439	348	547	434	377	411	520	553	617	524	417	367	246	128	59		
41	24	35	20	53	89	208	452	467	489	317	501	473	441	517	603	582	610	436	372	277	249	93	79		
27	30	30	30	82	115	267	514	451	419	382	389	499	421	522	549	606	665	466	315	269	156	91	52		
29	21	16	38	72	155	371	633	463	317	467	414	533	431	536	631	652	646	402	352	212	120	75	48		

Date: Thursday, September 15, 2023						Total Daily Volume: 14453											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
88	75	42	51	111	114	379	816	693	787	702	783	880	847	981	1196	1381	1533	946	712	568	395	245	128
29	22	16	7	14	24	42	151	180	209	136	214	209	186	199	275	325	354	282	184	183	120	80	33
21	15	12	12	27	19	77	173	171	255	137	181	239	217	234	314	337	360	233	189	145	105	55	44
18	22	6	14	38	31	114	234	160	167	187	174	248	215	263	272	353	423	225	169	137	96	66	24
20	16	8	18	32	40	146	258	182	156	242	214	184	229	285	335	366	396	206	170	103	74	44	27

Date: Thursday, September 15, 2023						Total Daily Volume: 15257											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
47	33	71	59	130	318	616	1186	1218	877	812	1068	1059	823	1005	1107	1012	1005	882	744	557	376	142	110
9	11	16	15	20	49	107	252	350	230	212	333	225	191	212	245	228	263	242	233	184	126	48	26
20	9	23	8	26	70	131	279	296	234	180	320	234	224	283	289	245	250	203	183	132	144	38	35
9	8	24	16	44	84	153	280	291	252	195	215	251	206	259	277	253	242	241	146	132	60	25	28
9	5	8	20	40	115	225	375	281	161	225	200	349	202	251	296	286	250	196	182	109	46	31	21

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

Average Daily Traffic

Location: **Loc D: Las Posas Road between SR-78 Westbound Ramps & Grand Avenue**

Date: Thursday, September 15, 2023						Total Daily Volume: 38614										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		
173	161	136	170	335	723	1320	2379	2488	2144	2033	2366	2629	2391	2686	3089	3190	3227	2230	1820	1301	904	450	269		
46	52	28	39	43	133	234	476	693	550	447	660	662	602	575	699	767	807	616	519	431	286	148	63		
61	37	40	31	58	166	295	514	627	603	469	613	619	606	663	764	817	830	565	473	314	270	113	92		
35	40	40	35	111	182	335	638	605	540	512	560	646	543	712	795	799	811	549	393	307	191	98	67		
31	32	28	65	123	242	456	751	563	451	605	533	702	640	736	831	807	779	500	435	249	157	91	47		

Date: Thursday, September 15, 2023						Total Daily Volume: 19062											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				
105	94	49	63	88	154	389	878	903	956	892	1012	1207	1197	1437	1718	2005	2107	1225	966	654	497	304	162				
33	27	15	9	7	23	53	167	226	252	170	292	305	300	301	366	512	511	345	259	206	167	105	44				
33	23	15	13	20	48	89	189	225	280	197	236	304	278	324	403	504	541	306	245	148	120	72	61				
20	24	11	13	40	35	107	250	223	229	243	232	319	289	396	486	510	558	307	220	160	118	70	30				
19	20	8	28	21	48	140	272	229	195	282	252	279	330	416	463	479	497	267	242	140	92	57	27				

Date: Thursday, September 15, 2023						Total Daily Volume: 19552											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
68	67	87	107	247	569	931	1501	1585	1188	1141	1354	1422	1194	1249	1371	1185	1120	1005	854	647	407	146	107
13	25	13	30	36	110	181	309	467	298	277	368	357	302	274	333	255	296	271	260	225	119	43	19
28	14	25	18	38	118	206	325	402	323	272	377	315	328	339	361	313	289	259	228	166	150	41	31
15	16	29	22	71	147	228	388	382	311	269	328	327	254	316	309	289	253	242	173	147	73	28	37
12	12	20	37	102	194	316	479	334	256	323	281	423	310	320	368	328	282	233	193	109	65	34	20

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APPENDIX B

CITY OF SAN MARCOS ROADWAY CLASSIFICATION TABLE

Table 3: Roadway Classifications, Capacity, and LOS

Street Classification	Lanes	LOS A	LOS B	LOS C	LOS D	LOS E (Capacity)
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
Major Arterial (One-Way)	3	12,500	16,500	22,500	25,000	27,500
Major Arterial (One-Way)	2	10,000	13,000	17,500	20,000	22,500
Secondary Arterial/Collector	4	10,000	14,000	20,000	25,000	30,000
Collector (no center lane)	4	5,000	7,000	10,000	13,000	15,000
Collector (continuous left-turn lane)	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-industrial 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
Collector (one-way)	3	11,000	14,000	19,000	22,500	26,000
Collector (one-way)	2	7,500	9,500	12,500	15,000	17,500
Collector (one-way)	1	2,500	3,500	5,000	6,500	7,500
Sub-Collector (single-family)	2	--	--	2,200	--	--

Source: *Guidelines for Transportation Impact Studies in the San Diego Region* (May 2019)

Notes: 1. The volumes and the average daily level of service listed above are only intended as a general planning outline.

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.

3.7. LEVEL OF SERVICE STANDARDS

The City of San Marcos strives to maintain intersection and roadway segment operations based on LOS standards outlined in the General Plan Mobility Element. The local transportation analysis should note intersections and roadway segments that perform unacceptably (based on standards in the current General Plan Mobility Element) under no project and/or plus project conditions, and improvements that can be applied to increase performance to acceptable levels.

For study intersections, the study should identify if the addition of the traffic generated from the proposed project results in any one of the following, and improvements should be identified to increase performance to acceptable or pre-project conditions under each scenario:

- ▶ Triggers an intersection operating at acceptable LOS to operate at unacceptable LOS and increases the average delay per vehicle by more than 2.0 seconds.
- ▶ Increases the average delay per vehicle for a study intersection that is already operating at unacceptable LOS by more than 2.0 seconds.

APPENDIX C

EXISTING INTERSECTION ANALYSIS WORKSHEETS

HCM 6th Signalized Intersection Summary

1: N Rancho Santa Fe Rd & W. Mission Rd

EX AM
11/28/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 		 		 			
Traffic Volume (veh/h)	0	531	288	155	310	0	225	0	113	0	0	0
Future Volume (veh/h)	0	531	288	155	310	0	225	0	113	0	0	0
Initial Q (Qb), 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		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	1856	1856	1856	1856	1856	0	1856	0	1856			
Adj Flow Rate, veh/h	0	672	365	182	365	0	245	0	123			
Peak Hour Factor	0.79	0.79	0.79	0.85	0.85	0.85	0.92	0.92	0.92			
Percent Heavy Veh, %	3	3	3	3	3	0	3	0	3			
Cap, veh/h	88	1061	450	388	1659	0	1043	0	842			
Arrive On Green	0.00	0.30	0.30	0.22	0.47	0.00	0.30	0.00	0.30			
Sat Flow, veh/h	1767	3526	1496	1767	3618	0	3428	0	2768			
Grp Volume(v), veh/h	0	672	365	182	365	0	245	0	123			
Grp Sat Flow(s),veh/h/ln	1767	1763	1496	1767	1763	0	1714	0	1384			
Q Serve(g_s), s	0.0	16.5	22.6	9.0	6.1	0.0	5.4	0.0	3.2			
Cycle Q Clear(g_c), s	0.0	16.5	22.6	9.0	6.1	0.0	5.4	0.0	3.2			
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	88	1061	450	388	1659	0	1043	0	842			
V/C Ratio(X)	0.00	0.63	0.81	0.47	0.22	0.00	0.23	0.00	0.15			
Avail Cap(c_a), veh/h	88	1403	595	388	2000	0	1043	0	842			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	30.3	32.4	34.1	15.7	0.0	26.1	0.0	25.4			
Incr Delay (d2), s/veh	0.0	0.6	6.3	4.0	0.1	0.0	0.5	0.0	0.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	6.7	8.5	4.1	2.3	0.0	2.2	0.0	1.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	30.9	38.7	38.1	15.7	0.0	26.7	0.0	25.8			
LnGrp LOS	A	C	D	D	B	A	C	A	C			
Approach Vol, veh/h		1037			547			368				
Approach Delay, s/veh		33.6			23.2			26.4				
Approach LOS		C			C			C				
Timer - Assigned Phs	1	2			5	6		8				
Phs Duration (G+Y+Rc), s	27.0	36.3			10.0	53.3		37.0				
Change Period (Y+Rc), s	5.0	* 6.1			5.0	* 6.1		6.5				
Max Green Setting (Gmax), s	22.0	* 40			5.0	* 57		30.5				
Max Q Clear Time (g_c+I1), s	11.0	24.6			0.0	8.1		7.4				
Green Ext Time (p_c), s	0.3	5.0			0.0	2.3		1.3				
Intersection Summary												
HCM 6th Ctrl Delay			29.3									
HCM 6th LOS			C									
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.												
User approved changes to right turn type.												

HCM 6th Signalized Intersection Summary

2: N Pacific St & W. Mission Rd

EX AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	585	55	0	484	23	0	0	44	76	0	38
Future Volume (veh/h)	21	585	55	0	484	23	0	0	44	76	0	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.94	1.00		0.97	1.00		0.94
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	1726	1726	1726	0	1726	1726	0	1726	1726	1726	1726	1726
Adj Flow Rate, veh/h	26	713	67	0	621	29	0	0	59	101	0	51
Peak Hour Factor	0.82	0.82	0.82	0.78	0.78	0.78	0.74	0.74	0.74	0.75	0.75	0.75
Percent Heavy Veh, %	3	3	3	0	3	3	0	3	3	3	3	3
Cap, veh/h	157	1176	110	0	746	35	0	0	419	188	0	158
Arrive On Green	0.10	0.39	0.39	0.00	0.23	0.23	0.00	0.00	0.30	0.11	0.00	0.11
Sat Flow, veh/h	1643	3016	283	0	3266	148	0	0	1419	1643	0	1380
Grp Volume(v), veh/h	26	387	393	0	320	330	0	0	59	101	0	51
Grp Sat Flow(s),veh/h/ln	1643	1639	1660	0	1639	1689	0	0	1420	1643	0	1380
Q Serve(g_s), s	1.2	16.0	16.1	0.0	15.8	15.8	0.0	0.0	2.6	4.9	0.0	2.9
Cycle Q Clear(g_c), s	1.2	16.0	16.1	0.0	15.8	15.8	0.0	0.0	2.6	4.9	0.0	2.9
Prop In Lane	1.00		0.17	0.00		0.09	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	157	639	647	0	384	396	0	0	419	188	0	158
V/C Ratio(X)	0.17	0.61	0.61	0.00	0.83	0.83	0.00	0.00	0.14	0.54	0.00	0.32
Avail Cap(c_a), veh/h	157	841	852	0	571	588	0	0	419	486	0	408
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.3	20.7	20.7	0.0	30.9	30.9	0.0	0.0	22.0	35.5	0.0	34.6
Incr Delay (d2), s/veh	2.3	0.3	0.3	0.0	4.2	4.2	0.0	0.0	0.7	0.9	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	5.5	5.6	0.0	6.2	6.4	0.0	0.0	0.9	2.0	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.6	21.0	21.1	0.0	35.1	35.1	0.0	0.0	22.7	36.4	0.0	35.0
LnGrp LOS	D	C	C	A	D	D	A	A	C	D	A	D
Approach Vol, veh/h	806			650			59			152		
Approach Delay, s/veh	21.6			35.1			22.7			35.9		
Approach LOS	C			D			C			D		
Timer - Assigned Phs	2			4		5	6		8			
Phs Duration (G+Y+Rc), s	39.9			14.8		13.2	26.7		30.2			
Change Period (Y+Rc), s	* 6.8			5.1		5.1	6.8		5.1			
Max Green Setting (Gmax), s	* 44			25.1		8.1	29.6		25.1			
Max Q Clear Time (g_c+I1), s	18.1			6.9		3.2	17.8		4.6			
Green Ext Time (p_c), s	2.8			0.3		0.0	1.8		0.2			

Intersection Summary

HCM 6th Ctrl Delay	28.2
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary

3: N. Las Posas Rd & W. Mission Rd

EX AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	124	406	62	344	335	131	38	426	277	110	617	34
Future Volume (veh/h)	124	406	62	344	335	131	38	426	277	110	617	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		0.94	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	1856	1856	1726	1726	1856	1856	1726	1726	1726	1856	1726	1856
Adj Flow Rate, veh/h	155	508	78	395	385	151	46	520	338	116	649	36
Peak Hour Factor	0.80	0.80	0.80	0.87	0.87	0.87	0.82	0.82	0.82	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	212	1122	568	385	787	303	137	896	974	286	1246	69
Arrive On Green	0.12	0.32	0.32	0.12	0.32	0.32	0.08	0.27	0.27	0.08	0.27	0.27
Sat Flow, veh/h	1767	3526	1401	3188	2454	946	1643	3279	2424	3428	4559	251
Grp Volume(v), veh/h	155	508	78	395	275	261	46	520	338	116	446	239
Grp Sat Flow(s),veh/h/ln	1767	1763	1401	1594	1763	1637	1643	1639	1212	1714	1570	1670
Q Serve(g_s), s	10.2	13.8	4.2	14.5	15.0	15.5	3.2	16.4	11.8	3.9	14.4	14.6
Cycle Q Clear(g_c), s	10.2	13.8	4.2	14.5	15.0	15.5	3.2	16.4	11.8	3.9	14.4	14.6
Prop In Lane	1.00		1.00	1.00		0.58	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	212	1122	568	385	566	525	137	896	974	286	858	456
V/C Ratio(X)	0.73	0.45	0.14	1.03	0.49	0.50	0.34	0.58	0.35	0.41	0.52	0.52
Avail Cap(c_a), veh/h	212	1122	568	385	566	525	137	902	978	286	864	459
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.9	32.6	22.7	52.8	32.8	32.9	51.9	37.7	25.6	52.2	36.9	37.0
Incr Delay (d2), s/veh	19.8	1.3	0.5	52.5	3.0	3.3	6.2	2.6	0.9	4.2	2.2	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	5.9	1.4	8.4	6.7	6.4	1.5	6.7	3.4	1.8	5.6	6.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.7	33.9	23.3	105.2	35.8	36.3	58.1	40.3	26.5	56.4	39.2	41.2
LnGrp LOS	E	C	C	F	D	D	E	D	C	E	D	D
Approach Vol, veh/h	741		931				904		801			
Approach Delay, s/veh	40.5		65.4				36.0		42.3			
Approach LOS	D		E				D		D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	51.1	39.6	20.8	44.5	15.1	39.6	20.5	44.8				
Change Period (Y+Rc), s	5.1	6.8	6.3	6.3	5.1	6.8	* 6.1	* 6.3				
Max Green Setting (Gmax), s	10.0	33.0	14.5	38.0	10.0	33.0	* 14	* 39				
Max Q Clear Time (g_c+I), s	15.9	18.4	16.5	15.8	5.2	16.6	12.2	17.5				
Green Ext Time (p_c), s	0.1	2.6	0.0	2.1	0.0	2.4	0.0	1.8				

Intersection Summary

HCM 6th Ctrl Delay 46.6
HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
User approved changes to right turn type.

HCM 6th Signalized Intersection Summary

4: Knoll Rd/Drwy & W. Mission Rd

EX AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	439	181	231	615	9	171	3	167	3	6	17
Future Volume (veh/h)	0	439	181	231	615	9	171	3	167	3	6	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.95	1.00		0.96	1.00		0.93
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	1856	1856	1726	1726	1856	1856	1726	1726	1726	1856	1726	1856
Adj Flow Rate, veh/h	0	585	241	254	676	10	237	0	229	4	7	21
Peak Hour Factor	0.75	0.75	0.75	0.91	0.91	0.91	0.73	0.73	0.73	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	2	1520	591	179	2100	31	640	0	274	29	51	69
Arrive On Green	0.00	0.43	0.43	0.11	0.59	0.59	0.19	0.00	0.19	0.05	0.05	0.05
Sat Flow, veh/h	1767	3526	1370	1643	3553	53	3287	0	1407	616	1079	1455
Grp Volume(v), veh/h	0	585	241	254	335	351	237	0	229	11	0	21
Grp Sat Flow(s), veh/h/ln	1767	1763	1370	1643	1763	1843	1643	0	1407	1695	0	1455
Q Serve(g_s), s	0.0	11.3	12.1	10.9	9.6	9.6	6.3	0.0	15.7	0.6	0.0	1.4
Cycle Q Clear(g_c), s	0.0	11.3	12.1	10.9	9.6	9.6	6.3	0.0	15.7	0.6	0.0	1.4
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	0.36		1.00
Lane Grp Cap(c), veh/h	2	1520	591	179	1042	1089	640	0	274	80	0	69
V/C Ratio(X)	0.00	0.38	0.41	1.42	0.32	0.32	0.37	0.00	0.84	0.14	0.00	0.31
Avail Cap(c_a), veh/h	124	1520	591	179	1042	1089	887	0	380	136	0	116
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	19.4	19.6	44.5	10.3	10.3	34.9	0.0	38.7	45.7	0.0	46.1
Incr Delay (d2), s/veh	0.0	0.7	2.1	217.5	0.8	0.8	0.1	0.0	8.1	0.3	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.4	3.9	15.1	3.5	3.6	2.5	0.0	5.9	0.3	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	20.1	21.7	262.1	11.1	11.1	35.1	0.0	46.9	46.0	0.0	47.0
LnGrp LOS	A	C	C	F	B	B	D	A	D	D	A	D
Approach Vol, veh/h	826			940			466			32		
Approach Delay, s/veh	20.6			78.9			40.9			46.6		
Approach LOS	C			E			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	48.9	48.9		9.9	0.0	64.9		25.2				
Change Period (Y+Rc), s	5.1	5.8		* 5.2	4.6	5.8		5.7				
Max Green Setting (Gmax), s	32.3	32.3		* 8	7.0	36.7		27.0				
Max Q Clear Time (g_c+1/2g), s	14.1	14.1		3.4	0.0	11.6		17.7				
Green Ext Time (p_c), s	0.0	2.6		0.0	0.0	2.3		0.7				

Intersection Summary

HCM 6th Ctrl Delay 49.4

HCM 6th LOS D

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

5: N. Las Posas Rd & Armorlite Dr

EX AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	15	153	1	42	30	697	114	24	1077	7
Future Volume (veh/h)	1	0	15	153	1	42	30	697	114	24	1077	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	1	0	19	168	1	46	36	830	136	28	1267	8
Peak Hour Factor	0.80	0.80	0.80	0.91	0.91	0.91	0.84	0.84	0.84	0.85	0.85	0.85
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	4	0	240	150	8	362	78	2126	346	67	2497	16
Arrive On Green	0.00	0.00	0.16	0.09	0.24	0.24	0.04	0.49	0.49	0.04	0.48	0.48
Sat Flow, veh/h	1767	0	1504	1767	32	1494	1767	4362	709	1767	5192	33
Grp Volume(v), veh/h	1	0	19	168	0	47	36	641	325	28	824	451
Grp Sat Flow(s),veh/h/ln	1767	0	1504	1767	0	1526	1767	1689	1694	1767	1689	1848
Q Serve(g_s), s	0.1	0.0	1.1	8.5	0.0	2.4	2.0	12.0	12.2	1.5	16.8	16.8
Cycle Q Clear(g_c), s	0.1	0.0	1.1	8.5	0.0	2.4	2.0	12.0	12.2	1.5	16.8	16.8
Prop In Lane	1.00		1.00	1.00		0.98	1.00		0.42	1.00		0.02
Lane Grp Cap(c), veh/h	4	0	240	150	0	370	78	1646	826	67	1624	889
V/C Ratio(X)	0.26	0.00	0.08	1.12	0.00	0.13	0.46	0.39	0.39	0.42	0.51	0.51
Avail Cap(c_a), veh/h	141	0	586	150	0	603	124	1646	826	124	1624	889
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.43	0.43	0.43	0.70	0.70	0.70
Uniform Delay (d), s/veh	49.8	0.0	35.7	45.8	0.0	29.6	46.6	16.2	16.3	47.0	17.8	17.8
Incr Delay (d2), s/veh	12.5	0.0	0.1	108.8	0.0	0.1	0.7	0.3	0.6	1.1	0.8	1.5
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	0.0	0.0	0.4	8.3	0.0	0.9	0.9	4.3	4.4	0.7	6.1	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.3	0.0	35.8	154.5	0.0	29.6	47.3	16.5	16.9	48.1	18.6	19.3
LnGrp LOS	E	A	D	F	A	C	D	B	B	D	B	B
Approach Vol, veh/h	20		215			1002			1303			
Approach Delay, s/veh	37.1		127.2			17.7			19.5			
Approach LOS	D		F			B			B			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.8	54.7	14.0	21.5	10.4	54.1	5.7	29.8				
Change Period (Y+Rc), s	6.0	6.0	5.5	5.5	6.0	6.0	5.5	5.5				
Max Green Setting (Gmax), s	22.5	22.5	8.5	39.0	7.0	22.5	8.0	39.5				
Max Q Clear Time (g_c+I), s	14.2	14.2	10.5	3.1	4.0	18.8	2.1	4.4				
Green Ext Time (p_c), s	0.0	2.6	0.0	0.0	0.0	1.9	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay			28.0									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary

7: N. Las Posas Rd & Descanso Ave

EX AM
11/28/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	33	117	157	18	25	60	744	125	11	1210	26
Future Volume (veh/h)	14	33	117	157	18	25	60	744	125	11	1210	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.94	1.00		0.94
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	16	39	138	215	25	34	61	752	126	11	1235	27
Peak Hour Factor	0.85	0.85	0.85	0.73	0.73	0.73	0.99	0.99	0.99	0.98	0.98	0.98
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	148	361	425	955	195	265	88	897	148	88	1073	23
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.05	0.21	0.21	0.05	0.21	0.21
Sat Flow, veh/h	532	1297	1525	3428	699	950	1767	4332	717	1767	5093	111
Grp Volume(v), veh/h	55	0	138	215	0	59	61	584	294	11	819	443
Grp Sat Flow(s),veh/h/ln	1829	0	1525	1714	0	1649	1767	1689	1671	1767	1689	1827
Q Serve(g_s), s	3.1	0.0	10.1	6.8	0.0	3.7	4.8	23.2	23.7	0.8	29.5	29.5
Cycle Q Clear(g_c), s	3.1	0.0	10.1	6.8	0.0	3.7	4.8	23.2	23.7	0.8	29.5	29.5
Prop In Lane	0.29		1.00	1.00		0.58	1.00		0.43	1.00		0.06
Lane Grp Cap(c), veh/h	509	0	425	955	0	459	88	700	346	88	712	385
V/C Ratio(X)	0.11	0.00	0.32	0.23	0.00	0.13	0.69	0.84	0.85	0.12	1.15	1.15
Avail Cap(c_a), veh/h	509	0	425	955	0	459	88	712	352	88	712	385
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	0.97	0.97	0.97	0.84	0.84	0.84
Uniform Delay (d), s/veh	37.6	0.0	40.1	38.9	0.0	37.8	65.4	53.2	53.4	63.6	55.2	55.3
Incr Delay (d2), s/veh	0.4	0.0	2.0	0.5	0.0	0.6	35.2	11.0	21.5	2.4	81.4	90.5
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	1.5	0.0	4.1	3.0	0.0	1.6	3.0	10.7	11.8	0.4	20.3	22.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.0	0.0	42.1	39.4	0.0	38.4	100.6	64.2	74.9	66.0	136.6	145.7
LnGrp LOS	D	A	D	D	A	D	F	E	E	E	F	F
Approach Vol, veh/h		193			274			939			1273	
Approach Delay, s/veh		40.9			39.2			69.9			139.2	
Approach LOS		D			D			E			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.5	35.5		45.5	13.0	36.0		45.5				
Change Period (Y+Rc), s	6.5	* 6.5		6.5	6.0	6.5		6.5				
Max Green Setting (Gmax), s	7.0	* 30		39.0	7.0	29.5		39.0				
Max Q Clear Time (g_c+I1), s	2.8	25.7		12.1	6.8	31.5		8.8				
Green Ext Time (p_c), s	0.0	1.4		0.4	0.0	0.0		0.6				

Intersection Summary

HCM 6th Ctrl Delay 97.6
HCM 6th LOS F

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 8: N. Las Posas Rd & SR-78 WB Ramps

EX AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↰	↰		↰	↰			↰	↰
Traffic Volume (veh/h)	0	0	0	455	0	204	161	746	0	0	1318	282
Future Volume (veh/h)	0	0	0	455	0	204	161	746	0	0	1318	282
Initial Q (Qb), 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		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				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				358	191	222	183	848	0	0	1464	313
Peak Hour Factor				0.92	0.92	0.92	0.88	0.88	0.88	0.90	0.90	0.90
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				474	206	239	217	3105	0	0	1844	393
Arrive On Green				0.27	0.27	0.27	0.12	0.61	0.00	0.00	0.44	0.44
Sat Flow, veh/h				1767	768	893	1767	5233	0	0	4327	886
Grp Volume(v), veh/h				358	0	413	183	848	0	0	1187	590
Grp Sat Flow(s),veh/h/ln				1767	0	1661	1767	1689	0	0	1689	1669
Q Serve(g_s), s				18.6	0.0	24.2	10.1	7.8	0.0	0.0	30.2	30.4
Cycle Q Clear(g_c), s				18.6	0.0	24.2	10.1	7.8	0.0	0.0	30.2	30.4
Prop In Lane				1.00		0.54	1.00		0.00	0.00		0.53
Lane Grp Cap(c), veh/h				474	0	445	217	3105	0	0	1497	740
V/C Ratio(X)				0.76	0.00	0.93	0.84	0.27	0.00	0.00	0.79	0.80
Avail Cap(c_a), veh/h				497	0	467	256	3105	0	0	1497	740
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.91	0.91	0.00	0.00	0.13	0.13
Uniform Delay (d), s/veh				33.6	0.0	35.7	42.9	9.0	0.0	0.0	23.9	24.0
Incr Delay (d2), s/veh				5.5	0.0	23.7	21.5	0.2	0.0	0.0	0.6	1.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				8.5	0.0	12.5	5.5	2.5	0.0	0.0	11.0	11.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				39.1	0.0	59.3	64.4	9.2	0.0	0.0	24.5	25.2
LnGrp LOS				D	A	E	E	A	A	A	C	C
Approach Vol, veh/h					771			1031			1777	
Approach Delay, s/veh					49.9			19.0			24.7	
Approach LOS					D			B			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		68.1			17.0	51.1		31.9				
Change Period (Y+Rc), s		6.8			* 4.7	6.8		5.1				
Max Green Setting (Gmax), s		60.0			* 15	40.8		28.1				
Max Q Clear Time (g_c+I1), s		9.8			12.1	32.4		26.2				
Green Ext Time (p_c), s		3.9			0.2	4.9		0.6				

Intersection Summary

HCM 6th Ctrl Delay	28.5
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

9: N. Las Posas Rd & Grand Ave

EX AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	189	13	103	176	449	20	341	73	373	682	523
Future Volume (veh/h)	150	189	13	103	176	449	20	341	73	373	682	523
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	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	1.00	1.00	1.00
Work Zone On Approach	No				No				No			
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	205	259	18	114	196	499	24	401	86	429	784	601
Peak Hour Factor	0.73	0.73	0.73	0.90	0.90	0.90	0.85	0.85	0.85	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	280	635	44	145	353	720	112	1734	359	265	1509	774
Arrive On Green	0.08	0.19	0.19	0.08	0.19	0.19	0.06	0.41	0.41	0.08	0.43	0.43
Sat Flow, veh/h	3428	3336	230	1767	1856	2660	1767	4185	866	3428	3526	1510
Grp Volume(v), veh/h	205	136	141	114	196	499	24	321	166	429	784	601
Grp Sat Flow(s),veh/h/ln	1714	1763	1803	1767	1856	1330	1767	1689	1674	1714	1763	1510
Q Serve(g_s), s	6.4	7.4	7.6	7.0	10.5	18.6	1.4	6.8	7.1	8.5	18.0	35.7
Cycle Q Clear(g_c), s	6.4	7.4	7.6	7.0	10.5	18.6	1.4	6.8	7.1	8.5	18.0	35.7
Prop In Lane	1.00		0.13	1.00		1.00	1.00		0.52	1.00		1.00
Lane Grp Cap(c), veh/h	280	335	343	145	353	720	112	1399	694	265	1509	774
V/C Ratio(X)	0.73	0.41	0.41	0.79	0.55	0.69	0.21	0.23	0.24	1.62	0.52	0.78
Avail Cap(c_a), veh/h	595	513	525	145	369	743	112	1399	694	265	1509	774
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.79	0.79	0.79	1.00	1.00	1.00	0.44	0.44	0.44
Uniform Delay (d), s/veh	49.3	39.1	39.1	49.6	40.3	36.3	48.9	20.8	20.9	50.7	23.1	22.0
Incr Delay (d2), s/veh	1.4	0.3	0.3	28.3	0.7	1.7	4.3	0.4	0.8	286.3	0.6	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	3.2	3.3	4.1	4.8	6.0	0.7	2.6	2.8	14.1	7.1	12.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.7	39.4	39.4	77.8	41.0	38.0	53.2	21.2	21.8	337.1	23.7	25.4
LnGrp LOS	D	D	D	E	D	D	D	C	C	F	C	C
Approach Vol, veh/h	482				809		511				1814	
Approach Delay, s/veh	44.2				44.4		22.9				98.4	
Approach LOS	D				D		C				F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.0	52.1	15.5	27.4	13.5	53.6	15.5	27.4				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	34.5	34.5	9.0	32.0	7.0	36.0	19.1	21.9				
Max Q Clear Time (g_c+110), s	9.1	9.1	9.0	9.6	3.4	37.7	8.4	20.6				
Green Ext Time (p_c), s	0.0	1.8	0.0	0.9	0.0	0.0	0.3	0.3				

Intersection Summary

HCM 6th Ctrl Delay 68.4
HCM 6th LOS E

Notes

User approved changes to right turn type.

HCM 6th Signalized Intersection Summary

10: Via Vera Cruz & Grand Ave

EX AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔↔	↑↑↑	↘	↔	↖	↗	↔	↑	↗
Traffic Volume (veh/h)	302	297	102	56	225	22	60	65	29	141	245	411
Future Volume (veh/h)	302	297	102	56	225	22	60	65	29	141	245	411
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.94	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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	321	316	109	63	253	25	68	74	33	147	255	428
Peak Hour Factor	0.94	0.94	0.94	0.89	0.89	0.89	0.88	0.88	0.88	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	410	1005	606	161	1200	116	193	203	162	526	553	455
Arrive On Green	0.12	0.29	0.29	0.09	0.26	0.26	0.11	0.11	0.11	0.30	0.30	0.30
Sat Flow, veh/h	3428	3526	1525	1767	4683	451	1767	1856	1481	1767	1856	1527
Grp Volume(v), veh/h	321	316	109	63	181	97	68	74	33	147	255	428
Grp Sat Flow(s), veh/h/ln	1714	1763	1525	1767	1689	1757	1767	1856	1481	1767	1856	1527
Q Serve(g_s), s	9.1	7.0	4.7	3.4	4.2	4.4	3.6	3.7	2.0	6.4	11.2	27.4
Cycle Q Clear(g_c), s	9.1	7.0	4.7	3.4	4.2	4.4	3.6	3.7	2.0	6.4	11.2	27.4
Prop In Lane	1.00		1.00	1.00		0.26	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	410	1005	606	161	865	450	193	203	162	526	553	455
V/C Ratio(X)	0.78	0.31	0.18	0.39	0.21	0.22	0.35	0.37	0.20	0.28	0.46	0.94
Avail Cap(c_a), veh/h	531	1005	606	194	865	450	194	204	163	546	573	472
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.81	0.81	0.81	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.7	28.1	19.8	42.9	29.2	29.3	41.3	41.3	40.6	26.9	28.6	34.2
Incr Delay (d2), s/veh	6.8	0.7	0.5	0.6	0.0	0.1	0.4	0.4	0.2	0.1	0.2	26.3
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	4.1	3.0	2.0	1.5	1.7	1.8	1.5	1.7	0.7	2.6	4.8	12.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.6	28.7	20.3	43.4	29.3	29.4	41.7	41.7	40.8	27.0	28.8	60.6
LnGrp LOS	D	C	C	D	C	C	D	D	D	C	C	E
Approach Vol, veh/h	746			341			175			830		
Approach Delay, s/veh	36.5			31.9			41.5			44.9		
Approach LOS	D			C			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	33.8	35.3		34.9	16.7	32.4		16.0				
Change Period (Y+Rc), s	4.7	6.8		5.1	* 4.7	6.8		5.1				
Max Green Setting (Gmax), s	25.4			30.9	* 16	20.9		11.0				
Max Q Clear Time (g_c+I), s	9.0			29.4	11.1	6.4		5.7				
Green Ext Time (p_c), s	0.0	1.3		0.4	0.9	0.8		0.2				

Intersection Summary

HCM 6th Ctrl Delay	39.5
HCM 6th LOS	D

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

1: N Rancho Santa Fe Rd & W. Mission Rd

EX PM
11/28/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	858	158	157	377	0	333	0	396	0	0	0
Future Volume (veh/h)	0	858	158	157	377	0	333	0	396	0	0	0
Initial Q (Qb), 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		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	1856	1856	1856	1856	1856	0	1856	0	1856			
Adj Flow Rate, veh/h	0	1059	195	189	454	0	370	0	440			
Peak Hour Factor	0.81	0.81	0.81	0.83	0.83	0.83	0.90	0.90	0.90			
Percent Heavy Veh, %	3	3	3	3	3	0	3	0	3			
Cap, veh/h	86	1264	539	328	1747	0	972	0	785			
Arrive On Green	0.00	0.36	0.36	0.19	0.50	0.00	0.28	0.00	0.28			
Sat Flow, veh/h	1767	3526	1504	1767	3618	0	3428	0	2768			
Grp Volume(v), veh/h	0	1059	195	189	454	0	370	0	440			
Grp Sat Flow(s),veh/h/ln	1767	1763	1504	1767	1763	0	1714	0	1384			
Q Serve(g_s), s	0.0	28.2	9.8	10.0	7.6	0.0	8.9	0.0	13.9			
Cycle Q Clear(g_c), s	0.0	28.2	9.8	10.0	7.6	0.0	8.9	0.0	13.9			
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	86	1264	539	328	1747	0	972	0	785			
V/C Ratio(X)	0.00	0.84	0.36	0.58	0.26	0.00	0.38	0.00	0.56			
Avail Cap(c_a), veh/h	86	1530	653	328	2013	0	972	0	785			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	30.1	24.2	38.0	14.9	0.0	29.4	0.0	31.2			
Incr Delay (d2), s/veh	0.0	3.6	0.4	7.2	0.1	0.0	1.1	0.0	2.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	11.7	3.3	4.8	2.8	0.0	3.7	0.0	4.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	33.7	24.6	45.1	15.0	0.0	30.6	0.0	34.1			
LnGrp LOS	A	C	C	D	B	A	C	A	C			
Approach Vol, veh/h	1254			643			810					
Approach Delay, s/veh	32.3			23.9			32.5					
Approach LOS	C			C			C					
Timer - Assigned Phs	1	2			5	6		8				
Phs Duration (G+Y+Rc), s	24.0	42.8			10.0	56.8		35.5				
Change Period (Y+Rc), s	5.0	* 6.1			5.0	* 6.1		6.5				
Max Green Setting (Gmax), s	19.0	* 44			5.0	* 58		29.0				
Max Q Clear Time (g_c+I1), s	12.0	30.2			0.0	9.6		15.9				
Green Ext Time (p_c), s	0.3	6.5			0.0	3.0		2.7				

Intersection Summary

HCM 6th Ctrl Delay	30.3
HCM 6th LOS	C

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

2: N Pacific St & W. Mission Rd

EX PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↱			↱↰			↱		↰	↰	
Traffic Volume (veh/h)	41	975	39	0	519	51	0	0	57	38	0	32
Future Volume (veh/h)	41	975	39	0	519	51	0	0	57	38	0	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.95	1.00		0.99	1.00		0.95
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	1726	1726	1726	0	1726	1726	0	1726	1726	1726	1726	1726
Adj Flow Rate, veh/h	46	1096	44	0	570	56	0	0	76	43	0	36
Peak Hour Factor	0.89	0.89	0.89	0.91	0.91	0.91	0.75	0.75	0.75	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	0	3	3	0	3	3	3	3	3
Cap, veh/h	125	1187	48	0	740	72	0	0	340	386	0	327
Arrive On Green	0.08	0.37	0.37	0.00	0.25	0.25	0.00	0.00	0.24	0.24	0.00	0.24
Sat Flow, veh/h	1643	3205	129	0	3085	294	0	0	1444	1643	0	1390
Grp Volume(v), veh/h	46	561	579	0	311	315	0	0	76	43	0	36
Grp Sat Flow(s),veh/h/ln	1643	1639	1694	0	1639	1653	0	0	1444	1643	0	1390
Q Serve(g_s), s	2.8	34.9	34.9	0.0	18.8	18.9	0.0	0.0	4.5	2.2	0.0	2.2
Cycle Q Clear(g_c), s	2.8	34.9	34.9	0.0	18.8	18.9	0.0	0.0	4.5	2.2	0.0	2.2
Prop In Lane	1.00		0.08	0.00		0.18	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	125	607	627	0	404	408	0	0	340	386	0	327
V/C Ratio(X)	0.37	0.92	0.92	0.00	0.77	0.77	0.00	0.00	0.22	0.11	0.00	0.11
Avail Cap(c_a), veh/h	125	670	692	0	455	458	0	0	340	386	0	327
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.9	32.1	32.2	0.0	37.4	37.4	0.0	0.0	33.0	32.1	0.0	32.0
Incr Delay (d2), s/veh	8.2	16.8	16.4	0.0	5.9	6.0	0.0	0.0	1.5	0.6	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	15.7	16.1	0.0	7.9	8.0	0.0	0.0	1.7	0.9	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.1	48.9	48.6	0.0	43.2	43.4	0.0	0.0	34.5	32.6	0.0	32.7
LnGrp LOS	E	D	D	A	D	D	A	A	C	C	A	C
Approach Vol, veh/h	1186			626			76			79		
Approach Delay, s/veh	49.0			43.3			34.5			32.7		
Approach LOS	D			D			C			C		
Timer - Assigned Phs	2			4		5	6		8			
Phs Duration (G+Y+Rc), s	46.3			30.2		13.2	33.1		30.2			
Change Period (Y+Rc), s	* 6.8			5.1		5.1	6.8		5.1			
Max Green Setting (Gmax), s	* 44			25.1		8.1	29.6		25.1			
Max Q Clear Time (g_c+I1), s	36.9			4.2		4.8	20.9		6.5			
Green Ext Time (p_c), s	2.6			0.1		0.0	1.5		0.2			

Intersection Summary

HCM 6th Ctrl Delay	46.0
HCM 6th LOS	D

Notes

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

HCM 6th Signalized Intersection Summary

3: N. Las Posas Rd & W. Mission Rd

EX PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	166	884	72	347	340	83	94	720	480	118	470	42
Future Volume (veh/h)	166	884	72	347	340	83	94	720	480	118	470	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.95	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	1856	1856	1726	1726	1856	1856	1726	1726	1726	1856	1726	1856
Adj Flow Rate, veh/h	175	931	76	361	354	86	111	847	565	134	534	48
Peak Hour Factor	0.95	0.95	0.95	0.96	0.96	0.96	0.85	0.85	0.85	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	191	1122	573	385	932	223	137	904	985	286	1211	108
Arrive On Green	0.11	0.32	0.32	0.12	0.33	0.33	0.08	0.28	0.28	0.08	0.28	0.28
Sat Flow, veh/h	1767	3526	1419	3188	2803	671	1643	3279	2443	3428	4392	390
Grp Volume(v), veh/h	175	931	76	361	221	219	111	847	565	134	380	202
Grp Sat Flow(s),veh/h/ln	1767	3526	1419	3188	2803	671	1643	3279	2443	3428	4392	390
Q Serve(g_s), s	11.8	29.4	4.1	13.5	11.5	11.8	8.0	30.3	21.8	4.5	12.0	12.2
Cycle Q Clear(g_c), s	11.8	29.4	4.1	13.5	11.5	11.8	8.0	30.3	21.8	4.5	12.0	12.2
Prop In Lane	1.00		1.00	1.00		0.39	1.00		1.00	1.00		0.24
Lane Grp Cap(c), veh/h	191	1122	573	385	586	569	137	904	985	286	866	453
V/C Ratio(X)	0.91	0.83	0.13	0.94	0.38	0.39	0.81	0.94	0.57	0.47	0.44	0.45
Avail Cap(c_a), veh/h	191	1122	573	385	586	569	137	904	985	286	866	453
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.78	0.78	0.78	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.9	37.9	22.7	52.3	30.6	30.7	54.1	42.4	28.4	52.5	35.8	35.9
Incr Delay (d2), s/veh	45.8	7.1	0.5	32.4	1.8	2.0	31.9	15.0	1.9	5.4	1.6	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	13.2	1.4	7.0	5.0	5.0	4.4	13.6	6.3	2.1	4.6	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	98.7	45.0	23.2	84.7	32.4	32.6	86.0	57.5	30.3	57.9	37.4	39.1
LnGrp LOS	F	D	C	F	C	C	F	E	C	E	D	D
Approach Vol, veh/h	1182			801			1523			716		
Approach Delay, s/veh	51.6			56.0			49.5			41.7		
Approach LOS	D			E			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.1	39.9	20.8	44.5	15.1	39.9	19.1	46.2				
Change Period (Y+Rc), s	5.1	6.8	6.3	6.3	5.1	6.8	* 6.1	* 6.3				
Max Green Setting (Gmax), s	10.0	33.0	14.5	38.0	10.0	33.0	* 13	* 40				
Max Q Clear Time (g_c+I), s	10.5	32.3	15.5	31.4	10.0	14.2	13.8	13.8				
Green Ext Time (p_c), s	0.1	0.5	0.0	2.4	0.0	2.0	0.0	1.5				

Intersection Summary

HCM 6th Ctrl Delay 50.0
HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
User approved changes to right turn type.

HCM 6th Signalized Intersection Summary

4: Knoll Rd/Drwy & W. Mission Rd

EX PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1294	163	162	562	4	133	1	241	3	6	3
Future Volume (veh/h)	0	1294	163	162	562	4	133	1	241	3	6	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.96	1.00		0.92
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	1856	1856	1726	1726	1856	1856	1726	1726	1726	1856	1726	1856
Adj Flow Rate, veh/h	0	1438	181	178	618	4	149	0	268	5	10	5
Peak Hour Factor	0.90	0.90	0.90	0.91	0.91	0.91	0.90	0.90	0.90	0.60	0.60	0.60
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	2	1612	647	163	2163	14	698	0	299	19	38	48
Arrive On Green	0.00	0.46	0.46	0.10	0.60	0.60	0.21	0.00	0.21	0.03	0.03	0.03
Sat Flow, veh/h	1767	3526	1416	1643	3590	23	3287	0	1410	566	1132	1445
Grp Volume(v), veh/h	0	1438	181	178	303	319	149	0	268	15	0	5
Grp Sat Flow(s), veh/h/ln	1767	1763	1416	1643	1763	1851	1643	0	1410	1697	0	1445
Q Serve(g_s), s	0.0	41.1	8.7	10.9	9.1	9.1	4.1	0.0	20.3	0.9	0.0	0.4
Cycle Q Clear(g_c), s	0.0	41.1	8.7	10.9	9.1	9.1	4.1	0.0	20.3	0.9	0.0	0.4
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.33		1.00
Lane Grp Cap(c), veh/h	2	1612	647	163	1062	1115	698	0	299	56	0	48
V/C Ratio(X)	0.00	0.89	0.28	1.09	0.29	0.29	0.21	0.00	0.90	0.27	0.00	0.10
Avail Cap(c_a), veh/h	112	1612	647	163	1062	1115	807	0	346	123	0	105
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	27.4	18.6	49.5	10.5	10.5	35.7	0.0	42.1	51.9	0.0	51.6
Incr Delay (d2), s/veh	0.0	7.9	1.1	97.6	0.7	0.6	0.1	0.0	20.9	0.9	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	17.6	2.9	8.7	3.4	3.5	1.6	0.0	8.7	0.4	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	35.3	19.7	147.1	11.2	11.1	35.8	0.0	63.0	52.8	0.0	51.9
LnGrp LOS	A	D	B	F	B	B	D	A	E	D	A	D
Approach Vol, veh/h	1619			800			417			20		
Approach Delay, s/veh	33.6			41.4			53.3			52.6		
Approach LOS	C			D			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	60.0	56.1		8.9	0.0	72.1		29.1				
Change Period (Y+Rc), s	5.1	5.8		* 5.2	4.6	5.8		5.7				
Max Green Setting (Gmax), s	10.0	42.3		* 8	7.0	46.7		27.0				
Max Q Clear Time (g_c+I12), s	11.0	43.1		2.9	0.0	11.1		22.3				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	2.1		0.4				

Intersection Summary

HCM 6th Ctrl Delay 38.8
HCM 6th LOS D

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 5: N. Las Posas Rd & Amorlite Dr

EX PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	0	5	115	0	69	6	1277	182	82	862	2
Future Volume (veh/h)	3	0	5	115	0	69	6	1277	182	82	862	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	4	0	7	122	0	73	7	1419	202	90	947	2
Peak Hour Factor	0.67	0.67	0.67	0.94	0.94	0.94	0.90	0.90	0.90	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	15	0	235	133	0	339	22	2207	314	112	2854	6
Arrive On Green	0.01	0.00	0.16	0.08	0.00	0.22	0.01	0.50	0.50	0.06	0.55	0.55
Sat Flow, veh/h	1767	0	1502	1767	0	1518	1767	4455	634	1767	5219	11
Grp Volume(v), veh/h	4	0	7	122	0	73	7	1076	545	90	613	336
Grp Sat Flow(s), veh/h/ln	1767	0	1502	1767	0	1518	1767	1689	1711	1767	1689	1853
Q Serve(g_s), s	0.2	0.0	0.4	7.5	0.0	4.3	0.4	25.9	26.0	5.5	11.0	11.1
Cycle Q Clear(g_c), s	0.2	0.0	0.4	7.5	0.0	4.3	0.4	25.9	26.0	5.5	11.0	11.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.37	1.00		0.01
Lane Grp Cap(c), veh/h	15	0	235	133	0	339	22	1673	848	112	1847	1013
V/C Ratio(X)	0.27	0.00	0.03	0.91	0.00	0.22	0.32	0.64	0.64	0.80	0.33	0.33
Avail Cap(c_a), veh/h	129	0	533	133	0	542	112	1673	848	112	1847	1013
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.77	0.77	0.77
Uniform Delay (d), s/veh	54.2	0.0	39.3	50.5	0.0	34.8	53.9	20.5	20.6	50.8	13.8	13.8
Incr Delay (d2), s/veh	3.6	0.0	0.0	52.0	0.0	0.1	0.3	0.2	0.3	24.5	0.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.2	5.3	0.0	1.6	0.2	9.4	9.6	3.1	4.0	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.8	0.0	39.3	102.5	0.0	35.0	54.2	20.7	20.9	75.4	14.2	14.5
LnGrp LOS	E	A	D	F	A	C	D	C	C	E	B	B
Approach Vol, veh/h	11				195				1628			
Approach Delay, s/veh	46.1				77.2				20.9			
Approach LOS	D				E				C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.0	60.5	13.8	22.7	7.3	66.1	6.4	30.1				
Change Period (Y+Rc), s	6.0	6.0	5.5	5.5	6.0	6.0	5.5	5.5				
Max Green Setting (Gmax), s	32.7	32.7	8.3	39.0	7.0	32.7	8.0	39.3				
Max Q Clear Time (g_c+I1), s	28.0	28.0	9.5	2.4	2.4	13.1	2.2	6.3				
Green Ext Time (p_c), s	0.0	2.9	0.0	0.0	0.0	3.6	0.0	0.3				

Intersection Summary

HCM 6th Ctrl Delay	24.3
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th Signalized Intersection Summary

7: N. Las Posas Rd & Descanso Ave

EX PM
11/28/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	36	73	205	13	35	67	1473	243	22	1000	20
Future Volume (veh/h)	24	36	73	205	13	35	67	1473	243	22	1000	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.95	1.00		0.95
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	28	42	86	233	15	40	72	1584	261	25	1149	23
Peak Hour Factor	0.85	0.85	0.85	0.88	0.88	0.88	0.93	0.93	0.93	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	203	304	425	955	122	325	88	1429	234	88	1696	34
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.05	0.33	0.33	0.05	0.33	0.33
Sat Flow, veh/h	728	1091	1525	3428	437	1166	1767	4350	713	1767	5106	102
Grp Volume(v), veh/h	70	0	86	233	0	55	72	1228	617	25	760	412
Grp Sat Flow(s),veh/h/ln	1819	0	1525	1714	0	1603	1767	1689	1687	1767	1689	1831
Q Serve(g_s), s	4.0	0.0	6.0	7.4	0.0	3.6	5.6	46.0	46.0	1.9	27.1	27.2
Cycle Q Clear(g_c), s	4.0	0.0	6.0	7.4	0.0	3.6	5.6	46.0	46.0	1.9	27.1	27.2
Prop In Lane	0.40		1.00	1.00		0.73	1.00		0.42	1.00		0.06
Lane Grp Cap(c), veh/h	507	0	425	955	0	446	88	1110	554	88	1122	608
V/C Ratio(X)	0.14	0.00	0.20	0.24	0.00	0.12	0.81	1.11	1.11	0.28	0.68	0.68
Avail Cap(c_a), veh/h	507	0	425	955	0	446	88	1110	554	88	1122	608
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	0.92	0.92	0.92	0.95	0.95	0.95
Uniform Delay (d), s/veh	37.9	0.0	38.6	39.1	0.0	37.7	65.9	47.0	47.0	64.1	40.3	40.3
Incr Delay (d2), s/veh	0.6	0.0	1.1	0.6	0.0	0.6	51.1	60.3	72.0	7.5	3.1	5.7
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	1.9	0.0	2.4	3.2	0.0	1.5	3.8	27.9	29.7	1.0	11.5	12.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.5	0.0	39.7	39.7	0.0	38.3	117.0	107.3	119.0	71.5	43.4	46.0
LnGrp LOS	D	A	D	D	A	D	F	F	F	E	D	D
Approach Vol, veh/h		156			288			1917			1197	
Approach Delay, s/veh		39.1			39.4			111.4			44.9	
Approach LOS		D			D			F			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.5	53.0		45.5	13.0	53.5		45.5				
Change Period (Y+Rc), s	6.5	* 6.5		6.5	6.0	6.5		6.5				
Max Green Setting (Gmax), s	7.0	* 30		39.0	7.0	29.5		39.0				
Max Q Clear Time (g_c+I1), s	3.9	48.0		8.0	7.6	29.2		9.4				
Green Ext Time (p_c), s	0.0	0.0		0.4	0.0	0.2		0.6				

Intersection Summary

HCM 6th Ctrl Delay 80.0
HCM 6th LOS F

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 8: N. Las Posas Rd & SR-78 WB Ramps

EX PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↰	↰		↰	↰		↰	↰	↰
Traffic Volume (veh/h)	0	0	0	273	3	142	357	1375	0	0	846	341
Future Volume (veh/h)	0	0	0	273	3	142	357	1375	0	0	846	341
Initial Q (Qb), 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		0.97
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				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				227	101	154	376	1447	0	0	881	355
Peak Hour Factor				0.92	0.92	0.92	0.95	0.95	0.95	0.96	0.96	0.96
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				313	114	175	411	3619	0	0	1545	620
Arrive On Green				0.18	0.18	0.18	0.47	1.00	0.00	0.00	0.44	0.44
Sat Flow, veh/h				1767	645	984	1767	5233	0	0	3685	1413
Grp Volume(v), veh/h				227	0	255	376	1447	0	0	845	391
Grp Sat Flow(s),veh/h/ln				1767	0	1629	1767	1689	0	0	1689	1554
Q Serve(g_s), s				13.3	0.0	16.8	21.8	0.0	0.0	0.0	20.6	20.7
Cycle Q Clear(g_c), s				13.3	0.0	16.8	21.8	0.0	0.0	0.0	20.6	20.7
Prop In Lane				1.00		0.60	1.00		0.00	0.00		0.91
Lane Grp Cap(c), veh/h				313	0	289	411	3619	0	0	1483	682
V/C Ratio(X)				0.72	0.00	0.88	0.91	0.40	0.00	0.00	0.57	0.57
Avail Cap(c_a), veh/h				384	0	354	535	3619	0	0	1483	682
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.47	0.47	0.00	0.00	0.27	0.27
Uniform Delay (d), s/veh				42.7	0.0	44.1	28.4	0.0	0.0	0.0	23.1	23.1
Incr Delay (d2), s/veh				3.6	0.0	17.1	11.6	0.2	0.0	0.0	0.4	0.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				6.1	0.0	8.1	7.4	0.1	0.0	0.0	7.7	7.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				46.3	0.0	61.3	40.0	0.2	0.0	0.0	23.5	24.1
LnGrp LOS				D	A	E	D	A	A	A	C	C
Approach Vol, veh/h					482			1823			1236	
Approach Delay, s/veh					54.2			8.4			23.7	
Approach LOS					D			A			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		85.4			30.3	55.1		24.6				
Change Period (Y+Rc), s		6.8			* 4.7	6.8		5.1				
Max Green Setting (Gmax), s		74.2			* 33	36.2		23.9				
Max Q Clear Time (g_c+I1), s		2.0			23.8	22.7		18.8				
Green Ext Time (p_c), s		8.1			1.8	4.6		0.7				

Intersection Summary

HCM 6th Ctrl Delay	20.0
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

9: N. Las Posas Rd & Grand Ave

EX PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	344	611	25	46	146	749	45	902	172	342	629	283
Future Volume (veh/h)	344	611	25	46	146	749	45	902	172	342	629	283
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.97	1.00		0.95
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	453	804	33	48	154	788	48	970	185	433	796	358
Peak Hour Factor	0.76	0.76	0.76	0.95	0.95	0.95	0.93	0.93	0.93	0.79	0.79	0.79
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	496	1003	41	145	423	824	117	1332	253	265	1144	712
Arrive On Green	0.14	0.29	0.29	0.08	0.23	0.23	0.07	0.31	0.31	0.05	0.22	0.22
Sat Flow, veh/h	3428	3446	141	1767	1856	2672	1767	4247	807	3428	3526	1495
Grp Volume(v), veh/h	453	411	426	48	154	788	48	771	384	433	796	358
Grp Sat Flow(s),veh/h/ln	1714	1763	1825	1767	1856	1336	1767	1689	1678	1714	1763	1495
Q Serve(g_s), s	14.3	23.7	23.7	2.8	7.7	25.1	2.9	22.3	22.4	8.5	22.9	19.3
Cycle Q Clear(g_c), s	14.3	23.7	23.7	2.8	7.7	25.1	2.9	22.3	22.4	8.5	22.9	19.3
Prop In Lane	1.00		0.08	1.00		1.00	1.00		0.48	1.00		1.00
Lane Grp Cap(c), veh/h	496	513	531	145	423	824	117	1059	526	265	1144	712
V/C Ratio(X)	0.91	0.80	0.80	0.33	0.36	0.96	0.41	0.73	0.73	1.63	0.70	0.50
Avail Cap(c_a), veh/h	496	513	531	145	423	824	117	1059	526	265	1144	712
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	1.00	1.00	0.81	0.81	0.81	1.00	1.00	1.00	0.71	0.71	0.71
Uniform Delay (d), s/veh	46.4	36.1	36.1	47.7	35.7	37.6	49.3	33.6	33.6	52.2	38.0	23.9
Incr Delay (d2), s/veh	23.9	12.5	12.1	4.9	0.2	18.5	10.2	4.4	8.7	297.4	2.5	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	11.6	11.9	1.4	3.4	12.1	1.6	9.3	9.9	14.6	10.5	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.3	48.5	48.2	52.6	35.9	56.1	59.5	38.0	42.3	349.6	40.5	25.7
LnGrp LOS	E	D	D	D	D	E	E	D	D	F	D	C
Approach Vol, veh/h	1290		990				1203		1587			
Approach Delay, s/veh	56.0		52.8				40.2		121.5			
Approach LOS	E		D				D		F			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	41.0	41.0	15.5	38.5	13.8	42.2	22.4	31.6				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	34.5	34.5	9.0	32.0	7.3	35.7	15.9	25.1				
Max Q Clear Time (g_c+I10), s	24.4	24.4	4.8	25.7	4.9	24.9	16.3	27.1				
Green Ext Time (p_c), s	0.0	3.6	0.0	1.8	0.0	3.2	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	72.1
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.
User approved changes to right turn type.

HCM 6th Signalized Intersection Summary

10: Via Vera Cruz & Grand Ave

EX PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↖↑↑↗	↖↑↑↗		↖	↖	↖	↖	↑	↖
Traffic Volume (veh/h)	466	440	120	99	363	10	222	136	82	298	202	280
Future Volume (veh/h)	466	440	120	99	363	10	222	136	82	298	202	280
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	496	468	128	111	408	11	224	246	102	324	220	206
Peak Hour Factor	0.94	0.94	0.94	0.89	0.89	0.89	0.80	0.80	0.80	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	577	1216	771	171	1385	37	274	287	233	364	383	312
Arrive On Green	0.17	0.35	0.35	0.10	0.27	0.27	0.15	0.15	0.15	0.21	0.21	0.21
Sat Flow, veh/h	3428	3526	1530	1767	5067	136	1767	1856	1502	1767	1856	1515
Grp Volume(v), veh/h	496	468	128	111	271	148	224	246	102	324	220	206
Grp Sat Flow(s), veh/h/ln	1714	1763	1530	1767	1689	1826	1767	1856	1502	1767	1856	1515
Q Serve(g_s), s	15.5	11.0	5.0	6.7	7.0	7.0	13.5	14.2	6.8	19.6	11.7	13.7
Cycle Q Clear(g_c), s	15.5	11.0	5.0	6.7	7.0	7.0	13.5	14.2	6.8	19.6	11.7	13.7
Prop In Lane	1.00		1.00	1.00		0.07	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	577	1216	771	171	923	499	274	287	233	364	383	312
V/C Ratio(X)	0.86	0.38	0.17	0.65	0.29	0.30	0.82	0.86	0.44	0.89	0.57	0.66
Avail Cap(c_a), veh/h	639	1216	771	198	923	499	361	380	307	458	481	392
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.5	27.2	15.0	47.9	31.6	31.6	45.0	45.3	42.1	42.4	39.3	40.1
Incr Delay (d2), s/veh	1.3	0.1	0.0	3.7	0.1	0.1	8.1	11.2	0.5	14.2	0.5	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	4.5	2.3	3.0	2.8	3.0	6.4	7.3	2.5	9.7	5.3	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.7	27.3	15.1	51.6	31.7	31.7	53.1	56.5	42.6	56.7	39.8	41.5
LnGrp LOS	D	C	B	D	C	C	D	E	D	E	D	D
Approach Vol, veh/h	1092			530			572			750		
Approach Delay, s/veh	34.2			35.9			52.7			47.6		
Approach LOS	C			D			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.3	44.8		27.8	23.2	36.9		22.1				
Change Period (Y+Rc), s	4.7	6.8		5.1	* 4.7	6.8		5.1				
Max Green Setting (Gmax), s	25.0			28.5	* 21	16.8		22.5				
Max Q Clear Time (g_c+I), s	13.0			21.6	17.5	9.0		16.2				
Green Ext Time (p_c), s	0.0	1.7		1.1	1.1	1.0		0.8				

Intersection Summary

HCM 6th Ctrl Delay	41.5
HCM 6th LOS	D

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.

APPENDIX D

NEAR-TERM (INTERIM YEAR 2025) INTERSECTION ANALYSIS WORKSHEETS

HCM 6th Signalized Intersection Summary

1: N Rancho Santa Fe Rd & W. Mission Rd

EX + C AM
11/28/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	553	294	169	339	0	231	0	122	0	0	0
Future Volume (veh/h)	0	553	294	169	339	0	231	0	122	0	0	0
Initial Q (Qb), 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		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	1856	1856	1856	1856	1856	0	1856	0	1856			
Adj Flow Rate, veh/h	0	700	372	199	399	0	251	0	133			
Peak Hour Factor	0.79	0.79	0.79	0.85	0.85	0.85	0.92	0.92	0.92			
Percent Heavy Veh, %	3	3	3	3	3	0	3	0	3			
Cap, veh/h	88	1075	457	385	1670	0	1037	0	837			
Arrive On Green	0.00	0.31	0.31	0.22	0.47	0.00	0.30	0.00	0.30			
Sat Flow, veh/h	1767	3526	1497	1767	3618	0	3428	0	2768			
Grp Volume(v), veh/h	0	700	372	199	399	0	251	0	133			
Grp Sat Flow(s),veh/h/ln	1767	1763	1497	1767	1763	0	1714	0	1384			
Q Serve(g_s), s	0.0	17.4	23.2	10.0	6.8	0.0	5.6	0.0	3.6			
Cycle Q Clear(g_c), s	0.0	17.4	23.2	10.0	6.8	0.0	5.6	0.0	3.6			
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	88	1075	457	385	1670	0	1037	0	837			
V/C Ratio(X)	0.00	0.65	0.81	0.52	0.24	0.00	0.24	0.00	0.16			
Avail Cap(c_a), veh/h	88	1395	592	385	1989	0	1037	0	837			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	30.4	32.4	34.7	15.8	0.0	26.5	0.0	25.8			
Incr Delay (d2), s/veh	0.0	0.7	6.7	4.9	0.1	0.0	0.6	0.0	0.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	7.0	8.7	4.6	2.5	0.0	2.3	0.0	1.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	31.1	39.1	39.6	15.8	0.0	27.0	0.0	26.2			
LnGrp LOS	A	C	D	D	B	A	C	A	C			
Approach Vol, veh/h	1072			598			384					
Approach Delay, s/veh	33.9			23.7			26.7					
Approach LOS	C			C			C					
Timer - Assigned Phs	1	2			5	6			8			
Phs Duration (G+Y+Rc), s	27.0	36.9			10.0	53.9			37.0			
Change Period (Y+Rc), s	5.0	* 6.1			5.0	* 6.1			6.5			
Max Green Setting (Gmax), s	22.0	* 40			5.0	* 57			30.5			
Max Q Clear Time (g_c+I1), s	12.0	25.2			0.0	8.8			7.6			
Green Ext Time (p_c), s	0.4	5.1			0.0	2.6			1.3			

Intersection Summary

HCM 6th Ctrl Delay	29.6
HCM 6th LOS	C

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.

User approved changes to right turn type.

HCM 6th Signalized Intersection Summary

2: N Pacific St & W. Mission Rd

EX + C AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	618	56	0	528	23	0	0	45	78	0	39
Future Volume (veh/h)	21	618	56	0	528	23	0	0	45	78	0	39
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	1.00		0.97	1.00		0.94
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	1726	1726	1726	0	1726	1726	0	1726	1726	1726	1726	1726
Adj Flow Rate, veh/h	26	754	68	0	677	29	0	0	61	104	0	52
Peak Hour Factor	0.82	0.82	0.82	0.78	0.78	0.78	0.74	0.74	0.74	0.75	0.75	0.75
Percent Heavy Veh, %	3	3	3	0	3	3	0	3	3	3	3	3
Cap, veh/h	154	1212	109	0	790	34	0	0	412	186	0	156
Arrive On Green	0.09	0.40	0.40	0.00	0.25	0.25	0.00	0.00	0.29	0.11	0.00	0.11
Sat Flow, veh/h	1643	3029	273	0	3281	137	0	0	1419	1643	0	1379
Grp Volume(v), veh/h	26	408	414	0	347	359	0	0	61	104	0	52
Grp Sat Flow(s),veh/h/ln	1643	1639	1663	0	1639	1692	0	0	1419	1643	0	1379
Q Serve(g_s), s	1.3	17.2	17.2	0.0	17.5	17.5	0.0	0.0	2.8	5.2	0.0	3.0
Cycle Q Clear(g_c), s	1.3	17.2	17.2	0.0	17.5	17.5	0.0	0.0	2.8	5.2	0.0	3.0
Prop In Lane	1.00		0.16	0.00		0.08	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	154	656	665	0	406	419	0	0	412	186	0	156
V/C Ratio(X)	0.17	0.62	0.62	0.00	0.86	0.86	0.00	0.00	0.15	0.56	0.00	0.33
Avail Cap(c_a), veh/h	154	826	838	0	561	579	0	0	412	477	0	400
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	36.1	20.7	20.7	0.0	31.1	31.1	0.0	0.0	22.8	36.3	0.0	35.3
Incr Delay (d2), s/veh	2.4	0.4	0.4	0.0	7.1	7.0	0.0	0.0	0.8	1.0	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	6.0	6.0	0.0	7.2	7.4	0.0	0.0	1.0	2.1	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.5	21.1	21.1	0.0	38.2	38.1	0.0	0.0	23.5	37.3	0.0	35.8
LnGrp LOS	D	C	C	A	D	D	A	A	C	D	A	D
Approach Vol, veh/h	848			706			61			156		
Approach Delay, s/veh	21.6			38.1			23.5			36.8		
Approach LOS	C			D			C			D		
Timer - Assigned Phs	2		4		5	6	8					
Phs Duration (G+Y+Rc), s	41.4		14.9		13.2	28.2	30.2					
Change Period (Y+Rc), s	* 6.8		5.1		5.1	6.8	5.1					
Max Green Setting (Gmax), s	* 44		25.1		8.1	29.6	25.1					
Max Q Clear Time (g_c+I1), s	19.2		7.2		3.3	19.5	4.8					
Green Ext Time (p_c), s	2.9		0.3		0.0	1.9	0.2					

Intersection Summary

HCM 6th Ctrl Delay	29.6
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary

3: N. Las Posas Rd & W. Mission Rd

EX + C AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	416	77	364	344	138	60	467	304	123	716	46
Future Volume (veh/h)	130	416	77	364	344	138	60	467	304	123	716	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		0.94	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	1856	1856	1726	1726	1856	1856	1726	1726	1726	1856	1726	1856
Adj Flow Rate, veh/h	162	520	96	418	395	159	73	570	371	129	754	48
Peak Hour Factor	0.80	0.80	0.80	0.87	0.87	0.87	0.82	0.82	0.82	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	212	1122	568	385	780	309	137	896	974	286	1235	78
Arrive On Green	0.12	0.32	0.32	0.12	0.32	0.32	0.08	0.27	0.27	0.08	0.27	0.27
Sat Flow, veh/h	1767	3526	1401	3188	2432	963	1643	3279	2424	3428	4517	286
Grp Volume(v), veh/h	162	520	96	418	284	270	73	570	371	129	523	279
Grp Sat Flow(s),veh/h/ln	1767	1763	1401	1594	1763	1633	1643	1639	1212	1714	1570	1662
Q Serve(g_s), s	10.7	14.2	5.3	14.5	15.7	16.1	5.1	18.3	13.1	4.3	17.4	17.6
Cycle Q Clear(g_c), s	10.7	14.2	5.3	14.5	15.7	16.1	5.1	18.3	13.1	4.3	17.4	17.6
Prop In Lane	1.00		1.00	1.00		0.59	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	212	1122	568	385	566	524	137	896	974	286	858	454
V/C Ratio(X)	0.76	0.46	0.17	1.08	0.50	0.51	0.53	0.64	0.38	0.45	0.61	0.61
Avail Cap(c_a), veh/h	212	1122	568	385	566	524	137	902	978	286	864	457
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.93	0.93	0.93	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.2	32.7	23.1	52.8	33.0	33.1	52.8	38.3	26.0	52.4	38.0	38.1
Incr Delay (d2), s/veh	22.6	1.4	0.6	70.6	3.2	3.6	13.1	3.2	1.1	5.1	3.2	6.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	6.1	1.8	9.4	7.0	6.7	2.6	7.5	3.8	2.0	6.9	7.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.8	34.1	23.7	123.3	36.2	36.7	65.9	41.6	27.1	57.5	41.2	44.2
LnGrp LOS	E	C	C	F	D	D	E	D	C	E	D	D
Approach Vol, veh/h	778			972			1014			931		
Approach Delay, s/veh	41.1			73.8			38.0			44.4		
Approach LOS	D			E			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	51.1	39.6	20.8	44.5	15.1	39.6	20.5	44.8				
Change Period (Y+Rc), s	5.1	6.8	6.3	6.3	5.1	6.8	* 6.1	* 6.3				
Max Green Setting (Gmax), s	10.0	33.0	14.5	38.0	10.0	33.0	* 14	* 39				
Max Q Clear Time (g_c+I), s	10.3	20.3	16.5	16.2	7.1	19.6	12.7	18.1				
Green Ext Time (p_c), s	0.1	2.7	0.0	2.1	0.0	2.6	0.0	1.9				

Intersection Summary

HCM 6th Ctrl Delay 49.7
HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
User approved changes to right turn type.

HCM 6th Signalized Intersection Summary

4: Knoll Rd/Drwy & W. Mission Rd

EX + C AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	472	195	241	640	9	178	3	171	3	6	17
Future Volume (veh/h)	5	472	195	241	640	9	178	3	171	3	6	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.95	1.00		0.96	1.00		0.93
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	1856	1856	1726	1726	1856	1856	1726	1726	1726	1856	1726	1856
Adj Flow Rate, veh/h	7	629	260	265	703	10	247	0	234	4	7	21
Peak Hour Factor	0.75	0.75	0.75	0.91	0.91	0.91	0.73	0.73	0.73	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	22	1509	586	179	1883	27	650	0	278	29	51	69
Arrive On Green	0.01	0.43	0.43	0.11	0.53	0.53	0.20	0.00	0.20	0.05	0.05	0.05
Sat Flow, veh/h	1767	3526	1370	1643	3555	51	3287	0	1407	616	1079	1455
Grp Volume(v), veh/h	7	629	260	265	348	365	247	0	234	11	0	21
Grp Sat Flow(s), veh/h/ln	1767	1763	1370	1643	1763	1843	1643	0	1407	1695	0	1455
Q Serve(g_s), s	0.4	12.4	13.4	10.9	11.6	11.6	6.5	0.0	16.0	0.6	0.0	1.4
Cycle Q Clear(g_c), s	0.4	12.4	13.4	10.9	11.6	11.6	6.5	0.0	16.0	0.6	0.0	1.4
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	0.36		1.00
Lane Grp Cap(c), veh/h	22	1509	586	179	934	976	650	0	278	80	0	69
V/C Ratio(X)	0.32	0.42	0.44	1.48	0.37	0.37	0.38	0.00	0.84	0.14	0.00	0.31
Avail Cap(c_a), veh/h	124	1509	586	179	934	976	887	0	380	136	0	116
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	49.0	19.9	20.2	44.5	13.8	13.8	34.8	0.0	38.6	45.7	0.0	46.1
Incr Delay (d2), s/veh	3.1	0.8	2.4	243.2	1.1	1.1	0.1	0.0	8.9	0.3	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	4.9	4.3	16.4	4.4	4.6	2.6	0.0	6.1	0.3	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.0	20.8	22.6	287.7	14.9	14.9	34.9	0.0	47.5	46.0	0.0	47.0
LnGrp LOS	D	C	C	F	B	B	C	A	D	D	A	D
Approach Vol, veh/h	896			978			481			32		
Approach Delay, s/veh	21.5			88.8			41.0			46.6		
Approach LOS	C			F			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	48.6	48.6		9.9	5.8	58.8		25.5				
Change Period (Y+Rc), s	5.1	5.8		* 5.2	4.6	5.8		5.7				
Max Green Setting (Gmax), s	32.3	32.3		* 8	7.0	36.7		27.0				
Max Q Clear Time (g_c+1/2g), s	15.4	15.4		3.4	2.4	13.6		18.0				
Green Ext Time (p_c), s	0.0	2.8		0.0	0.0	2.4		0.7				

Intersection Summary

HCM 6th Ctrl Delay 53.4

HCM 6th LOS D

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

5: N. Las Posas Rd & Armorlite Dr

EX + C AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	15	156	1	43	31	789	116	24	1215	7
Future Volume (veh/h)	1	0	15	156	1	43	31	789	116	24	1215	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	1	0	19	171	1	47	37	939	138	28	1429	8
Peak Hour Factor	0.80	0.80	0.80	0.91	0.91	0.91	0.84	0.84	0.84	0.85	0.85	0.85
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	4	0	241	150	8	363	79	2160	316	67	2494	14
Arrive On Green	0.00	0.00	0.16	0.09	0.24	0.24	0.04	0.49	0.49	0.04	0.48	0.48
Sat Flow, veh/h	1767	0	1504	1767	32	1494	1767	4436	649	1767	5197	29
Grp Volume(v), veh/h	1	0	19	171	0	48	37	714	363	28	929	508
Grp Sat Flow(s),veh/h/ln	1767	0	1504	1767	0	1526	1767	1689	1708	1767	1689	1849
Q Serve(g_s), s	0.1	0.0	1.1	8.5	0.0	2.5	2.0	13.8	13.8	1.5	19.7	19.7
Cycle Q Clear(g_c), s	0.1	0.0	1.1	8.5	0.0	2.5	2.0	13.8	13.8	1.5	19.7	19.7
Prop In Lane	1.00		1.00	1.00		0.98	1.00		0.38	1.00		0.02
Lane Grp Cap(c), veh/h	4	0	241	150	0	371	79	1645	832	67	1621	887
V/C Ratio(X)	0.26	0.00	0.08	1.14	0.00	0.13	0.47	0.43	0.44	0.42	0.57	0.57
Avail Cap(c_a), veh/h	141	0	586	150	0	603	124	1645	832	124	1621	887
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.24	0.24	0.24	0.61	0.61	0.61
Uniform Delay (d), s/veh	49.8	0.0	35.7	45.8	0.0	29.6	46.6	16.7	16.7	47.0	18.7	18.7
Incr Delay (d2), s/veh	12.5	0.0	0.1	115.5	0.0	0.1	0.4	0.2	0.4	0.9	0.9	1.6
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	0.0	0.0	0.4	8.6	0.0	0.9	0.9	4.9	5.0	0.7	7.2	8.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.3	0.0	35.8	161.2	0.0	29.6	47.0	16.9	17.1	48.0	19.6	20.3
LnGrp LOS	E	A	D	F	A	C	D	B	B	D	B	C
Approach Vol, veh/h	20			219			1114			1465		
Approach Delay, s/veh	37.1			132.4			18.0			20.4		
Approach LOS	D			F			B			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.8	54.7	14.0	21.5	10.5	54.0	5.7	29.8				
Change Period (Y+Rc), s	6.0	6.0	5.5	5.5	6.0	6.0	5.5	5.5				
Max Green Setting (Gmax), s	22.5	22.5	8.5	39.0	7.0	22.5	8.0	39.5				
Max Q Clear Time (g_c+I), s	15.8	15.8	10.5	3.1	4.0	21.7	2.1	4.5				
Green Ext Time (p_c), s	0.0	2.6	0.0	0.0	0.0	0.5	0.0	0.2				

Intersection Summary

HCM 6th Ctrl Delay	28.2
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary

7: N. Las Posas Rd & Descanso Ave

EX + C AM
11/28/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	34	119	161	18	26	61	837	131	11	1350	27
Future Volume (veh/h)	14	34	119	161	18	26	61	837	131	11	1350	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.94	1.00		0.94
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	16	40	140	221	25	36	62	845	132	11	1378	28
Peak Hour Factor	0.85	0.85	0.85	0.73	0.73	0.73	0.99	0.99	0.99	0.98	0.98	0.98
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	146	364	425	955	188	270	88	940	146	88	1113	23
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.05	0.21	0.21	0.05	0.22	0.22
Sat Flow, veh/h	523	1307	1525	3428	674	971	1767	4381	679	1767	5103	104
Grp Volume(v), veh/h	56	0	140	221	0	61	62	650	327	11	912	494
Grp Sat Flow(s),veh/h/ln	1829	0	1525	1714	0	1645	1767	1689	1682	1767	1689	1829
Q Serve(g_s), s	3.2	0.0	10.2	7.0	0.0	3.9	4.8	26.2	26.5	0.8	30.5	30.5
Cycle Q Clear(g_c), s	3.2	0.0	10.2	7.0	0.0	3.9	4.8	26.2	26.5	0.8	30.5	30.5
Prop In Lane	0.29		1.00	1.00		0.59	1.00		0.40	1.00		0.06
Lane Grp Cap(c), veh/h	510	0	425	955	0	458	88	725	361	88	737	399
V/C Ratio(X)	0.11	0.00	0.33	0.23	0.00	0.13	0.70	0.90	0.91	0.12	1.24	1.24
Avail Cap(c_a), veh/h	510	0	425	955	0	458	88	725	361	88	737	399
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.96	0.96	0.96	0.80	0.80	0.80
Uniform Delay (d), s/veh	37.6	0.0	40.1	38.9	0.0	37.8	65.5	53.5	53.6	63.6	54.7	54.7
Incr Delay (d2), s/veh	0.4	0.0	2.1	0.6	0.0	0.6	36.2	15.5	27.9	2.3	116.5	123.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	4.1	3.0	0.0	1.7	3.0	12.4	13.8	0.4	24.6	27.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.0	0.0	42.2	39.5	0.0	38.4	101.7	69.0	81.5	65.9	171.2	178.2
LnGrp LOS	D	A	D	D	A	D	F	E	F	E	F	F
Approach Vol, veh/h		196			282			1039			1417	
Approach Delay, s/veh		41.0			39.3			74.9			172.8	
Approach LOS		D			D			E			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.5	36.5		45.5	13.0	37.0		45.5				
Change Period (Y+Rc), s	6.5	* 6.5		6.5	6.0	6.5		6.5				
Max Green Setting (Gmax), s	7.0	* 30		39.0	7.0	29.5		39.0				
Max Q Clear Time (g_c+I1), s	2.8	28.5		12.2	6.8	32.5		9.0				
Green Ext Time (p_c), s	0.0	0.5		0.4	0.0	0.0		0.6				

Intersection Summary

HCM 6th Ctrl Delay 116.5

HCM 6th LOS F

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 8: N. Las Posas Rd & SR-78 WB Ramps

EX + C AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↰	↰		↰	↰			↰	↰
Traffic Volume (veh/h)	0	0	0	511	0	227	205	822	0	0	1438	310
Future Volume (veh/h)	0	0	0	511	0	227	205	822	0	0	1438	310
Initial Q (Qb), 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		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				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				401	216	247	233	934	0	0	1598	344
Peak Hour Factor				0.92	0.92	0.92	0.88	0.88	0.88	0.90	0.90	0.90
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				497	218	249	256	3039	0	0	1696	362
Arrive On Green				0.28	0.28	0.28	0.15	0.60	0.00	0.00	0.41	0.41
Sat Flow, veh/h				1767	776	887	1767	5233	0	0	4325	887
Grp Volume(v), veh/h				401	0	463	233	934	0	0	1295	647
Grp Sat Flow(s),veh/h/ln				1767	0	1663	1767	1689	0	0	1689	1668
Q Serve(g_s), s				21.1	0.0	27.7	13.0	9.0	0.0	0.0	36.8	37.5
Cycle Q Clear(g_c), s				21.1	0.0	27.7	13.0	9.0	0.0	0.0	36.8	37.5
Prop In Lane				1.00		0.53	1.00		0.00	0.00		0.53
Lane Grp Cap(c), veh/h				497	0	467	256	3039	0	0	1378	680
V/C Ratio(X)				0.81	0.00	0.99	0.91	0.31	0.00	0.00	0.94	0.95
Avail Cap(c_a), veh/h				497	0	467	256	3039	0	0	1378	680
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.88	0.88	0.00	0.00	0.09	0.09
Uniform Delay (d), s/veh				33.4	0.0	35.8	42.1	9.8	0.0	0.0	28.4	28.6
Incr Delay (d2), s/veh				8.9	0.0	39.0	31.5	0.2	0.0	0.0	1.7	3.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				10.1	0.0	16.0	7.7	2.9	0.0	0.0	13.8	14.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				42.3	0.0	74.9	73.6	10.0	0.0	0.0	30.2	32.5
LnGrp LOS				D	A	E	E	B	A	A	C	C
Approach Vol, veh/h					864			1167			1942	
Approach Delay, s/veh					59.8			22.7			30.9	
Approach LOS					E			C			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		66.8			19.2	47.6		33.2				
Change Period (Y+Rc), s		6.8			* 4.7	6.8		5.1				
Max Green Setting (Gmax), s		60.0			* 15	40.8		28.1				
Max Q Clear Time (g_c+I1), s		11.0			15.0	39.5		29.7				
Green Ext Time (p_c), s		4.3			0.0	1.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay											34.8	
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

9: N. Las Posas Rd & Grand Ave

EX + C AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	153	193	13	111	180	505	20	404	125	492	726	534
Future Volume (veh/h)	153	193	13	111	180	505	20	404	125	492	726	534
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.97	1.00		0.95
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	210	264	18	123	200	561	24	475	147	566	834	614
Peak Hour Factor	0.73	0.73	0.73	0.90	0.90	0.90	0.85	0.85	0.85	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	595	973	66	145	369	744	217	1205	359	265	945	673
Arrive On Green	0.17	0.29	0.29	0.08	0.20	0.20	0.12	0.31	0.31	0.08	0.27	0.27
Sat Flow, veh/h	3428	3343	226	1767	1856	2663	1767	3843	1144	3428	3526	1491
Grp Volume(v), veh/h	210	138	144	123	200	561	24	415	207	566	834	614
Grp Sat Flow(s),veh/h/ln	1714	1763	1807	1767	1856	1332	1767	1689	1610	1714	1763	1491
Q Serve(g_s), s	5.9	6.6	6.7	7.6	10.6	21.2	1.3	10.6	11.1	8.5	24.9	29.5
Cycle Q Clear(g_c), s	5.9	6.6	6.7	7.6	10.6	21.2	1.3	10.6	11.1	8.5	24.9	29.5
Prop In Lane	1.00		0.13	1.00		1.00	1.00		0.71	1.00		1.00
Lane Grp Cap(c), veh/h	595	513	526	145	369	744	217	1059	505	265	945	673
V/C Ratio(X)	0.35	0.27	0.27	0.85	0.54	0.75	0.11	0.39	0.41	2.14	0.88	0.91
Avail Cap(c_a), veh/h	595	513	526	145	369	744	217	1059	505	265	945	673
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.77	0.77	0.77	1.00	1.00	1.00	0.23	0.23	0.23
Uniform Delay (d), s/veh	40.0	30.0	30.0	49.8	39.5	36.5	42.9	29.5	29.7	50.7	38.6	29.0
Incr Delay (d2), s/veh	1.6	1.3	1.3	35.7	0.7	3.0	1.0	1.1	2.5	514.4	3.1	5.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	2.9	3.0	4.7	4.8	7.0	0.6	4.3	4.5	22.5	10.7	15.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.6	31.3	31.3	85.5	40.2	39.5	43.9	30.6	32.2	565.1	41.7	34.6
LnGrp LOS	D	C	C	F	D	D	D	C	C	F	D	C
Approach Vol, veh/h	492				884		646				2014	
Approach Delay, s/veh	35.7				46.1		31.6				186.6	
Approach LOS	D				D		C				F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	41.0	41.0	15.5	38.5	20.0	36.0	25.6	28.4				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	34.5	34.5	9.0	32.0	13.5	29.5	19.1	21.9				
Max Q Clear Time (g_c+1/10), s	13.1	13.1	9.6	8.7	3.3	31.5	7.9	23.2				
Green Ext Time (p_c), s	0.0	2.3	0.0	0.9	0.0	0.0	0.3	0.0				

Intersection Summary

HCM 6th Ctrl Delay 112.6
HCM 6th LOS F

Notes

User approved changes to right turn type.

HCM 6th Signalized Intersection Summary

10: Via Vera Cruz & Grand Ave

EX + C AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↖↑↑↗			↖	↖	↖	↖	↑	↖
Traffic Volume (veh/h)	405	357	115	57	262	53	66	66	30	161	250	435
Future Volume (veh/h)	405	357	115	57	262	53	66	66	30	161	250	435
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.94	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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	431	380	122	64	294	60	75	75	34	168	260	453
Peak Hour Factor	0.94	0.94	0.94	0.89	0.89	0.89	0.88	0.88	0.88	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	503	963	588	162	921	179	193	203	162	546	573	472
Arrive On Green	0.15	0.27	0.27	0.09	0.22	0.22	0.11	0.11	0.11	0.31	0.31	0.31
Sat Flow, veh/h	3428	3526	1524	1767	4226	823	1767	1856	1481	1767	1856	1528
Grp Volume(v), veh/h	431	380	122	64	232	122	75	75	34	168	260	453
Grp Sat Flow(s), veh/h/ln	1714	1763	1524	1767	1689	1672	1767	1856	1481	1767	1856	1528
Q Serve(g_s), s	12.3	8.8	5.4	3.4	5.8	6.1	3.9	3.8	2.1	7.3	11.3	29.1
Cycle Q Clear(g_c), s	12.3	8.8	5.4	3.4	5.8	6.1	3.9	3.8	2.1	7.3	11.3	29.1
Prop In Lane	1.00		1.00	1.00		0.49	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	503	963	588	162	736	364	193	203	162	546	573	472
V/C Ratio(X)	0.86	0.39	0.21	0.40	0.32	0.33	0.39	0.37	0.21	0.31	0.45	0.96
Avail Cap(c_a), veh/h	531	963	588	194	736	364	194	204	163	546	573	472
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.6	29.6	20.7	42.8	32.8	33.0	41.4	41.3	40.6	26.4	27.8	33.9
Incr Delay (d2), s/veh	1.5	0.1	0.1	0.6	0.1	0.2	0.5	0.4	0.2	0.1	0.2	31.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	3.6	2.2	1.5	2.3	2.4	1.7	1.7	0.8	3.0	4.8	14.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.2	29.7	20.8	43.4	32.9	33.2	41.9	41.8	40.8	26.5	28.0	65.0
LnGrp LOS	D	C	C	D	C	C	D	D	D	C	C	E
Approach Vol, veh/h	933			418			184			881		
Approach Delay, s/veh	34.8			34.6			41.6			46.7		
Approach LOS	C			C			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	3.8	34.1		36.0	19.4	28.6		16.0				
Change Period (Y+Rc), s	4.7	6.8		5.1	* 4.7	6.8		5.1				
Max Green Setting (Gmax), s	25.4			30.9	* 16	20.9		11.0				
Max Q Clear Time (g_c+I), s	10.8			31.1	14.3	8.1		5.9				
Green Ext Time (p_c), s	0.0	1.5		0.0	0.4	1.1		0.2				

Intersection Summary

HCM 6th Ctrl Delay	39.6
HCM 6th LOS	D

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

1: N Rancho Santa Fe Rd & W. Mission Rd

EX + C PM
11/28/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 		 		 			
Traffic Volume (veh/h)	0	912	162	173	408	0	340	0	421	0	0	0
Future Volume (veh/h)	0	912	162	173	408	0	340	0	421	0	0	0
Initial Q (Qb), 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		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	1856	1856	1856	1856	1856	0	1856	0	1856			
Adj Flow Rate, veh/h	0	1126	200	208	492	0	378	0	468			
Peak Hour Factor	0.81	0.81	0.81	0.83	0.83	0.83	0.90	0.90	0.90			
Percent Heavy Veh, %	3	3	3	3	3	0	3	0	3			
Cap, veh/h	85	1312	560	321	1784	0	952	0	768			
Arrive On Green	0.00	0.37	0.37	0.18	0.51	0.00	0.28	0.00	0.28			
Sat Flow, veh/h	1767	3526	1505	1767	3618	0	3428	0	2768			
Grp Volume(v), veh/h	0	1126	200	208	492	0	378	0	468			
Grp Sat Flow(s),veh/h/ln	1767	1763	1505	1767	1763	0	1714	0	1384			
Q Serve(g_s), s	0.0	30.8	10.1	11.4	8.4	0.0	9.4	0.0	15.4			
Cycle Q Clear(g_c), s	0.0	30.8	10.1	11.4	8.4	0.0	9.4	0.0	15.4			
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	85	1312	560	321	1784	0	952	0	768			
V/C Ratio(X)	0.00	0.86	0.36	0.65	0.28	0.00	0.40	0.00	0.61			
Avail Cap(c_a), veh/h	85	1498	639	321	1971	0	952	0	768			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	30.3	23.7	39.6	14.8	0.0	30.6	0.0	32.8			
Incr Delay (d2), s/veh	0.0	4.7	0.4	9.7	0.1	0.0	1.2	0.0	3.6			
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	13.0	3.4	5.6	3.1	0.0	3.9	0.0	5.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	35.0	24.1	49.3	14.9	0.0	31.9	0.0	36.4			
LnGrp LOS	A	C	C	D	B	A	C	A	D			
Approach Vol, veh/h		1326			700			846				
Approach Delay, s/veh		33.3			25.1			34.4				
Approach LOS		C			C			C				
Timer - Assigned Phs	1	2			5	6		8				
Phs Duration (G+Y+Rc), s	24.0	45.0			10.0	59.0		35.5				
Change Period (Y+Rc), s	5.0	* 6.1			5.0	* 6.1		6.5				
Max Green Setting (Gmax), s	19.0	* 44			5.0	* 58		29.0				
Max Q Clear Time (g_c+I1), s	13.4	32.8			0.0	10.4		17.4				
Green Ext Time (p_c), s	0.3	6.1			0.0	3.3		2.7				
Intersection Summary												
HCM 6th Ctrl Delay			31.6									
HCM 6th LOS			C									
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

2: N Pacific St & W. Mission Rd

EX + C PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱↱			↱↱			↱		↰	↱	
Traffic Volume (veh/h)	42	1050	40	0	566	52	0	0	58	39	0	33
Future Volume (veh/h)	42	1050	40	0	566	52	0	0	58	39	0	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.95	1.00		0.99	1.00		0.95
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	1726	1726	1726	0	1726	1726	0	1726	1726	1726	1726	1726
Adj Flow Rate, veh/h	47	1180	45	0	622	57	0	0	77	44	0	38
Peak Hour Factor	0.89	0.89	0.89	0.91	0.91	0.91	0.75	0.75	0.75	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	0	3	3	0	3	3	3	3	3
Cap, veh/h	121	1242	47	0	805	74	0	0	331	376	0	318
Arrive On Green	0.07	0.39	0.39	0.00	0.27	0.27	0.00	0.00	0.23	0.23	0.00	0.23
Sat Flow, veh/h	1643	3213	122	0	3107	276	0	0	1443	1643	0	1388
Grp Volume(v), veh/h	47	602	623	0	337	342	0	0	77	44	0	38
Grp Sat Flow(s),veh/h/ln	1643	1639	1696	0	1639	1658	0	0	1443	1643	0	1388
Q Serve(g_s), s	3.0	39.0	39.0	0.0	20.8	20.9	0.0	0.0	4.8	2.3	0.0	2.4
Cycle Q Clear(g_c), s	3.0	39.0	39.0	0.0	20.8	20.9	0.0	0.0	4.8	2.3	0.0	2.4
Prop In Lane	1.00		0.07	0.00		0.17	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	121	634	656	0	437	442	0	0	331	376	0	318
V/C Ratio(X)	0.39	0.95	0.95	0.00	0.77	0.77	0.00	0.00	0.23	0.12	0.00	0.12
Avail Cap(c_a), veh/h	121	652	675	0	443	448	0	0	331	376	0	318
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	48.4	32.6	32.6	0.0	37.1	37.2	0.0	0.0	34.4	33.5	0.0	33.5
Incr Delay (d2), s/veh	9.1	22.8	22.5	0.0	7.3	7.4	0.0	0.0	1.6	0.6	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	18.4	19.0	0.0	8.9	9.0	0.0	0.0	1.8	1.0	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.4	55.3	55.1	0.0	44.4	44.5	0.0	0.0	36.0	34.1	0.0	34.2
LnGrp LOS	E	E	E	A	D	D	A	A	D	C	A	C
Approach Vol, veh/h	1272			679			77			82		
Approach Delay, s/veh	55.3			44.5			36.0			34.2		
Approach LOS	E			D			D			C		
Timer - Assigned Phs	2			4		5	6		8			
Phs Duration (G+Y+Rc), s	49.2			30.2		13.2	36.0		30.2			
Change Period (Y+Rc), s	* 6.8			5.1		5.1	6.8		5.1			
Max Green Setting (Gmax), s	* 44			25.1		8.1	29.6		25.1			
Max Q Clear Time (g_c+I1), s	41.0			4.4		5.0	22.9		6.8			
Green Ext Time (p_c), s	1.3			0.2		0.0	1.5		0.2			

Intersection Summary

HCM 6th Ctrl Delay 50.3

HCM 6th LOS D

Notes

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

HCM 6th Signalized Intersection Summary

3: N. Las Posas Rd & W. Mission Rd

EX + C PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	182	904	112	392	349	98	125	839	517	126	524	49
Future Volume (veh/h)	182	904	112	392	349	98	125	839	517	126	524	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.95	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	1856	1856	1726	1726	1856	1856	1726	1726	1726	1856	1726	1856
Adj Flow Rate, veh/h	192	952	118	408	364	102	147	987	608	143	595	56
Peak Hour Factor	0.95	0.95	0.95	0.96	0.96	0.96	0.85	0.85	0.85	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	191	1122	573	385	901	249	137	1082	1121	286	1443	134
Arrive On Green	0.11	0.32	0.32	0.12	0.33	0.33	0.08	0.33	0.33	0.08	0.33	0.33
Sat Flow, veh/h	1767	3526	1419	3188	2710	748	1643	3279	2456	3428	4373	407
Grp Volume(v), veh/h	192	952	118	408	235	231	147	987	608	143	425	226
Grp Sat Flow(s),veh/h/ln	1767	1763	1419	1594	1763	1694	1643	1639	1228	1714	1570	1639
Q Serve(g_s), s	13.0	30.3	6.5	14.5	12.3	12.7	10.0	34.6	21.7	4.8	12.6	12.8
Cycle Q Clear(g_c), s	13.0	30.3	6.5	14.5	12.3	12.7	10.0	34.6	21.7	4.8	12.6	12.8
Prop In Lane	1.00		1.00	1.00		0.44	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	191	1122	573	385	586	563	137	1082	1121	286	1036	541
V/C Ratio(X)	1.00	0.85	0.21	1.06	0.40	0.41	1.07	0.91	0.54	0.50	0.41	0.42
Avail Cap(c_a), veh/h	191	1122	573	385	586	563	137	1082	1121	286	1036	541
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.69	0.69	0.69	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.5	38.2	23.4	52.8	30.8	31.0	55.0	38.5	24.0	52.6	31.2	31.2
Incr Delay (d2), s/veh	65.8	8.0	0.8	62.3	2.0	2.2	84.7	9.6	1.3	6.1	1.2	2.4
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	13.7	2.2	9.0	5.4	5.3	7.3	14.7	6.2	2.3	4.8	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	119.3	46.2	24.2	115.1	32.9	33.2	139.7	48.1	25.4	58.8	32.4	33.6
LnGrp LOS	F	D	C	F	C	C	F	D	C	E	C	C
Approach Vol, veh/h	1262			874			1742			794		
Approach Delay, s/veh	55.3			71.3			47.9			37.5		
Approach LOS	E			E			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.1	46.6	20.8	44.5	15.1	46.6	19.1	46.2				
Change Period (Y+Rc), s	5.1	6.8	6.3	6.3	5.1	6.8	* 6.1	* 6.3				
Max Green Setting (Gmax), s	10.0	33.0	14.5	38.0	10.0	33.0	* 13	* 40				
Max Q Clear Time (g_c+I), s	10.8	36.6	16.5	32.3	12.0	14.8	15.0	14.7				
Green Ext Time (p_c), s	0.1	0.0	0.0	2.3	0.0	2.3	0.0	1.6				

Intersection Summary

HCM 6th Ctrl Delay 52.5
HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
User approved changes to right turn type.

HCM 6th Signalized Intersection Summary

4: Knoll Rd/Drwy & W. Mission Rd

EX + C PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	1345	176	167	611	4	151	1	251	3	6	3
Future Volume (veh/h)	5	1345	176	167	611	4	151	1	251	3	6	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.96	1.00		0.92
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	1856	1856	1726	1726	1856	1856	1726	1726	1726	1856	1726	1856
Adj Flow Rate, veh/h	6	1494	196	184	671	4	169	0	279	5	10	5
Peak Hour Factor	0.90	0.90	0.90	0.91	0.91	0.91	0.90	0.90	0.90	0.60	0.60	0.60
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	19	1589	638	163	1953	12	719	0	309	19	38	48
Arrive On Green	0.01	0.45	0.45	0.10	0.54	0.54	0.22	0.00	0.22	0.03	0.03	0.03
Sat Flow, veh/h	1767	3526	1416	1643	3592	21	3287	0	1411	566	1132	1445
Grp Volume(v), veh/h	6	1494	196	184	329	346	169	0	279	15	0	5
Grp Sat Flow(s), veh/h/ln	1767	1763	1416	1643	1763	1851	1643	0	1411	1697	0	1445
Q Serve(g_s), s	0.4	44.4	9.7	10.9	11.5	11.5	4.7	0.0	21.2	0.9	0.0	0.4
Cycle Q Clear(g_c), s	0.4	44.4	9.7	10.9	11.5	11.5	4.7	0.0	21.2	0.9	0.0	0.4
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.33		1.00
Lane Grp Cap(c), veh/h	19	1589	638	163	958	1006	719	0	309	56	0	48
V/C Ratio(X)	0.32	0.94	0.31	1.13	0.34	0.34	0.24	0.00	0.90	0.27	0.00	0.10
Avail Cap(c_a), veh/h	112	1589	638	163	958	1006	807	0	346	123	0	105
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.0	28.8	19.3	49.5	14.1	14.1	35.4	0.0	41.8	51.9	0.0	51.6
Incr Delay (d2), s/veh	3.5	12.2	1.2	109.7	1.0	0.9	0.1	0.0	23.0	0.9	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	19.9	3.2	9.3	4.4	4.7	1.9	0.0	9.2	0.4	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.6	41.0	20.5	159.2	15.1	15.0	35.5	0.0	64.9	52.8	0.0	51.9
LnGrp LOS	E	D	C	F	B	B	D	A	E	D	A	D
Approach Vol, veh/h	1696			859			448			20		
Approach Delay, s/veh	38.7			45.9			53.8			52.6		
Approach LOS	D			D			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	60.0	55.4		8.9	5.8	65.6		29.8				
Change Period (Y+Rc), s	5.1	5.8		* 5.2	4.6	5.8		5.7				
Max Green Setting (Gmax), s	10.0	42.3		* 8	7.0	46.7		27.0				
Max Q Clear Time (g_c+1/2g), s	11.0	46.4		2.9	2.4	13.5		23.2				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	2.3		0.4				

Intersection Summary

HCM 6th Ctrl Delay	43.1
HCM 6th LOS	D

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 5: N. Las Posas Rd & Amorlite Dr

EX + C PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	0	5	117	0	72	6	1469	186	90	1003	2
Future Volume (veh/h)	3	0	5	117	0	72	6	1469	186	90	1003	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	4	0	7	124	0	77	7	1632	207	99	1102	2
Peak Hour Factor	0.67	0.67	0.67	0.94	0.94	0.94	0.90	0.90	0.90	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	15	0	236	133	0	340	22	2241	283	112	2852	5
Arrive On Green	0.01	0.00	0.16	0.08	0.00	0.22	0.01	0.49	0.49	0.06	0.55	0.55
Sat Flow, veh/h	1767	0	1503	1767	0	1518	1767	4530	572	1767	5221	9
Grp Volume(v), veh/h	4	0	7	124	0	77	7	1215	624	99	713	391
Grp Sat Flow(s),veh/h/ln1767	0	1503	1767	0	1518	1767	1689	1725	1767	1689	1853	
Q Serve(g_s), s	0.2	0.0	0.4	7.7	0.0	4.6	0.4	31.2	31.5	6.1	13.4	13.4
Cycle Q Clear(g_c), s	0.2	0.0	0.4	7.7	0.0	4.6	0.4	31.2	31.5	6.1	13.4	13.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.33	1.00		0.01
Lane Grp Cap(c), veh/h	15	0	236	133	0	340	22	1671	854	112	1845	1012
V/C Ratio(X)	0.27	0.00	0.03	0.93	0.00	0.23	0.32	0.73	0.73	0.88	0.39	0.39
Avail Cap(c_a), veh/h	129	0	533	133	0	542	112	1671	854	112	1845	1012
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.69	0.69	0.69
Uniform Delay (d), s/veh	54.2	0.0	39.3	50.6	0.0	34.9	53.9	21.9	22.0	51.1	14.4	14.4
Incr Delay (d2), s/veh	3.6	0.0	0.0	56.1	0.0	0.1	0.3	0.3	0.5	37.4	0.4	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln0.1	0.0	0.0	0.2	5.5	0.0	1.7	0.2	11.3	11.7	3.8	4.8	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.8	0.0	39.3	106.7	0.0	35.0	54.2	22.2	22.5	88.5	14.8	15.1
LnGrp LOS	E	A	D	F	A	D	D	C	C	F	B	B
Approach Vol, veh/h	11				201				1846			
Approach Delay, s/veh	46.0				79.2				22.4			
Approach LOS	D				E				C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.0	60.4	13.8	22.8	7.3	66.1	6.4	30.1				
Change Period (Y+Rc), s	6.0	6.0	5.5	5.5	6.0	6.0	5.5	5.5				
Max Green Setting (Gmax), s	32.7	8.3	39.0	7.0	32.7	8.0	39.3					
Max Q Clear Time (g_c+I), s	33.5	9.7	2.4	2.4	15.4	2.2	6.6					
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	4.1	0.0	0.3				

Intersection Summary

HCM 6th Ctrl Delay	25.5
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th Signalized Intersection Summary

7: N. Las Posas Rd & Descanso Ave

EX + C PM
11/28/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	37	74	219	13	36	68	1669	271	22	1144	20
Future Volume (veh/h)	24	37	74	219	13	36	68	1669	271	22	1144	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.95	1.00		0.95
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	28	44	87	249	15	41	73	1795	291	25	1315	23
Peak Hour Factor	0.85	0.85	0.85	0.88	0.88	0.88	0.93	0.93	0.93	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	197	310	425	955	119	327	88	1435	230	88	1701	30
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.05	0.33	0.33	0.05	0.33	0.33
Sat Flow, veh/h	708	1112	1525	3428	429	1172	1767	4368	699	1767	5122	90
Grp Volume(v), veh/h	72	0	87	249	0	56	73	1383	703	25	867	471
Grp Sat Flow(s),veh/h/ln	1820	0	1525	1714	0	1601	1767	1689	1690	1767	1689	1834
Q Serve(g_s), s	4.2	0.0	6.1	7.9	0.0	3.7	5.7	46.0	46.0	1.9	32.3	32.3
Cycle Q Clear(g_c), s	4.2	0.0	6.1	7.9	0.0	3.7	5.7	46.0	46.0	1.9	32.3	32.3
Prop In Lane	0.39		1.00	1.00		0.73	1.00		0.41	1.00		0.05
Lane Grp Cap(c), veh/h	507	0	425	955	0	446	88	1110	555	88	1122	609
V/C Ratio(X)	0.14	0.00	0.20	0.26	0.00	0.13	0.83	1.25	1.27	0.28	0.77	0.77
Avail Cap(c_a), veh/h	507	0	425	955	0	446	88	1110	555	88	1122	609
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.87	0.87	0.87	0.93	0.93	0.93
Uniform Delay (d), s/veh	37.9	0.0	38.6	39.3	0.0	37.8	65.9	47.0	47.0	64.1	42.0	42.0
Incr Delay (d2), s/veh	0.6	0.0	1.1	0.7	0.0	0.6	51.0	117.4	132.2	7.3	4.9	8.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	2.4	3.5	0.0	1.5	3.8	36.7	39.0	1.0	13.8	15.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.5	0.0	39.7	39.9	0.0	38.3	116.9	164.4	179.2	71.4	46.9	50.6
LnGrp LOS	D	A	D	D	A	D	F	F	F	E	D	D
Approach Vol, veh/h		159			305			2159			1363	
Approach Delay, s/veh		39.2			39.7			167.7			48.6	
Approach LOS		D			D			F			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.5	53.0		45.5	13.0	53.5		45.5				
Change Period (Y+Rc), s	6.5	* 6.5		6.5	6.0	6.5		6.5				
Max Green Setting (Gmax), s	7.0	* 30		39.0	7.0	29.5		39.0				
Max Q Clear Time (g_c+I1), s	3.9	48.0		8.1	7.7	34.3		9.9				
Green Ext Time (p_c), s	0.0	0.0		0.4	0.0	0.0		0.7				

Intersection Summary

HCM 6th Ctrl Delay 112.0
HCM 6th LOS F

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 8: N. Las Posas Rd & SR-78 WB Ramps

EX + C PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↰	↰		↰	↰			↰	↰
Traffic Volume (veh/h)	0	0	0	412	3	215	412	1523	0	0	979	364
Future Volume (veh/h)	0	0	0	412	3	215	412	1523	0	0	979	364
Initial Q (Qb), 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		0.97
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				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				342	151	234	434	1603	0	0	1020	379
Peak Hour Factor				0.92	0.92	0.92	0.95	0.95	0.95	0.96	0.96	0.96
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				384	139	216	463	3417	0	0	1333	495
Arrive On Green				0.22	0.22	0.22	0.52	1.00	0.00	0.00	0.37	0.37
Sat Flow, veh/h				1767	641	993	1767	5233	0	0	3770	1339
Grp Volume(v), veh/h				342	0	385	434	1603	0	0	956	443
Grp Sat Flow(s),veh/h/ln				1767	0	1634	1767	1689	0	0	1689	1565
Q Serve(g_s), s				20.7	0.0	23.9	25.3	0.0	0.0	0.0	27.4	27.4
Cycle Q Clear(g_c), s				20.7	0.0	23.9	25.3	0.0	0.0	0.0	27.4	27.4
Prop In Lane				1.00		0.61	1.00		0.00	0.00		0.86
Lane Grp Cap(c), veh/h				384	0	355	463	3417	0	0	1249	579
V/C Ratio(X)				0.89	0.00	1.08	0.94	0.47	0.00	0.00	0.77	0.77
Avail Cap(c_a), veh/h				384	0	355	535	3417	0	0	1249	579
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.31	0.31	0.00	0.00	0.09	0.09
Uniform Delay (d), s/veh				41.8	0.0	43.1	25.3	0.0	0.0	0.0	30.5	30.5
Incr Delay (d2), s/veh				21.3	0.0	72.3	10.5	0.1	0.0	0.0	0.4	0.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				11.2	0.0	16.7	7.7	0.0	0.0	0.0	10.5	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				63.1	0.0	115.4	35.8	0.1	0.0	0.0	30.9	31.4
LnGrp LOS				E	A	F	D	A	A	A	C	C
Approach Vol, veh/h						727		2037			1399	
Approach Delay, s/veh						90.8		7.7			31.0	
Approach LOS						F		A			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		81.0			33.5	47.5		29.0				
Change Period (Y+Rc), s		6.8			* 4.7	6.8		5.1				
Max Green Setting (Gmax), s		74.2			* 33	36.2		23.9				
Max Q Clear Time (g_c+I1), s		2.0			27.3	29.4		25.9				
Green Ext Time (p_c), s		9.6			1.5	3.5		0.0				

Intersection Summary

HCM 6th Ctrl Delay	30.1
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

9: N. Las Posas Rd & Grand Ave

EX + C PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	351	623	26	74	149	891	46	961	199	510	734	289
Future Volume (veh/h)	351	623	26	74	149	891	46	961	199	510	734	289
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.97	1.00		0.95
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	462	820	34	78	157	938	49	1033	214	646	929	366
Peak Hour Factor	0.76	0.76	0.76	0.95	0.95	0.95	0.93	0.93	0.93	0.79	0.79	0.79
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	496	1002	42	145	423	824	117	1310	271	265	1144	712
Arrive On Green	0.14	0.29	0.29	0.08	0.23	0.23	0.07	0.31	0.31	0.05	0.22	0.22
Sat Flow, veh/h	3428	3445	143	1767	1856	2672	1767	4178	864	3428	3526	1495
Grp Volume(v), veh/h	462	420	434	78	157	938	49	835	412	646	929	366
Grp Sat Flow(s),veh/h/ln	1714	1763	1825	1767	1856	1336	1767	1689	1665	1714	1763	1495
Q Serve(g_s), s	14.7	24.4	24.4	4.7	7.8	25.1	2.9	24.8	24.9	8.5	27.5	19.8
Cycle Q Clear(g_c), s	14.7	24.4	24.4	4.7	7.8	25.1	2.9	24.8	24.9	8.5	27.5	19.8
Prop In Lane	1.00		0.08	1.00		1.00	1.00		0.52	1.00		1.00
Lane Grp Cap(c), veh/h	496	513	531	145	423	824	117	1059	522	265	1144	712
V/C Ratio(X)	0.93	0.82	0.82	0.54	0.37	1.14	0.42	0.79	0.79	2.44	0.81	0.51
Avail Cap(c_a), veh/h	496	513	531	145	423	824	117	1059	522	265	1144	712
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	1.00	1.00	0.65	0.65	0.65	1.00	1.00	1.00	0.39	0.39	0.39
Uniform Delay (d), s/veh	46.5	36.3	36.3	48.5	35.8	38.3	49.3	34.4	34.4	52.2	39.9	24.1
Incr Delay (d2), s/veh	26.7	13.6	13.2	9.1	0.1	72.5	10.6	5.9	11.5	651.8	2.6	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	12.0	12.4	2.4	3.5	18.9	1.6	10.5	11.2	27.6	12.6	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.2	49.8	49.5	57.6	35.9	110.8	59.9	40.4	46.0	703.9	42.4	25.1
LnGrp LOS	E	D	D	E	D	F	E	D	D	F	D	C
Approach Vol, veh/h	1316			1173			1296			1941		
Approach Delay, s/veh	57.9			97.3			42.9			259.3		
Approach LOS	E			F			D			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	41.0	41.0	15.5	38.5	13.8	42.2	22.4	31.6				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	34.5	34.5	9.0	32.0	7.3	35.7	15.9	25.1				
Max Q Clear Time (g_c+110), s	26.9	26.9	6.7	26.4	4.9	29.5	16.7	27.1				
Green Ext Time (p_c), s	0.0	3.3	0.0	1.7	0.0	2.7	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 130.8

HCM 6th LOS F

Notes

User approved pedestrian interval to be less than phase max green.

User approved changes to right turn type.

HCM 6th Signalized Intersection Summary

10: Via Vera Cruz & Grand Ave

EX + C PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑↑	↗	↔	↗	↗	↗	↑	↗
Traffic Volume (veh/h)	532	568	131	101	444	83	243	139	84	343	206	348
Future Volume (veh/h)	532	568	131	101	444	83	243	139	84	343	206	348
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	566	604	139	113	499	26	239	265	105	373	224	248
Peak Hour Factor	0.94	0.94	0.94	0.89	0.89	0.89	0.80	0.80	0.80	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	626	1092	732	171	1102	57	291	305	248	409	430	352
Arrive On Green	0.18	0.31	0.31	0.10	0.22	0.22	0.16	0.16	0.16	0.23	0.23	0.23
Sat Flow, veh/h	3428	3526	1528	1767	4922	254	1767	1856	1505	1767	1856	1519
Grp Volume(v), veh/h	566	604	139	113	341	184	239	265	105	373	224	248
Grp Sat Flow(s), veh/h/ln	1714	1763	1528	1767	1689	1799	1767	1856	1505	1767	1856	1519
Q Serve(g_s), s	17.8	15.7	5.8	6.8	9.6	9.7	14.4	15.3	6.9	22.6	11.6	16.5
Cycle Q Clear(g_c), s	17.8	15.7	5.8	6.8	9.6	9.7	14.4	15.3	6.9	22.6	11.6	16.5
Prop In Lane	1.00		1.00	1.00		0.14	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	626	1092	732	171	756	403	291	305	248	409	430	352
V/C Ratio(X)	0.90	0.55	0.19	0.66	0.45	0.46	0.82	0.87	0.42	0.91	0.52	0.70
Avail Cap(c_a), veh/h	639	1092	732	198	756	403	361	380	308	458	481	394
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.0	31.6	16.7	47.9	36.9	36.9	44.4	44.8	41.3	41.2	36.9	38.8
Incr Delay (d2), s/veh	2.0	0.2	0.1	4.2	0.2	0.3	9.6	13.9	0.4	19.9	0.4	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	6.5	2.7	3.1	3.9	4.2	6.9	8.0	2.5	11.8	5.2	6.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.0	31.8	16.8	52.2	37.0	37.2	54.0	58.7	41.7	61.0	37.3	42.6
LnGrp LOS	D	C	B	D	D	D	D	E	D	E	D	D
Approach Vol, veh/h	1309			638			609			845		
Approach Delay, s/veh	36.4			39.7			53.9			49.3		
Approach LOS	D			D			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	40.9			30.6	24.8	31.4		23.2				
Change Period (Y+Rc), s	4.7	6.8		5.1	* 4.7	6.8		5.1				
Max Green Setting (Gmax), s	25.0			28.5	* 21	16.8		22.5				
Max Q Clear Time (g_c+I), s	17.7			24.6	19.8	11.7		17.3				
Green Ext Time (p_c), s	0.0	1.8		0.9	0.3	1.0		0.8				

Intersection Summary

HCM 6th Ctrl Delay	43.4
HCM 6th LOS	D

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.

APPENDIX E

NEAR-TERM (INTERIM YEAR 2025) + PROJECT INTERSECTION ANALYSIS WORKSHEETS

HCM 6th Signalized Intersection Summary

1: N Rancho Santa Fe Rd & W. Mission Rd

EX + C + P AM

11/28/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	554	294	171	343	0	231	0	123	0	0	0
Future Volume (veh/h)	0	554	294	171	343	0	231	0	123	0	0	0
Initial Q (Qb), 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		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	1856	1856	1856	1856	1856	0	1856	0	1856			
Adj Flow Rate, veh/h	0	701	372	201	404	0	251	0	134			
Peak Hour Factor	0.79	0.79	0.79	0.85	0.85	0.85	0.92	0.92	0.92			
Percent Heavy Veh, %	3	3	3	3	3	0	3	0	3			
Cap, veh/h	88	1075	457	385	1670	0	1037	0	837			
Arrive On Green	0.00	0.31	0.31	0.22	0.47	0.00	0.30	0.00	0.30			
Sat Flow, veh/h	1767	3526	1497	1767	3618	0	3428	0	2768			
Grp Volume(v), veh/h	0	701	372	201	404	0	251	0	134			
Grp Sat Flow(s),veh/h/ln	1767	1763	1497	1767	1763	0	1714	0	1384			
Q Serve(g_s), s	0.0	17.4	23.2	10.1	6.9	0.0	5.6	0.0	3.6			
Cycle Q Clear(g_c), s	0.0	17.4	23.2	10.1	6.9	0.0	5.6	0.0	3.6			
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	88	1075	457	385	1670	0	1037	0	837			
V/C Ratio(X)	0.00	0.65	0.81	0.52	0.24	0.00	0.24	0.00	0.16			
Avail Cap(c_a), veh/h	88	1395	592	385	1989	0	1037	0	837			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	30.4	32.4	34.8	15.8	0.0	26.5	0.0	25.8			
Incr Delay (d2), s/veh	0.0	0.7	6.7	5.0	0.1	0.0	0.6	0.0	0.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	7.1	8.7	4.7	2.6	0.0	2.3	0.0	1.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	31.1	39.1	39.8	15.9	0.0	27.0	0.0	26.2			
LnGrp LOS	A	C	D	D	B	A	C	A	C			
Approach Vol, veh/h	1073			605			385					
Approach Delay, s/veh	33.9			23.8			26.7					
Approach LOS	C			C			C					
Timer - Assigned Phs	1	2			5	6		8				
Phs Duration (G+Y+Rc), s	27.0	36.9			10.0	53.9		37.0				
Change Period (Y+Rc), s	5.0	* 6.1			5.0	* 6.1		6.5				
Max Green Setting (Gmax), s	22.0	* 40			5.0	* 57		30.5				
Max Q Clear Time (g_c+I1), s	12.1	25.2			0.0	8.9		7.6				
Green Ext Time (p_c), s	0.4	5.1			0.0	2.6		1.3				

Intersection Summary

HCM 6th Ctrl Delay	29.6
HCM 6th LOS	C

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.

User approved changes to right turn type.

HCM 6th Signalized Intersection Summary

2: N Pacific St & W. Mission Rd

EX + C + P AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱↱			↱↱			↱		↰	↱	
Traffic Volume (veh/h)	21	620	56	0	534	23	0	0	45	78	0	39
Future Volume (veh/h)	21	620	56	0	534	23	0	0	45	78	0	39
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	1.00		0.97	1.00		0.94
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	1726	1726	1726	0	1726	1726	0	1726	1726	1726	1726	1726
Adj Flow Rate, veh/h	26	756	68	0	685	29	0	0	61	104	0	52
Peak Hour Factor	0.82	0.82	0.82	0.78	0.78	0.78	0.74	0.74	0.74	0.75	0.75	0.75
Percent Heavy Veh, %	3	3	3	0	3	3	0	3	3	3	3	3
Cap, veh/h	153	1217	109	0	798	34	0	0	411	186	0	156
Arrive On Green	0.09	0.40	0.40	0.00	0.25	0.25	0.00	0.00	0.29	0.11	0.00	0.11
Sat Flow, veh/h	1643	3030	272	0	3283	135	0	0	1419	1643	0	1379
Grp Volume(v), veh/h	26	409	415	0	351	363	0	0	61	104	0	52
Grp Sat Flow(s),veh/h/ln	1643	1639	1663	0	1639	1692	0	0	1419	1643	0	1379
Q Serve(g_s), s	1.3	17.2	17.3	0.0	17.7	17.8	0.0	0.0	2.8	5.2	0.0	3.0
Cycle Q Clear(g_c), s	1.3	17.2	17.3	0.0	17.7	17.8	0.0	0.0	2.8	5.2	0.0	3.0
Prop In Lane	1.00		0.16	0.00		0.08	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	153	659	668	0	409	422	0	0	411	186	0	156
V/C Ratio(X)	0.17	0.62	0.62	0.00	0.86	0.86	0.00	0.00	0.15	0.56	0.00	0.33
Avail Cap(c_a), veh/h	153	824	836	0	559	577	0	0	411	476	0	399
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	36.2	20.7	20.7	0.0	31.1	31.1	0.0	0.0	22.9	36.4	0.0	35.5
Incr Delay (d2), s/veh	2.4	0.4	0.4	0.0	7.5	7.4	0.0	0.0	0.8	1.0	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	6.0	6.1	0.0	7.3	7.6	0.0	0.0	1.0	2.1	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.6	21.0	21.0	0.0	38.6	38.5	0.0	0.0	23.7	37.4	0.0	35.9
LnGrp LOS	D	C	C	A	D	D	A	A	C	D	A	D
Approach Vol, veh/h	850			714			61			156		
Approach Delay, s/veh	21.6			38.5			23.7			36.9		
Approach LOS	C			D			C			D		
Timer - Assigned Phs	2			4		5	6		8			
Phs Duration (G+Y+Rc), s	41.7			14.9		13.2	28.5		30.2			
Change Period (Y+Rc), s	* 6.8			5.1		5.1	6.8		5.1			
Max Green Setting (Gmax), s	* 44			25.1		8.1	29.6		25.1			
Max Q Clear Time (g_c+I1), s	19.3			7.2		3.3	19.8		4.8			
Green Ext Time (p_c), s	2.9			0.3		0.0	1.9		0.2			

Intersection Summary

HCM 6th Ctrl Delay	29.8
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary

3: N. Las Posas Rd & W. Mission Rd

EX + C + P AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	416	79	366	344	138	66	467	311	123	716	46
Future Volume (veh/h)	130	416	79	366	344	138	66	467	311	123	716	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		0.94	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	1856	1856	1726	1726	1856	1856	1726	1726	1726	1856	1726	1856
Adj Flow Rate, veh/h	162	520	99	421	395	159	80	570	379	129	754	48
Peak Hour Factor	0.80	0.80	0.80	0.87	0.87	0.87	0.82	0.82	0.82	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	212	1122	568	385	780	309	137	896	974	286	1235	78
Arrive On Green	0.12	0.32	0.32	0.12	0.32	0.32	0.08	0.27	0.27	0.08	0.27	0.27
Sat Flow, veh/h	1767	3526	1401	3188	2432	963	1643	3279	2424	3428	4517	286
Grp Volume(v), veh/h	162	520	99	421	284	270	80	570	379	129	523	279
Grp Sat Flow(s),veh/h/ln	1767	1763	1401	1594	1763	1633	1643	1639	1212	1714	1570	1662
Q Serve(g_s), s	10.7	14.2	5.5	14.5	15.7	16.1	5.6	18.3	13.5	4.3	17.4	17.6
Cycle Q Clear(g_c), s	10.7	14.2	5.5	14.5	15.7	16.1	5.6	18.3	13.5	4.3	17.4	17.6
Prop In Lane	1.00		1.00	1.00		0.59	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	212	1122	568	385	566	524	137	896	974	286	858	454
V/C Ratio(X)	0.76	0.46	0.17	1.09	0.50	0.51	0.58	0.64	0.39	0.45	0.61	0.61
Avail Cap(c_a), veh/h	212	1122	568	385	566	524	137	902	978	286	864	457
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.2	32.7	23.1	52.8	33.0	33.1	53.0	38.3	26.1	52.4	38.0	38.1
Incr Delay (d2), s/veh	22.6	1.4	0.7	73.2	3.2	3.6	15.7	3.2	1.1	5.1	3.2	6.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	6.1	1.8	9.5	7.0	6.7	2.9	7.5	3.9	2.0	6.9	7.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.8	34.1	23.8	125.9	36.2	36.7	68.7	41.5	27.2	57.5	41.2	44.2
LnGrp LOS	E	C	C	F	D	D	E	D	C	E	D	D
Approach Vol, veh/h	781			975			1029			931		
Approach Delay, s/veh	41.0			75.1			38.3			44.4		
Approach LOS	D			E			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	51.1	39.6	20.8	44.5	15.1	39.6	20.5	44.8				
Change Period (Y+Rc), s	5.1	6.8	6.3	6.3	5.1	6.8	* 6.1	* 6.3				
Max Green Setting (Gmax), s	10.0	33.0	14.5	38.0	10.0	33.0	* 14	* 39				
Max Q Clear Time (g_c+I), s	10.3	20.3	16.5	16.2	7.6	19.6	12.7	18.1				
Green Ext Time (p_c), s	0.1	2.8	0.0	2.2	0.0	2.6	0.0	1.9				

Intersection Summary

HCM 6th Ctrl Delay 50.0
HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
User approved changes to right turn type.

HCM 6th Signalized Intersection Summary

4: Knoll Rd/Drwy & W. Mission Rd

EX + C + P AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	477	197	241	641	9	179	3	171	3	6	17
Future Volume (veh/h)	5	477	197	241	641	9	179	3	171	3	6	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.95	1.00		0.96	1.00		0.93
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	1856	1856	1726	1726	1856	1856	1726	1726	1726	1856	1726	1856
Adj Flow Rate, veh/h	7	636	263	265	704	10	248	0	234	4	7	21
Peak Hour Factor	0.75	0.75	0.75	0.91	0.91	0.91	0.73	0.73	0.73	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	22	1512	588	177	1883	27	650	0	278	29	51	69
Arrive On Green	0.01	0.43	0.43	0.11	0.53	0.53	0.20	0.00	0.20	0.05	0.05	0.05
Sat Flow, veh/h	1767	3526	1370	1643	3555	50	3287	0	1407	616	1079	1455
Grp Volume(v), veh/h	7	636	263	265	349	365	248	0	234	11	0	21
Grp Sat Flow(s), veh/h/ln	1767	1763	1370	1643	1763	1843	1643	0	1407	1695	0	1455
Q Serve(g_s), s	0.4	12.6	13.6	10.8	11.6	11.6	6.5	0.0	16.0	0.6	0.0	1.4
Cycle Q Clear(g_c), s	0.4	12.6	13.6	10.8	11.6	11.6	6.5	0.0	16.0	0.6	0.0	1.4
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	0.36		1.00
Lane Grp Cap(c), veh/h	22	1512	588	177	934	976	650	0	278	80	0	69
V/C Ratio(X)	0.32	0.42	0.45	1.49	0.37	0.37	0.38	0.00	0.84	0.14	0.00	0.31
Avail Cap(c_a), veh/h	124	1512	588	177	934	976	887	0	380	136	0	116
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	49.0	19.9	20.2	44.6	13.8	13.8	34.8	0.0	38.6	45.7	0.0	46.1
Incr Delay (d2), s/veh	3.1	0.9	2.5	249.2	1.1	1.1	0.1	0.0	8.9	0.3	0.0	0.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.2	5.0	4.4	16.5	4.4	4.6	2.6	0.0	6.1	0.3	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	52.0	20.8	22.6	293.8	14.9	14.9	34.9	0.0	47.5	46.0	0.0	47.0
LnGrp LOS	D	C	C	F	B	B	C	A	D	D	A	D
Approach Vol, veh/h	906			979			482			32		
Approach Delay, s/veh	21.5			90.4			41.0			46.6		
Approach LOS	C			F			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.9	48.7		9.9	5.8	58.8		25.5				
Change Period (Y+Rc), s	5.1	5.8		* 5.2	4.6	5.8		5.7				
Max Green Setting (Gmax), s	10.8	32.4		* 8	7.0	36.7		27.0				
Max Q Clear Time (g_c+I), s	11.2	15.6		3.4	2.4	13.6		18.0				
Green Ext Time (p_c), s	0.0	2.9		0.0	0.0	2.4		0.7				

Intersection Summary

HCM 6th Ctrl Delay 53.9

HCM 6th LOS D

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 5: N. Las Posas Rd & Armorlite Dr

EX + C + P AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	15	209	1	56	31	789	132	28	1215	7
Future Volume (veh/h)	1	0	15	209	1	56	31	789	132	28	1215	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	1	0	19	230	1	62	37	939	157	33	1429	8
Peak Hour Factor	0.80	0.80	0.80	0.91	0.91	0.91	0.84	0.84	0.84	0.85	0.85	0.85
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	4	0	247	150	6	371	79	2081	346	74	2474	14
Arrive On Green	0.00	0.00	0.16	0.09	0.25	0.25	0.04	0.48	0.48	0.04	0.48	0.48
Sat Flow, veh/h	1767	0	1505	1767	24	1501	1767	4345	723	1767	5197	29
Grp Volume(v), veh/h	1	0	19	230	0	63	37	729	367	33	929	508
Grp Sat Flow(s),veh/h/ln	1767	0	1505	1767	0	1525	1767	1689	1691	1767	1689	1849
Q Serve(g_s), s	0.1	0.0	1.1	8.5	0.0	3.2	2.0	14.3	14.4	1.8	19.9	19.9
Cycle Q Clear(g_c), s	0.1	0.0	1.1	8.5	0.0	3.2	2.0	14.3	14.4	1.8	19.9	19.9
Prop In Lane	1.00		1.00	1.00		0.98	1.00		0.43	1.00		0.02
Lane Grp Cap(c), veh/h	4	0	247	150	0	377	79	1617	810	74	1608	880
V/C Ratio(X)	0.26	0.00	0.08	1.53	0.00	0.17	0.47	0.45	0.45	0.44	0.58	0.58
Avail Cap(c_a), veh/h	141	0	587	150	0	603	124	1617	810	124	1608	880
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.20	0.20	0.20	0.61	0.61	0.61
Uniform Delay (d), s/veh	49.8	0.0	35.4	45.8	0.0	29.6	46.6	17.3	17.3	46.8	18.9	18.9
Incr Delay (d2), s/veh	12.5	0.0	0.0	269.7	0.0	0.1	0.3	0.2	0.4	0.9	0.9	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.4	15.0	0.0	1.2	0.9	5.1	5.2	0.8	7.2	8.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.3	0.0	35.4	315.4	0.0	29.7	46.9	17.5	17.7	47.7	19.9	20.6
LnGrp LOS	E	A	D	F	A	C	D	B	B	D	B	C
Approach Vol, veh/h	20			293			1133			1470		
Approach Delay, s/veh	36.8			254.0			18.5			20.8		
Approach LOS	D			F			B			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.2	53.9	14.0	21.9	10.5	53.6	5.7	30.2				
Change Period (Y+Rc), s	6.0	6.0	5.5	5.5	6.0	6.0	5.5	5.5				
Max Green Setting (Gmax), s	39.5	22.5	8.5	39.0	7.0	22.5	8.0	39.5				
Max Q Clear Time (g_c+I), s	13.8	16.4	10.5	3.1	4.0	21.9	2.1	5.2				
Green Ext Time (p_c), s	0.0	2.5	0.0	0.0	0.0	0.4	0.0	0.2				

Intersection Summary

HCM 6th Ctrl Delay	43.4
HCM 6th LOS	D

Intersection

Int Delay, s/veh 2.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	20	67	200	0	0	66
Future Vol, veh/h	20	67	200	0	0	66
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	91	91	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	22	73	220	0	0	72

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	230	0	357
Stage 1	-	-	230
Stage 2	-	-	127
Critical Hdwy	4.13	-	6.43
Critical Hdwy Stg 1	-	-	5.43
Critical Hdwy Stg 2	-	-	5.43
Follow-up Hdwy	2.227	-	3.527
Pot Cap-1 Maneuver	1332	-	639
Stage 1	-	-	806
Stage 2	-	-	896
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1319	-	615
Mov Cap-2 Maneuver	-	-	615
Stage 1	-	-	784
Stage 2	-	-	887

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	10.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1319	-	-	-	781
HCM Lane V/C Ratio	0.016	-	-	-	0.092
HCM Control Delay (s)	7.8	0	-	-	10.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

HCM 6th Signalized Intersection Summary

7: N. Las Posas Rd & Descanso Ave

EX + C + P AM

11/28/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	34	119	161	18	26	61	853	131	11	1403	27
Future Volume (veh/h)	14	34	119	161	18	26	61	853	131	11	1403	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.94	1.00		0.94
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	16	40	140	221	25	36	62	862	132	11	1432	28
Peak Hour Factor	0.85	0.85	0.85	0.73	0.73	0.73	0.99	0.99	0.99	0.98	0.98	0.98
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	146	364	425	955	188	270	106	1011	154	88	1142	22
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.06	0.23	0.23	0.05	0.22	0.22
Sat Flow, veh/h	523	1307	1525	3428	674	971	1767	4396	668	1767	5108	100
Grp Volume(v), veh/h	56	0	140	221	0	61	62	661	333	11	947	513
Grp Sat Flow(s),veh/h/ln	1829	0	1525	1714	0	1645	1767	1689	1687	1767	1689	1830
Q Serve(g_s), s	3.2	0.0	10.2	7.0	0.0	3.9	4.8	26.2	26.5	0.8	31.3	31.3
Cycle Q Clear(g_c), s	3.2	0.0	10.2	7.0	0.0	3.9	4.8	26.2	26.5	0.8	31.3	31.3
Prop In Lane	0.29		1.00	1.00		0.59	1.00		0.40	1.00		0.05
Lane Grp Cap(c), veh/h	510	0	425	955	0	458	106	776	388	88	755	409
V/C Ratio(X)	0.11	0.00	0.33	0.23	0.00	0.13	0.58	0.85	0.86	0.12	1.25	1.25
Avail Cap(c_a), veh/h	510	0	425	955	0	458	106	776	388	88	755	409
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	0.96	0.96	0.96	0.73	0.73	0.73
Uniform Delay (d), s/veh	37.6	0.0	40.1	38.9	0.0	37.8	64.1	51.6	51.7	63.6	54.4	54.4
Incr Delay (d2), s/veh	0.4	0.0	2.1	0.6	0.0	0.6	20.7	10.9	20.5	2.1	122.5	128.6
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	1.5	0.0	4.1	3.0	0.0	1.7	2.7	12.0	13.2	0.4	25.8	28.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.0	0.0	42.2	39.5	0.0	38.4	84.8	62.5	72.2	65.7	176.9	183.0
LnGrp LOS	D	A	D	D	A	D	F	E	E	E	F	F
Approach Vol, veh/h		196			282			1056			1471	
Approach Delay, s/veh		41.0			39.3			66.9			178.2	
Approach LOS		D			D			E			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.5	38.7		45.5	14.4	37.8		45.5				
Change Period (Y+Rc), s	6.5	* 6.5		6.5	6.0	6.5		6.5				
Max Green Setting (Gmax), s	7.0	* 30		39.0	8.4	28.1		39.0				
Max Q Clear Time (g_c+I1), s	2.8	28.5		12.2	6.8	33.3		9.0				
Green Ext Time (p_c), s	0.0	0.5		0.4	0.0	0.0		0.6				

Intersection Summary

HCM 6th Ctrl Delay 117.1

HCM 6th LOS F

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 8: N. Las Posas Rd & SR-78 WB Ramps

EX + C + P AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↰	↰		↰	↰			↰	↰
Traffic Volume (veh/h)	0	0	0	511	0	235	205	830	0	0	1478	323
Future Volume (veh/h)	0	0	0	511	0	235	205	830	0	0	1478	323
Initial Q (Qb), 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		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				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				405	210	255	233	943	0	0	1642	359
Peak Hour Factor				0.92	0.92	0.92	0.88	0.88	0.88	0.90	0.90	0.90
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				497	210	256	256	3039	0	0	1692	366
Arrive On Green				0.28	0.28	0.28	0.15	0.60	0.00	0.00	0.41	0.41
Sat Flow, veh/h				1767	749	909	1767	5233	0	0	4314	896
Grp Volume(v), veh/h				405	0	465	233	943	0	0	1334	667
Grp Sat Flow(s),veh/h/ln				1767	0	1658	1767	1689	0	0	1689	1666
Q Serve(g_s), s				21.4	0.0	28.0	13.0	9.1	0.0	0.0	38.6	39.6
Cycle Q Clear(g_c), s				21.4	0.0	28.0	13.0	9.1	0.0	0.0	38.6	39.6
Prop In Lane				1.00		0.55	1.00		0.00	0.00		0.54
Lane Grp Cap(c), veh/h				497	0	466	256	3039	0	0	1378	680
V/C Ratio(X)				0.82	0.00	1.00	0.91	0.31	0.00	0.00	0.97	0.98
Avail Cap(c_a), veh/h				497	0	466	256	3039	0	0	1378	680
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.86	0.86	0.00	0.00	0.09	0.09
Uniform Delay (d), s/veh				33.5	0.0	35.9	42.1	9.8	0.0	0.0	29.0	29.2
Incr Delay (d2), s/veh				9.5	0.0	41.1	31.0	0.2	0.0	0.0	3.0	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				10.3	0.0	16.3	7.6	3.0	0.0	0.0	14.8	15.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				43.0	0.0	77.0	73.1	10.1	0.0	0.0	31.9	36.2
LnGrp LOS				D	A	E	E	B	A	A	C	D
Approach Vol, veh/h					870			1176			2001	
Approach Delay, s/veh					61.2			22.6			33.3	
Approach LOS					E			C			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		66.8			19.2	47.6		33.2				
Change Period (Y+Rc), s		6.8			* 4.7	6.8		5.1				
Max Green Setting (Gmax), s		60.0			* 15	40.8		28.1				
Max Q Clear Time (g_c+I1), s		11.1			15.0	41.6		30.0				
Green Ext Time (p_c), s		4.4			0.0	0.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay	36.2
HCM 6th LOS	D

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

9: N. Las Posas Rd & Grand Ave

EX + C + P AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	153	193	13	111	180	511	20	406	125	525	733	534
Future Volume (veh/h)	153	193	13	111	180	511	20	406	125	525	733	534
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.97	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No						No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	210	264	18	123	200	568	24	478	147	603	843	614
Peak Hour Factor	0.73	0.73	0.73	0.90	0.90	0.90	0.85	0.85	0.85	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	595	973	66	145	369	757	112	1190	352	280	1154	764
Arrive On Green	0.17	0.29	0.29	0.08	0.20	0.20	0.06	0.31	0.31	0.08	0.33	0.33
Sat Flow, veh/h	3428	3343	226	1767	1856	2663	1767	3849	1139	3428	3526	1500
Grp Volume(v), veh/h	210	138	144	123	200	568	24	417	208	603	843	614
Grp Sat Flow(s),veh/h/ln	1714	1763	1807	1767	1856	1332	1767	1689	1611	1714	1763	1500
Q Serve(g_s), s	5.9	6.6	6.7	7.6	10.6	21.4	1.4	10.7	11.3	9.0	23.3	36.0
Cycle Q Clear(g_c), s	5.9	6.6	6.7	7.6	10.6	21.4	1.4	10.7	11.3	9.0	23.3	36.0
Prop In Lane	1.00		0.13	1.00		1.00	1.00		0.71	1.00		1.00
Lane Grp Cap(c), veh/h	595	513	526	145	369	757	112	1044	498	280	1154	764
V/C Ratio(X)	0.35	0.27	0.27	0.85	0.54	0.75	0.21	0.40	0.42	2.15	0.73	0.80
Avail Cap(c_a), veh/h	595	513	526	145	369	757	112	1044	498	280	1154	764
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.76	0.76	0.76	1.00	1.00	1.00	0.16	0.16	0.16
Uniform Delay (d), s/veh	40.0	30.0	30.0	49.8	39.5	36.1	48.9	30.0	30.1	50.5	32.7	23.2
Incr Delay (d2), s/veh	1.6	1.3	1.3	35.3	0.7	2.9	4.3	1.1	2.6	519.3	0.7	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	2.9	3.0	4.7	4.8	7.0	0.7	4.3	4.5	24.0	9.5	12.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.6	31.3	31.3	85.2	40.2	39.0	53.2	31.1	32.7	569.8	33.4	24.7
LnGrp LOS	D	C	C	F	D	D	D	C	C	F	C	C
Approach Vol, veh/h	492				891		649				2060	
Approach Delay, s/veh	35.7				45.7		32.4				187.8	
Approach LOS	D				D		C				F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	40.5	40.5	15.5	38.5	13.5	42.5	25.6	28.4				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	34.0	34.0	9.0	32.0	7.0	36.0	19.1	21.9				
Max Q Clear Time (g_c+ll), s	13.3	13.3	9.6	8.7	3.4	38.0	7.9	23.4				
Green Ext Time (p_c), s	0.0	2.3	0.0	0.9	0.0	0.0	0.3	0.0				

Intersection Summary

HCM 6th Ctrl Delay 113.9
HCM 6th LOS F

Notes

User approved changes to right turn type.

HCM 6th Signalized Intersection Summary

10: Via Vera Cruz & Grand Ave

EX + C + P AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑↑		↗	↖	↗	↗	↑	↗
Traffic Volume (veh/h)	431	357	122	57	262	53	68	66	30	161	250	439
Future Volume (veh/h)	431	357	122	57	262	53	68	66	30	161	250	439
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.94	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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	459	380	130	64	294	60	76	76	34	168	260	457
Peak Hour Factor	0.94	0.94	0.94	0.89	0.89	0.89	0.88	0.88	0.88	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	523	963	588	162	897	175	193	203	162	546	573	472
Arrive On Green	0.15	0.27	0.27	0.09	0.21	0.21	0.11	0.11	0.11	0.31	0.31	0.31
Sat Flow, veh/h	3428	3526	1524	1767	4225	823	1767	1856	1481	1767	1856	1528
Grp Volume(v), veh/h	459	380	130	64	232	122	76	76	34	168	260	457
Grp Sat Flow(s), veh/h/ln	1714	1763	1524	1767	1689	1671	1767	1856	1481	1767	1856	1528
Q Serve(g_s), s	13.1	8.8	5.8	3.4	5.8	6.2	4.0	3.8	2.1	7.3	11.3	29.5
Cycle Q Clear(g_c), s	13.1	8.8	5.8	3.4	5.8	6.2	4.0	3.8	2.1	7.3	11.3	29.5
Prop In Lane	1.00		1.00	1.00		0.49	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	523	963	588	162	717	355	193	203	162	546	573	472
V/C Ratio(X)	0.88	0.39	0.22	0.40	0.32	0.34	0.39	0.37	0.21	0.31	0.45	0.97
Avail Cap(c_a), veh/h	531	963	588	194	717	355	194	204	163	546	573	472
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.5	29.6	20.8	42.8	33.3	33.5	41.4	41.4	40.6	26.4	27.8	34.1
Incr Delay (d2), s/veh	1.8	0.1	0.1	0.6	0.1	0.2	0.5	0.4	0.2	0.1	0.2	33.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	3.6	2.4	1.5	2.3	2.5	1.7	1.7	0.8	3.0	4.8	14.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.3	29.7	20.9	43.4	33.4	33.7	41.9	41.8	40.8	26.5	28.0	67.1
LnGrp LOS	D	C	C	D	C	C	D	D	D	C	C	E
Approach Vol, veh/h	969			418			186			885		
Approach Delay, s/veh	35.0			35.0			41.7			47.9		
Approach LOS	C			D			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	3.8	34.1		36.0	19.9	28.0		16.0				
Change Period (Y+Rc), s	4.7	6.8		5.1	* 4.7	6.8		5.1				
Max Green Setting (Gmax), s	15	25.4		30.9	* 16	20.9		11.0				
Max Q Clear Time (g_c+I), s	15.4	10.8		31.5	15.1	8.2		6.0				
Green Ext Time (p_c), s	0.0	1.5		0.0	0.1	1.1		0.2				

Intersection Summary

HCM 6th Ctrl Delay 40.1
HCM 6th LOS D

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

1: N Rancho Santa Fe Rd & W. Mission Rd

EX + C + P PM

11/28/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	917	162	174	410	0	340	0	423	0	0	0
Future Volume (veh/h)	0	917	162	174	410	0	340	0	423	0	0	0
Initial Q (Qb), 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		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	1856	1856	1856	1856	1856	0	1856	0	1856			
Adj Flow Rate, veh/h	0	1132	200	210	494	0	378	0	470			
Peak Hour Factor	0.81	0.81	0.81	0.83	0.83	0.83	0.90	0.90	0.90			
Percent Heavy Veh, %	3	3	3	3	3	0	3	0	3			
Cap, veh/h	84	1316	562	321	1788	0	950	0	767			
Arrive On Green	0.00	0.37	0.37	0.18	0.51	0.00	0.28	0.00	0.28			
Sat Flow, veh/h	1767	3526	1505	1767	3618	0	3428	0	2768			
Grp Volume(v), veh/h	0	1132	200	210	494	0	378	0	470			
Grp Sat Flow(s),veh/h/ln	1767	1763	1505	1767	1763	0	1714	0	1384			
Q Serve(g_s), s	0.0	31.0	10.1	11.6	8.4	0.0	9.4	0.0	15.5			
Cycle Q Clear(g_c), s	0.0	31.0	10.1	11.6	8.4	0.0	9.4	0.0	15.5			
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	84	1316	562	321	1788	0	950	0	767			
V/C Ratio(X)	0.00	0.86	0.36	0.65	0.28	0.00	0.40	0.00	0.61			
Avail Cap(c_a), veh/h	84	1495	638	321	1967	0	950	0	767			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	30.3	23.7	39.8	14.8	0.0	30.7	0.0	32.9			
Incr Delay (d2), s/veh	0.0	4.8	0.4	10.0	0.1	0.0	1.2	0.0	3.6			
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	13.1	3.4	5.7	3.1	0.0	3.9	0.0	5.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	35.1	24.1	49.8	14.9	0.0	32.0	0.0	36.6			
LnGrp LOS	A	D	C	D	B	A	C	A	D			
Approach Vol, veh/h	1332			704			848					
Approach Delay, s/veh	33.5			25.3			34.5					
Approach LOS	C			C			C					
Timer - Assigned Phs	1	2			5	6		8				
Phs Duration (G+Y+Rc), s	24.0	45.2			10.0	59.2		35.5				
Change Period (Y+Rc), s	5.0	* 6.1			5.0	* 6.1		6.5				
Max Green Setting (Gmax), s	19.0	* 44			5.0	* 58		29.0				
Max Q Clear Time (g_c+I1), s	13.6	33.0			0.0	10.4		17.5				
Green Ext Time (p_c), s	0.3	6.0			0.0	3.3		2.7				

Intersection Summary

HCM 6th Ctrl Delay	31.8
HCM 6th LOS	C

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

2: N Pacific St & W. Mission Rd

EX + C + P PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	1057	40	0	569	52	0	0	58	39	0	33
Future Volume (veh/h)	42	1057	40	0	569	52	0	0	58	39	0	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.95	1.00		0.99	1.00		0.95
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	1726	1726	1726	0	1726	1726	0	1726	1726	1726	1726	1726
Adj Flow Rate, veh/h	47	1188	45	0	625	57	0	0	77	44	0	38
Peak Hour Factor	0.89	0.89	0.89	0.91	0.91	0.91	0.75	0.75	0.75	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	0	3	3	0	3	3	3	3	3
Cap, veh/h	121	1247	47	0	809	74	0	0	330	376	0	317
Arrive On Green	0.07	0.39	0.39	0.00	0.27	0.27	0.00	0.00	0.23	0.23	0.00	0.23
Sat Flow, veh/h	1643	3214	122	0	3109	275	0	0	1443	1643	0	1388
Grp Volume(v), veh/h	47	606	627	0	338	344	0	0	77	44	0	38
Grp Sat Flow(s),veh/h/ln	1643	1639	1696	0	1639	1658	0	0	1443	1643	0	1388
Q Serve(g_s), s	3.0	39.4	39.5	0.0	20.9	21.0	0.0	0.0	4.8	2.3	0.0	2.4
Cycle Q Clear(g_c), s	3.0	39.4	39.5	0.0	20.9	21.0	0.0	0.0	4.8	2.3	0.0	2.4
Prop In Lane	1.00		0.07	0.00		0.17	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	121	636	658	0	439	444	0	0	330	376	0	317
V/C Ratio(X)	0.39	0.95	0.95	0.00	0.77	0.77	0.00	0.00	0.23	0.12	0.00	0.12
Avail Cap(c_a), veh/h	121	651	673	0	442	447	0	0	330	376	0	317
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	48.5	32.6	32.6	0.0	37.1	37.1	0.0	0.0	34.5	33.6	0.0	33.6
Incr Delay (d2), s/veh	9.1	23.5	23.2	0.0	7.3	7.4	0.0	0.0	1.7	0.6	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	18.6	19.3	0.0	8.9	9.0	0.0	0.0	1.8	1.0	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.6	56.1	55.8	0.0	44.4	44.5	0.0	0.0	36.2	34.2	0.0	34.4
LnGrp LOS	E	E	E	A	D	D	A	A	D	C	A	C
Approach Vol, veh/h	1280			682			77			82		
Approach Delay, s/veh	56.0			44.5			36.2			34.3		
Approach LOS	E			D			D			C		
Timer - Assigned Phs	2		4		5	6	8					
Phs Duration (G+Y+Rc), s	49.4		30.2		13.2	36.2	30.2					
Change Period (Y+Rc), s	* 6.8		5.1		5.1	6.8	5.1					
Max Green Setting (Gmax), s	* 44		25.1		8.1	29.6	25.1					
Max Q Clear Time (g_c+I1), s	41.5		4.4		5.0	23.0	6.8					
Green Ext Time (p_c), s	1.2		0.2		0.0	1.4	0.2					

Intersection Summary

HCM 6th Ctrl Delay	50.8
HCM 6th LOS	D

Notes

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

HCM 6th Signalized Intersection Summary

3: N. Las Posas Rd & W. Mission Rd

EX + C + P PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	182	904	119	399	349	98	128	839	521	126	524	49
Future Volume (veh/h)	182	904	119	399	349	98	128	839	521	126	524	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.95	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	1856	1856	1726	1726	1856	1856	1726	1726	1726	1856	1726	1856
Adj Flow Rate, veh/h	192	952	125	416	364	102	151	987	613	143	595	56
Peak Hour Factor	0.95	0.95	0.95	0.96	0.96	0.96	0.85	0.85	0.85	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	191	1122	573	385	901	249	137	1082	1121	286	1443	134
Arrive On Green	0.11	0.32	0.32	0.12	0.33	0.33	0.08	0.33	0.33	0.08	0.33	0.33
Sat Flow, veh/h	1767	3526	1419	3188	2710	748	1643	3279	2456	3428	4373	407
Grp Volume(v), veh/h	192	952	125	416	235	231	151	987	613	143	425	226
Grp Sat Flow(s),veh/h/ln	1767	1763	1419	1594	1763	1694	1643	1639	1228	1714	1570	1639
Q Serve(g_s), s	13.0	30.3	6.9	14.5	12.3	12.7	10.0	34.6	21.9	4.8	12.6	12.8
Cycle Q Clear(g_c), s	13.0	30.3	6.9	14.5	12.3	12.7	10.0	34.6	21.9	4.8	12.6	12.8
Prop In Lane	1.00		1.00	1.00		0.44	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	191	1122	573	385	586	563	137	1082	1121	286	1036	541
V/C Ratio(X)	1.00	0.85	0.22	1.08	0.40	0.41	1.10	0.91	0.55	0.50	0.41	0.42
Avail Cap(c_a), veh/h	191	1122	573	385	586	563	137	1082	1121	286	1036	541
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.62	0.62	0.62	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.5	38.2	23.6	52.8	30.8	31.0	55.0	38.5	24.1	52.6	31.2	31.2
Incr Delay (d2), s/veh	65.8	8.0	0.9	68.9	2.0	2.2	90.7	8.8	1.2	6.1	1.2	2.4
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	13.7	2.4	9.3	5.4	5.3	7.5	14.6	6.2	2.3	4.8	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	119.3	46.2	24.4	121.6	32.9	33.2	145.7	47.3	25.3	58.8	32.4	33.6
LnGrp LOS	F	D	C	F	C	C	F	D	C	E	C	C
Approach Vol, veh/h	1269			882			1751			794		
Approach Delay, s/veh	55.1			74.8			48.1			37.5		
Approach LOS	E			E			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	51.1	46.6	20.8	44.5	15.1	46.6	19.1	46.2				
Change Period (Y+Rc), s	5.1	6.8	6.3	6.3	5.1	6.8	* 6.1	* 6.3				
Max Green Setting (Gmax), s	10.0	33.0	14.5	38.0	10.0	33.0	* 13	* 40				
Max Q Clear Time (g_c+I), s	10.8	36.6	16.5	32.3	12.0	14.8	15.0	14.7				
Green Ext Time (p_c), s	0.1	0.0	0.0	2.3	0.0	2.3	0.0	1.6				

Intersection Summary

HCM 6th Ctrl Delay 53.2
HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
User approved changes to right turn type.

HCM 6th Signalized Intersection Summary

4: Knoll Rd/Drwy & W. Mission Rd

EX + C + P PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	1348	177	167	616	4	153	1	251	3	6	3
Future Volume (veh/h)	5	1348	177	167	616	4	153	1	251	3	6	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.96	1.00		0.92
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	1856	1856	1726	1726	1856	1856	1726	1726	1726	1856	1726	1856
Adj Flow Rate, veh/h	6	1498	197	184	677	4	171	0	279	5	10	5
Peak Hour Factor	0.90	0.90	0.90	0.91	0.91	0.91	0.90	0.90	0.90	0.60	0.60	0.60
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	19	1589	638	163	1953	12	719	0	309	19	38	48
Arrive On Green	0.01	0.45	0.45	0.10	0.54	0.54	0.22	0.00	0.22	0.03	0.03	0.03
Sat Flow, veh/h	1767	3526	1416	1643	3593	21	3287	0	1411	566	1132	1445
Grp Volume(v), veh/h	6	1498	197	184	332	349	171	0	279	15	0	5
Grp Sat Flow(s), veh/h/ln	1767	1763	1416	1643	1763	1851	1643	0	1411	1697	0	1445
Q Serve(g_s), s	0.4	44.6	9.8	10.9	11.7	11.7	4.7	0.0	21.2	0.9	0.0	0.4
Cycle Q Clear(g_c), s	0.4	44.6	9.8	10.9	11.7	11.7	4.7	0.0	21.2	0.9	0.0	0.4
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.33		1.00
Lane Grp Cap(c), veh/h	19	1589	638	163	958	1006	719	0	309	56	0	48
V/C Ratio(X)	0.32	0.94	0.31	1.13	0.35	0.35	0.24	0.00	0.90	0.27	0.00	0.10
Avail Cap(c_a), veh/h	112	1589	638	163	958	1006	807	0	346	123	0	105
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.0	28.9	19.3	49.5	14.1	14.1	35.4	0.0	41.8	51.9	0.0	51.6
Incr Delay (d2), s/veh	3.5	12.5	1.3	109.7	1.0	0.9	0.1	0.0	23.0	0.9	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	20.0	3.2	9.3	4.5	4.7	1.9	0.0	9.2	0.4	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.6	41.4	20.5	159.2	15.1	15.1	35.5	0.0	64.9	52.8	0.0	51.9
LnGrp LOS	E	D	C	F	B	B	D	A	E	D	A	D
Approach Vol, veh/h	1701			865			450			20		
Approach Delay, s/veh	39.0			45.7			53.7			52.6		
Approach LOS	D			D			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	60.0	55.4		8.9	5.8	65.6		29.8				
Change Period (Y+Rc), s	5.1	5.8		* 5.2	4.6	5.8		5.7				
Max Green Setting (Gmax), s	10.0	42.3		* 8	7.0	46.7		27.0				
Max Q Clear Time (g_c+1/2g), s	11.0	46.6		2.9	2.4	13.7		23.2				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	2.3		0.4				

Intersection Summary

HCM 6th Ctrl Delay 43.2
HCM 6th LOS D

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

5: N. Las Posas Rd & Amorlite Dr

EX + C + P PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	0	5	147	0	79	6	1469	244	104	1003	2
Future Volume (veh/h)	3	0	5	147	0	79	6	1469	244	104	1003	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	4	0	7	156	0	84	7	1632	271	114	1102	2
Peak Hour Factor	0.67	0.67	0.67	0.94	0.94	0.94	0.90	0.90	0.90	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	15	0	237	133	0	341	22	2149	355	112	2847	5
Arrive On Green	0.01	0.00	0.16	0.08	0.00	0.22	0.01	0.49	0.49	0.06	0.55	0.55
Sat Flow, veh/h	1767	0	1503	1767	0	1518	1767	4351	718	1767	5221	9
Grp Volume(v), veh/h	4	0	7	156	0	84	7	1264	639	114	713	391
Grp Sat Flow(s),veh/h/ln	1767	0	1503	1767	0	1518	1767	1689	1692	1767	1689	1853
Q Serve(g_s), s	0.2	0.0	0.4	8.3	0.0	5.0	0.4	33.3	33.8	7.0	13.4	13.4
Cycle Q Clear(g_c), s	0.2	0.0	0.4	8.3	0.0	5.0	0.4	33.3	33.8	7.0	13.4	13.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.42	1.00		0.01
Lane Grp Cap(c), veh/h	15	0	237	133	0	341	22	1668	836	112	1842	1011
V/C Ratio(X)	0.27	0.00	0.03	1.17	0.00	0.25	0.32	0.76	0.76	1.01	0.39	0.39
Avail Cap(c_a), veh/h	129	0	533	133	0	542	112	1668	836	112	1842	1011
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.68	0.68	0.68
Uniform Delay (d), s/veh	54.2	0.0	39.2	50.8	0.0	35.0	53.9	22.5	22.6	51.5	14.4	14.4
Incr Delay (d2), s/veh	3.6	0.0	0.0	130.8	0.0	0.1	0.3	0.3	0.6	73.6	0.4	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.2	8.5	0.0	1.9	0.2	12.1	12.3	5.3	4.8	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.8	0.0	39.2	181.6	0.0	35.1	54.2	22.8	23.2	125.1	14.8	15.2
LnGrp LOS	E	A	D	F	A	D	D	C	C	F	B	B
Approach Vol, veh/h	11			240			1910			1218		
Approach Delay, s/veh	46.0			130.4			23.1			25.3		
Approach LOS	D			F			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.0	60.3	13.8	22.9	7.3	66.0	6.4	30.2				
Change Period (Y+Rc), s	6.0	6.0	5.5	5.5	6.0	6.0	5.5	5.5				
Max Green Setting (Gmax), s	32.7	32.7	8.3	39.0	7.0	32.7	8.0	39.3				
Max Q Clear Time (g_c+I), s	35.8	35.8	10.3	2.4	2.4	15.4	2.2	7.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	4.1	0.0	0.4				

Intersection Summary

HCM 6th Ctrl Delay	31.6
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	1.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	72	275	190	0	0	37
Future Vol, veh/h	72	275	190	0	0	37
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	94	94	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	78	299	202	0	0	40
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	212	0	-	0	677	222
Stage 1	-	-	-	-	212	-
Stage 2	-	-	-	-	465	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1352	-	-	-	417	815
Stage 1	-	-	-	-	821	-
Stage 2	-	-	-	-	630	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1339	-	-	-	380	800
Mov Cap-2 Maneuver	-	-	-	-	380	-
Stage 1	-	-	-	-	756	-
Stage 2	-	-	-	-	624	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.6	0		9.7		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1339	-	-	-	800	
HCM Lane V/C Ratio	0.058	-	-	-	0.05	
HCM Control Delay (s)	7.9	0	-	-	9.7	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0.2	-	-	-	0.2	

HCM 6th Signalized Intersection Summary

7: N. Las Posas Rd & Descanso Ave

EX + C + P PM

11/28/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	37	74	219	13	36	68	1727	271	22	1174	20
Future Volume (veh/h)	24	37	74	219	13	36	68	1727	271	22	1174	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.95	1.00		0.95
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	28	44	87	249	15	41	73	1857	248	25	1349	23
Peak Hour Factor	0.85	0.85	0.85	0.88	0.88	0.88	0.93	0.93	0.93	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	197	310	425	955	119	327	88	1478	195	88	1702	29
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.05	0.33	0.33	0.05	0.33	0.33
Sat Flow, veh/h	708	1112	1525	3428	429	1172	1767	4498	594	1767	5125	87
Grp Volume(v), veh/h	72	0	87	249	0	56	73	1389	716	25	889	483
Grp Sat Flow(s),veh/h/ln	1820	0	1525	1714	0	1601	1767	1689	1715	1767	1689	1835
Q Serve(g_s), s	4.2	0.0	6.1	7.9	0.0	3.7	5.7	46.0	46.0	1.9	33.4	33.4
Cycle Q Clear(g_c), s	4.2	0.0	6.1	7.9	0.0	3.7	5.7	46.0	46.0	1.9	33.4	33.4
Prop In Lane	0.39		1.00	1.00		0.73	1.00		0.35	1.00		0.05
Lane Grp Cap(c), veh/h	507	0	425	955	0	446	88	1110	563	88	1122	609
V/C Ratio(X)	0.14	0.00	0.20	0.26	0.00	0.13	0.83	1.25	1.27	0.28	0.79	0.79
Avail Cap(c_a), veh/h	507	0	425	955	0	446	88	1110	563	88	1122	609
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.86	0.86	0.86	0.91	0.91	0.91
Uniform Delay (d), s/veh	37.9	0.0	38.6	39.3	0.0	37.8	65.9	47.0	47.0	64.1	42.4	42.4
Incr Delay (d2), s/veh	0.6	0.0	1.1	0.7	0.0	0.6	50.6	119.9	133.6	7.2	5.3	9.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	2.4	3.5	0.0	1.5	3.8	37.1	39.8	1.0	14.3	16.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.5	0.0	39.7	39.9	0.0	38.3	116.5	166.9	180.6	71.2	47.7	51.7
LnGrp LOS	D	A	D	D	A	D	F	F	F	E	D	D
Approach Vol, veh/h		159			305			2178			1397	
Approach Delay, s/veh		39.2			39.7			169.7			49.5	
Approach LOS		D			D			F			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.5	53.0		45.5	13.0	53.5		45.5				
Change Period (Y+Rc), s	6.5	* 6.5		6.5	6.0	6.5		6.5				
Max Green Setting (Gmax), s	7.0	* 30		39.0	7.0	29.5		39.0				
Max Q Clear Time (g_c+I1), s	3.9	48.0		8.1	7.7	35.4		9.9				
Green Ext Time (p_c), s	0.0	0.0		0.4	0.0	0.0		0.7				

Intersection Summary

HCM 6th Ctrl Delay 113.2

HCM 6th LOS F

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

8: N. Las Posas Rd & SR-78 WB Ramps

EX + C + P PM

11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↰	↰		↰	↰			↰	↰
Traffic Volume (veh/h)	0	0	0	412	3	244	412	1552	0	0	1001	372
Future Volume (veh/h)	0	0	0	412	3	244	412	1552	0	0	1001	372
Initial Q (Qb), 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		0.97
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				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				358	129	265	434	1634	0	0	1043	388
Peak Hour Factor				0.92	0.92	0.92	0.95	0.95	0.95	0.96	0.96	0.96
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				384	115	236	463	3417	0	0	1332	495
Arrive On Green				0.22	0.22	0.22	0.52	1.00	0.00	0.00	0.37	0.37
Sat Flow, veh/h				1767	528	1085	1767	5233	0	0	3769	1340
Grp Volume(v), veh/h				358	0	394	434	1634	0	0	978	453
Grp Sat Flow(s),veh/h/ln				1767	0	1613	1767	1689	0	0	1689	1564
Q Serve(g_s), s				21.9	0.0	23.9	25.3	0.0	0.0	0.0	28.3	28.3
Cycle Q Clear(g_c), s				21.9	0.0	23.9	25.3	0.0	0.0	0.0	28.3	28.3
Prop In Lane				1.00		0.67	1.00		0.00	0.00		0.86
Lane Grp Cap(c), veh/h				384	0	350	463	3417	0	0	1249	579
V/C Ratio(X)				0.93	0.00	1.12	0.94	0.48	0.00	0.00	0.78	0.78
Avail Cap(c_a), veh/h				384	0	350	535	3417	0	0	1249	579
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.29	0.29	0.00	0.00	0.09	0.09
Uniform Delay (d), s/veh				42.3	0.0	43.1	25.3	0.0	0.0	0.0	30.7	30.7
Incr Delay (d2), s/veh				29.0	0.0	86.1	9.9	0.1	0.0	0.0	0.5	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				12.5	0.0	17.8	7.6	0.0	0.0	0.0	10.9	10.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				71.2	0.0	129.1	35.3	0.1	0.0	0.0	31.2	31.7
LnGrp LOS				E	A	F	D	A	A	A	C	C
Approach Vol, veh/h					752			2068			1431	
Approach Delay, s/veh					101.6			7.5			31.4	
Approach LOS					F			A			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		81.0			33.5	47.5		29.0				
Change Period (Y+Rc), s		6.8			* 4.7	6.8		5.1				
Max Green Setting (Gmax), s		74.2			* 33	36.2		23.9				
Max Q Clear Time (g_c+I1), s		2.0			27.3	30.3		25.9				
Green Ext Time (p_c), s		9.9			1.5	3.2		0.0				

Intersection Summary

HCM 6th Ctrl Delay	32.2
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

9: N. Las Posas Rd & Grand Ave

EX + C + P PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	351	623	26	74	149	913	46	968	199	528	738	289
Future Volume (veh/h)	351	623	26	74	149	913	46	968	199	528	738	289
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.97	1.00		0.95
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	462	820	34	78	157	961	49	1041	214	668	934	366
Peak Hour Factor	0.76	0.76	0.76	0.95	0.95	0.95	0.93	0.93	0.93	0.79	0.79	0.79
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	496	1002	42	145	423	834	117	1297	266	277	1144	712
Arrive On Green	0.14	0.29	0.29	0.08	0.23	0.23	0.07	0.31	0.31	0.05	0.22	0.22
Sat Flow, veh/h	3428	3445	143	1767	1856	2672	1767	4184	859	3428	3526	1495
Grp Volume(v), veh/h	462	420	434	78	157	961	49	840	415	668	934	366
Grp Sat Flow(s),veh/h/ln	1714	1763	1825	1767	1856	1336	1767	1689	1666	1714	1763	1495
Q Serve(g_s), s	14.7	24.4	24.4	4.7	7.8	25.1	2.9	25.1	25.2	8.9	27.7	19.8
Cycle Q Clear(g_c), s	14.7	24.4	24.4	4.7	7.8	25.1	2.9	25.1	25.2	8.9	27.7	19.8
Prop In Lane	1.00		0.08	1.00		1.00	1.00		0.52	1.00		1.00
Lane Grp Cap(c), veh/h	496	513	531	145	423	834	117	1047	517	277	1144	712
V/C Ratio(X)	0.93	0.82	0.82	0.54	0.37	1.15	0.42	0.80	0.80	2.41	0.82	0.51
Avail Cap(c_a), veh/h	496	513	531	145	423	834	117	1047	517	277	1144	712
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	1.00	1.00	0.63	0.63	0.63	1.00	1.00	1.00	0.33	0.33	0.33
Uniform Delay (d), s/veh	46.5	36.3	36.3	48.5	35.8	38.1	49.3	34.9	34.9	52.0	39.9	24.1
Incr Delay (d2), s/veh	26.7	13.6	13.2	8.8	0.1	77.8	10.6	6.5	12.5	637.3	2.2	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	12.0	12.4	2.4	3.5	19.8	1.6	10.7	11.5	28.4	12.6	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.2	49.8	49.5	57.3	35.9	115.9	59.9	41.4	47.4	689.4	42.2	24.9
LnGrp LOS	E	D	D	E	D	F	E	D	D	F	D	C
Approach Vol, veh/h	1316			1196			1304			1968		
Approach Delay, s/veh	57.9			101.6			44.0			258.6		
Approach LOS	E			F			D			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	40.6	40.6	15.5	38.5	13.8	42.2	22.4	31.6				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	34.1	34.1	9.0	32.0	7.3	35.7	15.9	25.1				
Max Q Clear Time (g_c+110), s	27.2	27.2	6.7	26.4	4.9	29.7	16.7	27.1				
Green Ext Time (p_c), s	0.0	3.1	0.0	1.7	0.0	2.6	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	132.1
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.
User approved changes to right turn type.

HCM 6th Signalized Intersection Summary

10: Via Vera Cruz & Grand Ave

EX + C + P PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↖↑↑↗	↑↑↑↗		↖	↖	↖	↖	↑	↖
Traffic Volume (veh/h)	547	568	135	101	444	83	250	139	84	343	206	363
Future Volume (veh/h)	547	568	135	101	444	83	250	139	84	343	206	363
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	582	604	144	113	499	26	243	271	105	373	224	265
Peak Hour Factor	0.94	0.94	0.94	0.89	0.89	0.89	0.80	0.80	0.80	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	636	1081	732	171	1073	55	296	311	252	410	430	352
Arrive On Green	0.19	0.31	0.31	0.10	0.22	0.22	0.17	0.17	0.17	0.23	0.23	0.23
Sat Flow, veh/h	3428	3526	1527	1767	4922	254	1767	1856	1506	1767	1856	1519
Grp Volume(v), veh/h	582	604	144	113	341	184	243	271	105	373	224	265
Grp Sat Flow(s), veh/h/ln	1714	1763	1527	1767	1689	1799	1767	1856	1506	1767	1856	1519
Q Serve(g_s), s	18.3	15.8	6.0	6.8	9.7	9.8	14.6	15.7	6.9	22.6	11.6	17.9
Cycle Q Clear(g_c), s	18.3	15.8	6.0	6.8	9.7	9.8	14.6	15.7	6.9	22.6	11.6	17.9
Prop In Lane	1.00		1.00	1.00		0.14	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	636	1081	732	171	736	392	296	311	252	410	430	352
V/C Ratio(X)	0.92	0.56	0.20	0.66	0.46	0.47	0.82	0.87	0.42	0.91	0.52	0.75
Avail Cap(c_a), veh/h	639	1081	732	198	736	392	361	380	308	458	481	394
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.0	31.9	16.8	47.9	37.4	37.5	44.2	44.6	41.0	41.1	36.9	39.3
Incr Delay (d2), s/veh	2.3	0.2	0.1	4.2	0.2	0.3	9.8	14.8	0.4	19.8	0.4	5.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	6.5	2.8	3.1	3.9	4.2	7.0	8.3	2.5	11.8	5.2	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.3	32.1	16.8	52.2	37.6	37.8	54.0	59.4	41.4	60.9	37.3	45.2
LnGrp LOS	D	C	B	D	D	D	D	E	D	E	D	D
Approach Vol, veh/h	1330			638			619			862		
Approach Delay, s/veh	36.7			40.2			54.3			50.0		
Approach LOS	D			D			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	40.5			30.6	25.1	30.8		23.5				
Change Period (Y+Rc), s	4.7	6.8		5.1	* 4.7	6.8		5.1				
Max Green Setting (Gmax), s	25.0			28.5	* 21	16.8		22.5				
Max Q Clear Time (g_c+I), s	17.8			24.6	20.3	11.8		17.7				
Green Ext Time (p_c), s	0.0	1.8		0.9	0.1	1.0		0.8				

Intersection Summary

HCM 6th Ctrl Delay	43.8
HCM 6th LOS	D

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.

APPENDIX F

LONG-TERM (HORIZON YEAR 2050) INTERSECTION ANALYSIS WORKSHEETS

HCM 6th Signalized Intersection Summary

1: N Rancho Santa Fe Rd & W. Mission Rd

Year 2050 AM
11/28/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	650	380	220	380	0	300	0	160	0	0	0
Future Volume (veh/h)	0	650	380	220	380	0	300	0	160	0	0	0
Initial Q (Qb), 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		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	1856	1856	1856	1856	1856	0	1856	0	1856			
Adj Flow Rate, veh/h	0	823	481	259	447	0	326	0	174			
Peak Hour Factor	0.79	0.79	0.79	0.85	0.85	0.85	0.92	0.92	0.92			
Percent Heavy Veh, %	3	3	3	3	3	0	3	0	3			
Cap, veh/h	82	1238	528	360	1793	0	968	0	781			
Arrive On Green	0.00	0.35	0.35	0.20	0.51	0.00	0.28	0.00	0.28			
Sat Flow, veh/h	1767	3526	1503	1767	3618	0	3428	0	2768			
Grp Volume(v), veh/h	0	823	481	259	447	0	326	0	174			
Grp Sat Flow(s),veh/h/ln	1767	1763	1503	1767	1763	0	1714	0	1384			
Q Serve(g_s), s	0.0	21.3	33.0	14.8	7.7	0.0	8.1	0.0	5.2			
Cycle Q Clear(g_c), s	0.0	21.3	33.0	14.8	7.7	0.0	8.1	0.0	5.2			
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	82	1238	528	360	1793	0	968	0	781			
V/C Ratio(X)	0.00	0.66	0.91	0.72	0.25	0.00	0.34	0.00	0.22			
Avail Cap(c_a), veh/h	82	1302	555	360	1857	0	968	0	781			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	29.7	33.5	40.1	14.9	0.0	30.7	0.0	29.7			
Incr Delay (d2), s/veh	0.0	1.2	18.9	11.7	0.1	0.0	0.9	0.0	0.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	8.7	14.0	7.3	2.9	0.0	3.4	0.0	1.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	30.9	52.3	51.9	15.0	0.0	31.7	0.0	30.3			
LnGrp LOS	A	C	D	D	B	A	C	A	C			
Approach Vol, veh/h	1304			706			500					
Approach Delay, s/veh	38.8			28.5			31.2					
Approach LOS	D			C			C					
Timer - Assigned Phs	1	2			5	6		8				
Phs Duration (G+Y+Rc), s	27.0	44.0			10.0	61.0		37.0				
Change Period (Y+Rc), s	5.0	* 6.1			5.0	* 6.1		6.5				
Max Green Setting (Gmax), s	22.0	* 40			5.0	* 57		30.5				
Max Q Clear Time (g_c+I1), s	16.8	35.0			0.0	9.7		10.1				
Green Ext Time (p_c), s	0.3	2.9			0.0	2.9		1.7				
Intersection Summary												
HCM 6th Ctrl Delay	34.4											
HCM 6th LOS	C											
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.												
User approved changes to right turn type.												

HCM 6th Signalized Intersection Summary

2: N Pacific St & W. Mission Rd

Year 2050 AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	730	90	0	640	30	0	0	70	90	0	50
Future Volume (veh/h)	30	730	90	0	640	30	0	0	70	90	0	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	1.00		0.97	1.00		0.94
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	1726	1726	1726	0	1726	1726	0	1726	1726	1726	1726	1726
Adj Flow Rate, veh/h	37	890	110	0	821	38	0	0	95	120	0	67
Peak Hour Factor	0.82	0.82	0.82	0.78	0.78	0.78	0.74	0.74	0.74	0.75	0.75	0.75
Percent Heavy Veh, %	3	3	3	0	3	3	0	3	3	3	3	3
Cap, veh/h	144	1252	155	0	910	42	0	0	385	191	0	160
Arrive On Green	0.09	0.43	0.43	0.00	0.29	0.29	0.00	0.00	0.27	0.12	0.00	0.12
Sat Flow, veh/h	1643	2921	361	0	3268	147	0	0	1417	1643	0	1381
Grp Volume(v), veh/h	37	499	501	0	423	436	0	0	95	120	0	67
Grp Sat Flow(s),veh/h/ln	1643	1639	1643	0	1639	1690	0	0	1417	1643	0	1381
Q Serve(g_s), s	1.9	23.1	23.1	0.0	23.0	23.0	0.0	0.0	4.8	6.4	0.0	4.2
Cycle Q Clear(g_c), s	1.9	23.1	23.1	0.0	23.0	23.0	0.0	0.0	4.8	6.4	0.0	4.2
Prop In Lane	1.00		0.22	0.00		0.09	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	144	703	704	0	469	483	0	0	385	191	0	160
V/C Ratio(X)	0.26	0.71	0.71	0.00	0.90	0.90	0.00	0.00	0.25	0.63	0.00	0.42
Avail Cap(c_a), veh/h	144	773	775	0	525	541	0	0	385	446	0	375
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.4	21.7	21.7	0.0	31.8	31.8	0.0	0.0	26.3	39.0	0.0	38.0
Incr Delay (d2), s/veh	4.3	2.2	2.2	0.0	16.6	16.2	0.0	0.0	1.5	1.3	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	8.4	8.4	0.0	10.6	10.9	0.0	0.0	1.8	2.6	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.6	23.9	23.9	0.0	48.3	48.0	0.0	0.0	27.8	40.3	0.0	38.6
LnGrp LOS	D	C	C	A	D	D	A	A	C	D	A	D
Approach Vol, veh/h	1037			859			95			187		
Approach Delay, s/veh	24.6			48.1			27.8			39.7		
Approach LOS	C			D			C			D		
Timer - Assigned Phs	2			4		5	6		8			
Phs Duration (G+Y+Rc), s	46.4			15.8		13.2	33.2		30.2			
Change Period (Y+Rc), s	* 6.8			5.1		5.1	6.8		5.1			
Max Green Setting (Gmax), s	* 44			25.1		8.1	29.6		25.1			
Max Q Clear Time (g_c+I1), s	25.1			8.4		3.9	25.0		6.8			
Green Ext Time (p_c), s	3.6			0.4		0.0	1.5		0.3			

Intersection Summary

HCM 6th Ctrl Delay 35.3
HCM 6th LOS D

Notes

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

HCM 6th Signalized Intersection Summary

3: N. Las Posas Rd & W. Mission Rd

Year 2050 AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	500	100	400	450	150	90	520	350	150	770	60
Future Volume (veh/h)	180	500	100	400	450	150	90	520	350	150	770	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		0.94	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	1856	1856	1726	1726	1856	1856	1726	1726	1726	1856	1726	1856
Adj Flow Rate, veh/h	225	625	125	460	517	172	110	634	427	158	811	63
Peak Hour Factor	0.80	0.80	0.80	0.87	0.87	0.87	0.82	0.82	0.82	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	212	1122	568	385	825	273	137	896	974	286	1215	94
Arrive On Green	0.12	0.32	0.32	0.12	0.32	0.32	0.08	0.27	0.27	0.08	0.27	0.27
Sat Flow, veh/h	1767	3526	1401	3188	2572	850	1643	3279	2424	3428	4446	344
Grp Volume(v), veh/h	225	625	125	460	353	336	110	634	427	158	572	302
Grp Sat Flow(s), veh/h/ln	1767	1763	1401	1594	1763	1659	1643	1639	1212	1714	1570	1649
Q Serve(g_s), s	14.4	17.6	7.0	14.5	20.4	20.7	7.9	20.9	15.5	5.3	19.4	19.6
Cycle Q Clear(g_c), s	14.4	17.6	7.0	14.5	20.4	20.7	7.9	20.9	15.5	5.3	19.4	19.6
Prop In Lane	1.00		1.00	1.00		0.51	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	212	1122	568	385	566	532	137	896	974	286	858	451
V/C Ratio(X)	1.06	0.56	0.22	1.19	0.62	0.63	0.80	0.71	0.44	0.55	0.67	0.67
Avail Cap(c_a), veh/h	212	1122	568	385	566	532	137	902	978	286	864	454
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.90	0.90	0.90	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.8	33.9	23.6	52.8	34.6	34.7	54.0	39.3	26.7	52.9	38.7	38.8
Incr Delay (d2), s/veh	78.9	2.0	0.9	110.1	5.1	5.6	34.7	4.2	1.3	7.5	4.1	7.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.8	7.6	2.4	11.5	9.2	8.8	4.5	8.6	4.5	2.5	7.7	8.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	131.7	35.9	24.5	162.9	39.8	40.3	88.7	43.5	28.0	60.4	42.8	46.5
LnGrp LOS	F	D	C	F	D	D	F	D	C	E	D	D
Approach Vol, veh/h	975				1149				1171			
Approach Delay, s/veh	56.5				89.2				42.1			
Approach LOS	E				F				D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.1	39.6	20.8	44.5	15.1	39.6	20.5	44.8				
Change Period (Y+Rc), s	5.1	6.8	6.3	6.3	5.1	6.8	* 6.1	* 6.3				
Max Green Setting (Gmax), s	10.0	33.0	14.5	38.0	10.0	33.0	* 14	* 39				
Max Q Clear Time (g_c+I1), s	17.3	22.9	16.5	19.6	9.9	21.6	16.4	22.7				
Green Ext Time (p_c), s	0.1	2.8	0.0	2.6	0.0	2.7	0.0	2.3				

Intersection Summary

HCM 6th Ctrl Delay 58.9
HCM 6th LOS E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
User approved changes to right turn type.

HCM 6th Signalized Intersection Summary

4: Knoll Rd/Drwy & W. Mission Rd

Year 2050 AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	520	220	270	680	10	200	10	190	10	10	20
Future Volume (veh/h)	10	520	220	270	680	10	200	10	190	10	10	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93	1.00		0.94	1.00		0.96	1.00		0.93
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	1856	1856	1726	1726	1856	1856	1726	1726	1726	1856	1726	1856
Adj Flow Rate, veh/h	13	693	293	297	747	11	284	0	260	12	12	25
Peak Hour Factor	0.75	0.75	0.75	0.91	0.91	0.91	0.73	0.73	0.73	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	37	1410	546	179	1750	26	702	0	301	50	50	87
Arrive On Green	0.02	0.40	0.40	0.11	0.49	0.49	0.21	0.00	0.21	0.06	0.06	0.06
Sat Flow, veh/h	1767	3526	1364	1643	3553	52	3287	0	1410	842	842	1455
Grp Volume(v), veh/h	13	693	293	297	371	387	284	0	260	24	0	25
Grp Sat Flow(s), veh/h/ln	1767	3526	1364	1643	3553	1842	1643	0	1410	1684	0	1455
Q Serve(g_s), s	0.7	14.7	16.4	10.9	13.5	13.5	7.4	0.0	17.8	1.4	0.0	1.6
Cycle Q Clear(g_c), s	0.7	14.7	16.4	10.9	13.5	13.5	7.4	0.0	17.8	1.4	0.0	1.6
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	0.50		1.00
Lane Grp Cap(c), veh/h	37	1410	546	179	869	908	702	0	301	100	0	87
V/C Ratio(X)	0.35	0.49	0.54	1.66	0.43	0.43	0.40	0.00	0.86	0.24	0.00	0.29
Avail Cap(c_a), veh/h	124	1410	546	179	869	908	887	0	381	135	0	116
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	48.3	22.4	22.9	44.5	16.3	16.3	33.8	0.0	37.9	44.9	0.0	45.0
Incr Delay (d2), s/veh	2.0	1.2	3.8	319.5	1.5	1.5	0.1	0.0	13.0	0.5	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	5.9	5.5	20.2	5.3	5.5	2.9	0.0	7.1	0.6	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.3	23.6	26.7	364.1	17.8	17.8	34.0	0.0	50.9	45.3	0.0	45.7
LnGrp LOS	D	C	C	F	B	B	C	A	D	D	A	D
Approach Vol, veh/h	999			1055			544			49		
Approach Delay, s/veh	24.9			115.3			42.1			45.5		
Approach LOS	C			F			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.0	45.8		11.1	6.7	55.1		27.1				
Change Period (Y+Rc), s	5.1	5.8		* 5.2	4.6	5.8		5.7				
Max Green Setting (Gmax), s	10.9	32.3		* 8	7.0	36.7		27.0				
Max Q Clear Time (g_c+1/2g), s	18.4			3.6	2.7	15.5		19.8				
Green Ext Time (p_c), s	0.0	3.0		0.0	0.0	2.6		0.7				

Intersection Summary

HCM 6th Ctrl Delay 64.8

HCM 6th LOS E

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

5: N. Las Posas Rd & Armorlite Dr

Year 2050 AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	20	170	10	50	40	900	130	30	1380	10
Future Volume (veh/h)	10	0	20	170	10	50	40	900	130	30	1380	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	12	0	25	187	11	55	48	1071	155	35	1624	12
Peak Hour Factor	0.80	0.80	0.80	0.91	0.91	0.91	0.84	0.84	0.84	0.85	0.85	0.85
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	40	0	252	150	60	300	91	2108	305	77	2418	18
Arrive On Green	0.02	0.00	0.17	0.09	0.23	0.23	0.05	0.47	0.47	0.04	0.47	0.47
Sat Flow, veh/h	1767	0	1506	1767	261	1305	1767	4444	642	1767	5186	38
Grp Volume(v), veh/h	12	0	25	187	0	66	48	813	413	35	1058	578
Grp Sat Flow(s),veh/h/ln	1767	0	1506	1767	0	1566	1767	1689	1709	1767	1689	1847
Q Serve(g_s), s	0.7	0.0	1.4	8.5	0.0	3.4	2.6	16.7	16.7	1.9	24.3	24.3
Cycle Q Clear(g_c), s	0.7	0.0	1.4	8.5	0.0	3.4	2.6	16.7	16.7	1.9	24.3	24.3
Prop In Lane	1.00		1.00	1.00		0.83	1.00		0.38	1.00		0.02
Lane Grp Cap(c), veh/h	40	0	252	150	0	359	91	1602	811	77	1574	861
V/C Ratio(X)	0.30	0.00	0.10	1.24	0.00	0.18	0.53	0.51	0.51	0.46	0.67	0.67
Avail Cap(c_a), veh/h	141	0	587	150	0	619	124	1602	811	124	1574	861
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.18	0.18	0.18	0.53	0.53	0.53
Uniform Delay (d), s/veh	48.1	0.0	35.3	45.8	0.0	31.0	46.2	18.2	18.2	46.7	20.7	20.7
Incr Delay (d2), s/veh	1.5	0.0	0.1	153.8	0.0	0.1	0.3	0.2	0.4	0.8	1.2	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.5	10.2	0.0	1.3	1.1	6.0	6.1	0.8	8.9	10.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.6	0.0	35.3	199.6	0.0	31.1	46.6	18.4	18.6	47.5	22.0	23.0
LnGrp LOS	D	A	D	F	A	C	D	B	B	D	C	C
Approach Vol, veh/h	37			253			1274			1671		
Approach Delay, s/veh	40.0			155.6			19.5			22.9		
Approach LOS	D			F			B			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	50.4	53.4	14.0	22.2	11.2	52.6	7.8	28.5				
Change Period (Y+Rc), s	6.0	6.0	5.5	5.5	6.0	6.0	5.5	5.5				
Max Green Setting (Gmax), s	7.0	22.5	8.5	39.0	7.0	22.5	8.0	39.5				
Max Q Clear Time (g_c+I), s	13.9	18.7	10.5	3.4	4.6	26.3	2.7	5.4				
Green Ext Time (p_c), s	0.0	1.9	0.0	0.1	0.0	0.0	0.0	0.3				

Intersection Summary

HCM 6th Ctrl Delay	32.1
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary

7: N. Las Posas Rd & Descanso Ave

Year 2050 AM

11/28/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	40	130	170	20	30	70	950	140	20	1510	40
Future Volume (veh/h)	20	40	130	170	20	30	70	950	140	20	1510	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.94	1.00		0.94
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	24	47	153	233	27	41	71	864	141	20	1541	41
Peak Hour Factor	0.85	0.85	0.85	0.73	0.73	0.73	0.99	0.99	0.99	0.98	0.98	0.98
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	172	336	425	955	181	276	158	1053	171	88	1045	28
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.09	0.24	0.24	0.05	0.21	0.21
Sat Flow, veh/h	617	1208	1525	3428	652	989	1767	4352	705	1767	5063	135
Grp Volume(v), veh/h	71	0	153	233	0	68	71	669	336	20	1028	554
Grp Sat Flow(s),veh/h/ln	1825	0	1525	1714	0	1641	1767	1689	1680	1767	1689	1821
Q Serve(g_s), s	4.1	0.0	11.3	7.4	0.0	4.4	5.3	26.2	26.5	1.5	28.9	28.9
Cycle Q Clear(g_c), s	4.1	0.0	11.3	7.4	0.0	4.4	5.3	26.2	26.5	1.5	28.9	28.9
Prop In Lane	0.34		1.00	1.00		0.60	1.00		0.42	1.00		0.07
Lane Grp Cap(c), veh/h	508	0	425	955	0	457	158	817	407	88	697	376
V/C Ratio(X)	0.14	0.00	0.36	0.24	0.00	0.15	0.45	0.82	0.83	0.23	1.48	1.48
Avail Cap(c_a), veh/h	508	0	425	955	0	457	158	817	407	88	697	376
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	0.95	0.95	0.95	0.72	0.72	0.72
Uniform Delay (d), s/veh	37.9	0.0	40.5	39.1	0.0	38.0	60.5	50.2	50.3	63.9	55.6	55.6
Incr Delay (d2), s/veh	0.6	0.0	2.4	0.6	0.0	0.7	8.6	8.6	16.5	4.2	219.5	224.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	4.6	3.2	0.0	1.9	2.7	11.8	12.7	0.8	33.2	36.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.5	0.0	42.9	39.7	0.0	38.7	69.1	58.7	66.8	68.1	275.1	279.7
LnGrp LOS	D	A	D	D	A	D	E	E	E	E	F	F
Approach Vol, veh/h		224			301			1076			1602	
Approach Delay, s/veh		41.5			39.5			61.9			274.1	
Approach LOS		D			D			E			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.5	40.4		45.5	18.5	35.4		45.5				
Change Period (Y+Rc), s	6.5	* 6.5		6.5	6.0	6.5		6.5				
Max Green Setting (Gmax), s	7.0	* 30		39.0	12.5	24.0		39.0				
Max Q Clear Time (g_c+I1), s	3.5	28.5		13.3	7.3	30.9		9.4				
Green Ext Time (p_c), s	0.0	0.5		0.5	0.0	0.0		0.7				

Intersection Summary

HCM 6th Ctrl Delay 164.5

HCM 6th LOS F

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 8: N. Las Posas Rd & SR-78 WB Ramps

Year 2050 AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↰	↰		↰	↰		↰	↰	↰
Traffic Volume (veh/h)	0	0	0	580	10	270	270	910	0	0	1600	450
Future Volume (veh/h)	0	0	0	580	10	270	270	910	0	0	1600	450
Initial Q (Qb), 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		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				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				467	239	293	307	1034	0	0	1778	500
Peak Hour Factor				0.92	0.92	0.92	0.88	0.88	0.88	0.90	0.90	0.90
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				497	209	257	256	3039	0	0	1606	437
Arrive On Green				0.28	0.28	0.28	0.15	0.60	0.00	0.00	0.41	0.41
Sat Flow, veh/h				1767	745	913	1767	5233	0	0	4103	1070
Grp Volume(v), veh/h				467	0	532	307	1034	0	0	1517	761
Grp Sat Flow(s),veh/h/ln				1767	0	1658	1767	1689	0	0	1689	1629
Q Serve(g_s), s				25.8	0.0	28.1	14.5	10.3	0.0	0.0	40.8	40.8
Cycle Q Clear(g_c), s				25.8	0.0	28.1	14.5	10.3	0.0	0.0	40.8	40.8
Prop In Lane				1.00		0.55	1.00		0.00	0.00		0.66
Lane Grp Cap(c), veh/h				497	0	466	256	3039	0	0	1378	665
V/C Ratio(X)				0.94	0.00	1.14	1.20	0.34	0.00	0.00	1.10	1.15
Avail Cap(c_a), veh/h				497	0	466	256	3039	0	0	1378	665
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.78	0.78	0.00	0.00	0.09	0.09
Uniform Delay (d), s/veh				35.1	0.0	36.0	42.8	10.1	0.0	0.0	29.6	29.6
Incr Delay (d2), s/veh				25.9	0.0	86.8	114.9	0.2	0.0	0.0	46.7	67.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				14.4	0.0	22.3	14.2	3.3	0.0	0.0	23.9	26.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				61.0	0.0	122.8	157.6	10.3	0.0	0.0	76.3	96.7
LnGrp LOS				E	A	F	F	B	A	A	F	F
Approach Vol, veh/h						999		1341			2278	
Approach Delay, s/veh						93.9		44.0			83.1	
Approach LOS						F		D			F	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		66.8			19.2	47.6		33.2				
Change Period (Y+Rc), s		6.8			* 4.7	6.8		5.1				
Max Green Setting (Gmax), s		60.0			* 15	40.8		28.1				
Max Q Clear Time (g_c+I1), s		12.3			16.5	42.8		30.1				
Green Ext Time (p_c), s		4.9			0.0	0.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay	74.1
HCM 6th LOS	E

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

9: N. Las Posas Rd & Grand Ave

Year 2050 AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	220	20	130	200	580	30	480	190	610	790	630
Future Volume (veh/h)	180	220	20	130	200	580	30	480	190	610	790	630
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.97	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No				No			
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	247	301	27	144	222	644	35	565	224	701	908	724
Peak Hour Factor	0.73	0.73	0.73	0.90	0.90	0.90	0.85	0.85	0.85	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	595	950	85	145	369	744	169	1119	430	265	1042	715
Arrive On Green	0.17	0.29	0.29	0.08	0.20	0.20	0.10	0.31	0.31	0.08	0.30	0.30
Sat Flow, veh/h	3428	3265	291	1767	1856	2663	1767	3569	1370	3428	3526	1496
Grp Volume(v), veh/h	247	161	167	144	222	644	35	534	255	701	908	724
Grp Sat Flow(s),veh/h/ln	1714	1763	1793	1767	1856	1332	1767	1689	1562	1714	1763	1496
Q Serve(g_s), s	7.1	7.9	8.0	9.0	12.0	21.9	2.0	14.2	14.8	8.5	26.9	32.5
Cycle Q Clear(g_c), s	7.1	7.9	8.0	9.0	12.0	21.9	2.0	14.2	14.8	8.5	26.9	32.5
Prop In Lane	1.00		0.16	1.00		1.00	1.00		0.88	1.00		1.00
Lane Grp Cap(c), veh/h	595	513	522	145	369	744	169	1059	490	265	1042	715
V/C Ratio(X)	0.41	0.31	0.32	1.00	0.60	0.87	0.21	0.50	0.52	2.65	0.87	1.01
Avail Cap(c_a), veh/h	595	513	522	145	369	744	169	1059	490	265	1042	715
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.70	0.70	0.70	1.00	1.00	1.00	0.09	0.09	0.09
Uniform Delay (d), s/veh	40.5	30.4	30.5	50.5	40.1	38.0	45.9	30.8	31.0	50.7	36.8	29.5
Incr Delay (d2), s/veh	2.1	1.6	1.6	61.6	1.4	7.3	2.8	1.7	3.9	741.7	1.0	13.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.1	3.5	3.6	6.3	5.5	8.7	1.0	5.8	5.8	30.8	11.1	20.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.6	32.0	32.1	112.1	41.4	45.3	48.7	32.5	34.9	792.5	37.8	42.9
LnGrp LOS	D	C	C	F	D	D	D	C	C	F	D	F
Approach Vol, veh/h	575				1010				824		2333	
Approach Delay, s/veh	36.6				54.0				33.9		266.2	
Approach LOS	D				D				C		F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	41.0	41.0	15.5	38.5	17.0	39.0	25.6	28.4				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	34.5	34.5	9.0	32.0	10.5	32.5	19.1	21.9				
Max Q Clear Time (g_c+10), s	16.8	16.8	11.0	10.0	4.0	34.5	9.1	23.9				
Green Ext Time (p_c), s	0.0	3.0	0.0	1.1	0.0	0.0	0.3	0.0				

Intersection Summary

HCM 6th Ctrl Delay 152.8
HCM 6th LOS F

Notes

User approved changes to right turn type.

HCM 6th Signalized Intersection Summary

10: Via Vera Cruz & Grand Ave

Year 2050 AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↱	↑↑	↰	↰↱↱	↑↑↑		↰	↰	↰	↰	↑	↰
Traffic Volume (veh/h)	520	430	140	70	310	90	80	90	40	190	320	470
Future Volume (veh/h)	520	430	140	70	310	90	80	90	40	190	320	470
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.94	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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	553	457	149	79	348	101	91	102	45	198	333	490
Peak Hour Factor	0.94	0.94	0.94	0.89	0.89	0.89	0.88	0.88	0.88	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	531	939	579	173	819	225	194	204	163	546	573	472
Arrive On Green	0.16	0.27	0.27	0.10	0.21	0.21	0.11	0.11	0.11	0.31	0.31	0.31
Sat Flow, veh/h	3428	3526	1523	1767	3916	1075	1767	1856	1481	1767	1856	1528
Grp Volume(v), veh/h	553	457	149	79	297	152	91	102	45	198	333	490
Grp Sat Flow(s), veh/h/ln	1714	1763	1523	1767	1689	1614	1767	1856	1481	1767	1856	1528
Q Serve(g_s), s	15.5	10.9	6.8	4.2	7.6	8.2	4.8	5.2	2.8	8.7	15.1	30.9
Cycle Q Clear(g_c), s	15.5	10.9	6.8	4.2	7.6	8.2	4.8	5.2	2.8	8.7	15.1	30.9
Prop In Lane	1.00		1.00	1.00		0.67	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	531	939	579	173	706	338	194	204	163	546	573	472
V/C Ratio(X)	1.04	0.49	0.26	0.46	0.42	0.45	0.47	0.50	0.28	0.36	0.58	1.04
Avail Cap(c_a), veh/h	531	939	579	194	706	338	194	204	163	546	573	472
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.3	30.9	21.6	42.6	34.3	34.5	41.8	41.9	40.9	26.9	29.1	34.5
Incr Delay (d2), s/veh	24.2	0.2	0.1	0.7	0.1	0.3	0.7	0.7	0.3	0.2	1.0	51.6
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	8.1	4.5	2.8	1.8	3.0	3.1	2.1	2.3	1.0	3.6	6.6	17.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.4	31.1	21.7	43.3	34.4	34.9	42.4	42.6	41.2	27.0	30.1	86.2
LnGrp LOS	F	C	C	D	C	C	D	D	D	C	C	F
Approach Vol, veh/h	1159			528			238			1021		
Approach Delay, s/veh	46.7			35.9			42.3			56.4		
Approach LOS	D			D			D			E		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	34.5	33.4		36.0	20.2	27.7		16.1				
Change Period (Y+Rc), s	4.7	6.8		5.1	* 4.7	6.8		5.1				
Max Green Setting (Gmax), s	25.4			30.9	* 16	20.9		11.0				
Max Q Clear Time (g_c+I), s	12.9			32.9	17.5	10.2		7.2				
Green Ext Time (p_c), s	0.0	1.8		0.0	0.0	1.3		0.2				

Intersection Summary

HCM 6th Ctrl Delay 47.8
HCM 6th LOS D

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

1: N Rancho Santa Fe Rd & W. Mission Rd

Year 2050 PM
11/28/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 		 		 			
Traffic Volume (veh/h)	0	1010	210	220	460	0	440	0	560	0	0	0
Future Volume (veh/h)	0	1010	210	220	460	0	440	0	560	0	0	0
Initial Q (Qb), 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		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	1856	1856	1856	1856	1856	0	1856	0	1856			
Adj Flow Rate, veh/h	0	1247	259	265	554	0	489	0	622			
Peak Hour Factor	0.81	0.81	0.81	0.83	0.83	0.83	0.90	0.90	0.90			
Percent Heavy Veh, %	3	3	3	3	3	0	3	0	3			
Cap, veh/h	82	1382	591	311	1839	0	922	0	744			
Arrive On Green	0.00	0.39	0.39	0.18	0.52	0.00	0.27	0.00	0.27			
Sat Flow, veh/h	1767	3526	1507	1767	3618	0	3428	0	2768			
Grp Volume(v), veh/h	0	1247	259	265	554	0	489	0	622			
Grp Sat Flow(s),veh/h/ln	1767	1763	1507	1767	1763	0	1714	0	1384			
Q Serve(g_s), s	0.0	35.9	13.6	15.7	9.6	0.0	13.1	0.0	22.9			
Cycle Q Clear(g_c), s	0.0	35.9	13.6	15.7	9.6	0.0	13.1	0.0	22.9			
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	82	1382	591	311	1839	0	922	0	744			
V/C Ratio(X)	0.00	0.90	0.44	0.85	0.30	0.00	0.53	0.00	0.84			
Avail Cap(c_a), veh/h	82	1451	620	311	1908	0	922	0	744			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	30.9	24.1	43.1	14.6	0.0	33.6	0.0	37.2			
Incr Delay (d2), s/veh	0.0	8.0	0.5	24.3	0.1	0.0	2.2	0.0	10.8			
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	15.7	4.7	8.7	3.6	0.0	5.6	0.0	8.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	38.8	24.6	67.4	14.7	0.0	35.8	0.0	48.0			
LnGrp LOS	A	D	C	E	B	A	D	A	D			
Approach Vol, veh/h		1506			819			1111				
Approach Delay, s/veh		36.4			31.8			42.6				
Approach LOS		D			C			D				
Timer - Assigned Phs	1	2			5	6		8				
Phs Duration (G+Y+Rc), s	24.0	48.4			10.0	62.4		35.5				
Change Period (Y+Rc), s	5.0	* 6.1			5.0	* 6.1		6.5				
Max Green Setting (Gmax), s	19.0	* 44			5.0	* 58		29.0				
Max Q Clear Time (g_c+I1), s	17.7	37.9			0.0	11.6		24.9				
Green Ext Time (p_c), s	0.1	4.4			0.0	3.7		1.9				

Intersection Summary

HCM 6th Ctrl Delay	37.3
HCM 6th LOS	D

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

2: N Pacific St & W. Mission Rd

Year 2050 PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	1190	60	0	690	60	0	0	90	50	0	40
Future Volume (veh/h)	50	1190	60	0	690	60	0	0	90	50	0	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.95	1.00		0.99	1.00		0.95
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	1726	1726	1726	0	1726	1726	0	1726	1726	1726	1726	1726
Adj Flow Rate, veh/h	56	1337	67	0	758	66	0	0	120	57	0	45
Peak Hour Factor	0.89	0.89	0.89	0.91	0.91	0.91	0.75	0.75	0.75	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	0	3	3	0	3	3	3	3	3
Cap, veh/h	120	1247	62	0	833	73	0	0	327	372	0	314
Arrive On Green	0.07	0.39	0.39	0.00	0.27	0.27	0.00	0.00	0.23	0.23	0.00	0.23
Sat Flow, veh/h	1643	3168	158	0	3123	264	0	0	1443	1643	0	1388
Grp Volume(v), veh/h	56	690	714	0	409	415	0	0	120	57	0	45
Grp Sat Flow(s),veh/h/ln	1643	1639	1687	0	1639	1661	0	0	1443	1643	0	1388
Q Serve(g_s), s	3.6	43.6	43.6	0.0	26.7	26.8	0.0	0.0	7.8	3.1	0.0	2.9
Cycle Q Clear(g_c), s	3.6	43.6	43.6	0.0	26.7	26.8	0.0	0.0	7.8	3.1	0.0	2.9
Prop In Lane	1.00		0.09	0.00		0.16	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	120	645	664	0	450	456	0	0	327	372	0	314
V/C Ratio(X)	0.47	1.07	1.07	0.00	0.91	0.91	0.00	0.00	0.37	0.15	0.00	0.14
Avail Cap(c_a), veh/h	120	645	664	0	450	456	0	0	327	372	0	314
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	49.3	33.6	33.6	0.0	38.9	38.9	0.0	0.0	36.1	34.3	0.0	34.3
Incr Delay (d2), s/veh	12.4	55.7	56.8	0.0	21.8	21.7	0.0	0.0	3.2	0.9	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	26.1	27.0	0.0	13.0	13.1	0.0	0.0	3.0	1.3	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.7	89.3	90.4	0.0	60.7	60.6	0.0	0.0	39.3	35.2	0.0	35.2
LnGrp LOS	E	F	F	A	E	E	A	A	D	D	A	D
Approach Vol, veh/h	1460			824			120			102		
Approach Delay, s/veh	88.8			60.7			39.3			35.2		
Approach LOS	F			E			D			D		
Timer - Assigned Phs	2			4		5	6		8			
Phs Duration (G+Y+Rc), s	50.4			30.2		13.2	37.2		30.2			
Change Period (Y+Rc), s	* 6.8			5.1		5.1	6.8		5.1			
Max Green Setting (Gmax), s	* 44			25.1		8.1	29.6		25.1			
Max Q Clear Time (g_c+I1), s	45.6			5.1		5.6	28.8		9.8			
Green Ext Time (p_c), s	0.0			0.2		0.0	0.3		0.4			

Intersection Summary

HCM 6th Ctrl Delay	75.0
HCM 6th LOS	E

Notes

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

HCM 6th Signalized Intersection Summary

3: N. Las Posas Rd & W. Mission Rd

Year 2050 PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	240	1070	160	450	460	130	170	910	580	150	590	70
Future Volume (veh/h)	240	1070	160	450	460	130	170	910	580	150	590	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.95	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	1856	1856	1726	1726	1856	1856	1726	1726	1726	1856	1726	1856
Adj Flow Rate, veh/h	253	1126	168	469	479	135	200	1071	682	170	670	80
Peak Hour Factor	0.95	0.95	0.95	0.96	0.96	0.96	0.85	0.85	0.85	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	191	1122	573	385	898	251	137	1082	1121	286	1405	166
Arrive On Green	0.11	0.32	0.32	0.12	0.33	0.33	0.08	0.33	0.33	0.08	0.33	0.33
Sat Flow, veh/h	1767	3526	1419	3188	2700	755	1643	3279	2456	3428	4256	503
Grp Volume(v), veh/h	253	1126	168	469	311	303	200	1071	682	170	492	258
Grp Sat Flow(s),veh/h/ln	1767	1763	1419	1594	1763	1693	1643	1639	1228	1714	1570	1618
Q Serve(g_s), s	13.0	38.2	9.6	14.5	17.2	17.4	10.0	39.0	25.3	5.7	15.0	15.2
Cycle Q Clear(g_c), s	13.0	38.2	9.6	14.5	17.2	17.4	10.0	39.0	25.3	5.7	15.0	15.2
Prop In Lane	1.00		1.00	1.00		0.45	1.00		1.00	1.00		0.31
Lane Grp Cap(c), veh/h	191	1122	573	385	586	563	137	1082	1121	286	1036	534
V/C Ratio(X)	1.32	1.00	0.29	1.22	0.53	0.54	1.46	0.99	0.61	0.60	0.48	0.48
Avail Cap(c_a), veh/h	191	1122	573	385	586	563	137	1082	1121	286	1036	534
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	0.47	0.47	0.47	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.5	40.9	24.4	52.8	32.5	32.6	55.0	40.0	25.1	53.0	31.9	32.0
Incr Delay (d2), s/veh	176.4	27.7	1.3	119.3	3.4	3.7	225.2	16.5	1.2	8.8	1.6	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	20.1	3.3	12.0	7.6	7.5	12.6	17.4	7.1	2.8	5.7	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	229.9	68.6	25.7	172.0	35.9	36.2	280.2	56.5	26.2	61.9	33.5	35.1
LnGrp LOS	F	F	C	F	D	D	F	E	C	E	C	D
Approach Vol, veh/h	1547				1083		1953				920	
Approach Delay, s/veh	90.3				94.9		68.8				39.2	
Approach LOS	F				F		E				D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.1	46.6	20.8	44.5	15.1	46.6	19.1	46.2				
Change Period (Y+Rc), s	5.1	6.8	6.3	6.3	5.1	6.8	* 6.1	* 6.3				
Max Green Setting (Gmax), s	10.0	33.0	14.5	38.0	10.0	33.0	* 13	* 40				
Max Q Clear Time (g_c+I1), s	17.5	41.0	16.5	40.2	12.0	17.2	15.0	19.4				
Green Ext Time (p_c), s	0.1	0.0	0.0	0.0	0.0	2.6	0.0	2.1				

Intersection Summary

HCM 6th Ctrl Delay	75.0
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
User approved changes to right turn type.

HCM 6th Signalized Intersection Summary

4: Knoll Rd/Drwy & W. Mission Rd

Year 2050 PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	1430	200	190	690	10	180	10	280	10	10	10
Future Volume (veh/h)	10	1430	200	190	690	10	180	10	280	10	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.97	1.00		0.92
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	1856	1856	1726	1726	1856	1856	1726	1726	1726	1856	1726	1856
Adj Flow Rate, veh/h	11	1589	222	209	758	11	208	0	311	17	17	17
Peak Hour Factor	0.90	0.90	0.90	0.91	0.91	0.91	0.90	0.90	0.90	0.60	0.60	0.60
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	32	1440	577	163	1757	25	778	0	335	48	48	83
Arrive On Green	0.02	0.41	0.41	0.10	0.49	0.49	0.24	0.00	0.24	0.06	0.06	0.06
Sat Flow, veh/h	1767	3526	1413	1643	3556	52	3287	0	1413	842	842	1445
Grp Volume(v), veh/h	11	1589	222	209	376	393	208	0	311	34	0	17
Grp Sat Flow(s), veh/h/ln	1767	1763	1413	1643	1763	1844	1643	0	1413	1684	0	1445
Q Serve(g_s), s	0.7	44.9	12.1	10.9	15.1	15.1	5.7	0.0	23.7	2.1	0.0	1.2
Cycle Q Clear(g_c), s	0.7	44.9	12.1	10.9	15.1	15.1	5.7	0.0	23.7	2.1	0.0	1.2
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	0.50		1.00
Lane Grp Cap(c), veh/h	32	1440	577	163	871	911	778	0	335	97	0	83
V/C Ratio(X)	0.34	1.10	0.38	1.28	0.43	0.43	0.27	0.00	0.93	0.35	0.00	0.20
Avail Cap(c_a), veh/h	112	1440	577	163	871	911	807	0	347	122	0	105
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	53.4	32.5	22.8	49.5	17.9	17.9	34.2	0.0	41.1	49.9	0.0	49.4
Incr Delay (d2), s/veh	2.3	57.3	1.9	166.0	1.6	1.5	0.1	0.0	29.7	0.8	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	29.1	4.1	11.8	6.1	6.3	2.3	0.0	10.8	0.9	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.7	89.8	24.8	215.5	19.5	19.4	34.3	0.0	70.8	50.7	0.0	49.9
LnGrp LOS	E	F	C	F	B	B	C	A	E	D	A	D
Approach Vol, veh/h	1822			978			519			51		
Approach Delay, s/veh	81.7			61.3			56.1			50.4		
Approach LOS	F			E			E			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	60.0	50.7		11.5	6.6	60.1		31.7				
Change Period (Y+Rc), s	5.1	5.8		* 5.2	4.6	5.8		5.7				
Max Green Setting (Gmax), s	10.0	42.3		* 8	7.0	46.7		27.0				
Max Q Clear Time (g_c+1/2g), s	11.0	46.9		4.1	2.7	17.1		25.7				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	2.7		0.2				

Intersection Summary

HCM 6th Ctrl Delay 71.4

HCM 6th LOS E

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

5: N. Las Posas Rd & Amorlite Dr

Year 2050 PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	10	130	10	80	10	1680	200	100	1160	10
Future Volume (veh/h)	10	0	10	130	10	80	10	1680	200	100	1160	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	15	0	15	138	11	85	11	1867	222	110	1275	11
Peak Hour Factor	0.67	0.67	0.67	0.94	0.94	0.94	0.90	0.90	0.90	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	47	0	241	133	37	286	32	2248	265	112	2782	24
Arrive On Green	0.03	0.00	0.16	0.08	0.21	0.21	0.02	0.49	0.49	0.06	0.54	0.54
Sat Flow, veh/h	1767	0	1504	1767	177	1370	1767	4571	539	1767	5178	45
Grp Volume(v), veh/h	15	0	15	138	0	96	11	1375	714	110	832	454
Grp Sat Flow(s),veh/h/ln	1767	0	1504	1767	0	1548	1767	1689	1733	1767	1689	1845
Q Serve(g_s), s	0.9	0.0	0.9	8.3	0.0	5.8	0.7	38.4	39.2	6.8	16.6	16.6
Cycle Q Clear(g_c), s	0.9	0.0	0.9	8.3	0.0	5.8	0.7	38.4	39.2	6.8	16.6	16.6
Prop In Lane	1.00		1.00	1.00		0.89	1.00		0.31	1.00		0.02
Lane Grp Cap(c), veh/h	47	0	241	133	0	323	32	1661	852	112	1814	991
V/C Ratio(X)	0.32	0.00	0.06	1.03	0.00	0.30	0.34	0.83	0.84	0.98	0.46	0.46
Avail Cap(c_a), veh/h	129	0	533	133	0	553	112	1661	852	112	1814	991
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.56	0.56	0.56
Uniform Delay (d), s/veh	52.5	0.0	39.2	50.8	0.0	36.7	53.4	24.0	24.2	51.4	15.6	15.6
Incr Delay (d2), s/veh	1.4	0.0	0.0	87.5	0.0	0.2	0.2	0.5	1.0	56.8	0.5	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.4	6.9	0.0	2.2	0.3	14.0	14.8	4.7	6.0	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.0	0.0	39.2	138.4	0.0	36.9	53.6	24.4	25.1	108.2	16.1	16.5
LnGrp LOS	D	A	D	F	A	D	D	C	C	F	B	B
Approach Vol, veh/h	30			234			2100			1396		
Approach Delay, s/veh	46.6			96.8			24.8			23.5		
Approach LOS	D			F			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.0	60.1	13.8	23.1	8.0	65.1	8.4	28.5				
Change Period (Y+Rc), s	6.0	6.0	5.5	5.5	6.0	6.0	5.5	5.5				
Max Green Setting (Gmax), s	32.7	8.3	39.0	7.0	32.7	8.0	39.3					
Max Q Clear Time (g_c+I), s	41.2	10.3	2.9	2.7	18.6	2.9	7.8					
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	4.6	0.0	0.4				

Intersection Summary

HCM 6th Ctrl Delay	29.0
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th Signalized Intersection Summary

7: N. Las Posas Rd & Descanso Ave

Year 2050 PM

11/28/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	40	80	240	20	40	80	1890	310	30	1310	30
Future Volume (veh/h)	40	40	80	240	20	40	80	1890	310	30	1310	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.95	1.00		0.95
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	47	47	94	273	23	45	86	2032	333	34	1506	34
Peak Hour Factor	0.85	0.85	0.85	0.88	0.88	0.88	0.93	0.93	0.93	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	259	259	436	955	153	299	88	1405	224	88	1654	37
Arrive On Green	0.29	0.29	0.29	0.28	0.28	0.28	0.05	0.32	0.32	0.05	0.32	0.32
Sat Flow, veh/h	905	905	1525	3428	549	1074	1767	4370	697	1767	5090	115
Grp Volume(v), veh/h	94	0	94	273	0	68	86	1558	807	34	999	541
Grp Sat Flow(s),veh/h/ln	1810	0	1525	1714	0	1623	1767	1689	1690	1767	1689	1828
Q Serve(g_s), s	5.5	0.0	6.6	8.7	0.0	4.4	6.8	45.0	45.0	2.6	39.7	39.7
Cycle Q Clear(g_c), s	5.5	0.0	6.6	8.7	0.0	4.4	6.8	45.0	45.0	2.6	39.7	39.7
Prop In Lane	0.50		1.00	1.00		0.66	1.00		0.41	1.00		0.06
Lane Grp Cap(c), veh/h	517	0	436	955	0	452	88	1085	543	88	1098	594
V/C Ratio(X)	0.18	0.00	0.22	0.29	0.00	0.15	0.97	1.44	1.49	0.38	0.91	0.91
Avail Cap(c_a), veh/h	517	0	436	955	0	452	88	1085	543	88	1098	594
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	0.84	0.84	0.84	0.89	0.89	0.89
Uniform Delay (d), s/veh	37.7	0.0	38.1	39.6	0.0	38.0	66.4	47.5	47.5	64.4	45.3	45.3
Incr Delay (d2), s/veh	0.8	0.0	1.1	0.8	0.0	0.7	80.8	200.3	227.0	10.9	11.5	18.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	2.6	3.8	0.0	1.9	5.0	48.4	52.5	1.4	17.8	20.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.4	0.0	39.2	40.3	0.0	38.7	147.2	247.8	274.5	75.3	56.8	64.0
LnGrp LOS	D	A	D	D	A	D	F	F	F	E	E	E
Approach Vol, veh/h		188			341			2451			1574	
Approach Delay, s/veh		38.8			40.0			253.0			59.7	
Approach LOS		D			D			F			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.5	52.0		46.5	13.0	52.5		45.5				
Change Period (Y+Rc), s	6.5	* 6.5		6.5	6.0	6.5		6.5				
Max Green Setting (Gmax), s	7.0	* 29		40.0	7.0	28.5		39.0				
Max Q Clear Time (g_c+I1), s	4.6	47.0		8.6	8.8	41.7		10.7				
Green Ext Time (p_c), s	0.0	0.0		0.5	0.0	0.0		0.8				

Intersection Summary

HCM 6th Ctrl Delay 161.4

HCM 6th LOS F

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

8: N. Las Posas Rd & SR-78 WB Ramps

Year 2050 PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↰	↰		↰	↰			↰	↰
Traffic Volume (veh/h)	0	0	0	560	10	310	570	1670	0	0	1130	540
Future Volume (veh/h)	0	0	0	560	10	310	570	1670	0	0	1130	540
Initial Q (Qb), 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		0.97
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				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				478	194	337	600	1758	0	0	1177	562
Peak Hour Factor				0.92	0.92	0.92	0.95	0.95	0.95	0.96	0.96	0.96
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				384	129	224	535	3417	0	0	1111	500
Arrive On Green				0.22	0.22	0.22	0.61	1.00	0.00	0.00	0.33	0.33
Sat Flow, veh/h				1767	594	1031	1767	5233	0	0	3544	1521
Grp Volume(v), veh/h				478	0	531	600	1758	0	0	1177	562
Grp Sat Flow(s),veh/h/ln				1767	0	1625	1767	1689	0	0	1689	1521
Q Serve(g_s), s				23.9	0.0	23.9	33.3	0.0	0.0	0.0	36.2	36.2
Cycle Q Clear(g_c), s				23.9	0.0	23.9	33.3	0.0	0.0	0.0	36.2	36.2
Prop In Lane				1.00		0.63	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				384	0	353	535	3417	0	0	1111	500
V/C Ratio(X)				1.24	0.00	1.50	1.12	0.51	0.00	0.00	1.06	1.12
Avail Cap(c_a), veh/h				384	0	353	535	3417	0	0	1111	500
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.09	0.09	0.00	0.00	0.09	0.09
Uniform Delay (d), s/veh				43.0	0.0	43.1	21.7	0.0	0.0	0.0	36.9	36.9
Incr Delay (d2), s/veh				130.4	0.0	241.1	57.4	0.1	0.0	0.0	29.0	58.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				24.2	0.0	33.1	15.2	0.0	0.0	0.0	18.5	20.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				173.4	0.0	284.1	79.1	0.1	0.0	0.0	65.9	95.0
LnGrp LOS				F	A	F	F	A	A	A	F	F
Approach Vol, veh/h					1009			2358			1739	
Approach Delay, s/veh					231.7			20.2			75.3	
Approach LOS					F			C			E	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		81.0			38.0	43.0		29.0				
Change Period (Y+Rc), s		6.8			* 4.7	6.8		5.1				
Max Green Setting (Gmax), s		74.2			* 33	36.2		23.9				
Max Q Clear Time (g_c+I1), s		2.0			35.3	38.2		25.9				
Green Ext Time (p_c), s		11.3			0.0	0.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay 80.7
HCM 6th LOS F

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

9: N. Las Posas Rd & Grand Ave

Year 2050 PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	410	700	30	110	170	1060	50	1050	240	670	860	340
Future Volume (veh/h)	410	700	30	110	170	1060	50	1050	240	670	860	340
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.97	1.00		0.95
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	539	921	39	116	179	1116	54	1129	258	848	1089	430
Peak Hour Factor	0.76	0.76	0.76	0.95	0.95	0.95	0.93	0.93	0.93	0.79	0.79	0.79
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	496	1001	42	145	423	824	117	1283	293	265	1144	712
Arrive On Green	0.14	0.29	0.29	0.08	0.23	0.23	0.07	0.31	0.31	0.08	0.32	0.32
Sat Flow, veh/h	3428	3441	146	1767	1856	2672	1767	4092	935	3428	3526	1495
Grp Volume(v), veh/h	539	472	488	116	179	1116	54	932	455	848	1089	430
Grp Sat Flow(s),veh/h/ln	1714	1763	1824	1767	1856	1336	1767	1689	1650	1714	1763	1495
Q Serve(g_s), s	15.9	28.5	28.5	7.1	9.1	25.1	3.2	28.8	28.8	8.5	33.2	23.6
Cycle Q Clear(g_c), s	15.9	28.5	28.5	7.1	9.1	25.1	3.2	28.8	28.8	8.5	33.2	23.6
Prop In Lane	1.00		0.08	1.00		1.00	1.00		0.57	1.00		1.00
Lane Grp Cap(c), veh/h	496	513	531	145	423	824	117	1059	517	265	1144	712
V/C Ratio(X)	1.09	0.92	0.92	0.80	0.42	1.35	0.46	0.88	0.88	3.20	0.95	0.60
Avail Cap(c_a), veh/h	496	513	531	145	423	824	117	1059	517	265	1144	712
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.21	0.21	0.21	1.00	1.00	1.00	0.09	0.09	0.09
Uniform Delay (d), s/veh	47.0	37.8	37.8	49.6	36.3	38.3	49.5	35.8	35.8	50.7	36.3	21.8
Incr Delay (d2), s/veh	66.3	24.2	23.6	9.6	0.1	161.5	12.5	10.4	18.9	991.3	2.5	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	11.2	15.2	15.7	3.5	4.0	29.1	1.8	12.7	13.6	40.0	13.8	7.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	113.3	61.9	61.3	59.2	36.3	199.8	61.9	46.2	54.7	1042.1	38.8	22.1
LnGrp LOS	F	E	E	E	D	F	E	D	D	F	D	C
Approach Vol, veh/h	1499			1411			1441			2367		
Approach Delay, s/veh	80.2			167.5			49.5			395.2		
Approach LOS	F			F			D			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	41.0	41.0	15.5	38.5	13.8	42.2	22.4	31.6				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	34.5	34.5	9.0	32.0	7.3	35.7	15.9	25.1				
Max Q Clear Time (g_c+110), s	30.8	30.8	9.1	30.5	5.2	35.2	17.9	27.1				
Green Ext Time (p_c), s	0.0	2.1	0.0	0.7	0.0	0.3	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 202.9
HCM 6th LOS F

Notes

User approved pedestrian interval to be less than phase max green.
User approved changes to right turn type.

HCM 6th Signalized Intersection Summary

10: Via Vera Cruz & Grand Ave

Year 2050 PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑↑		↗	↖	↗	↗	↑	↗
Traffic Volume (veh/h)	610	710	160	130	540	160	290	180	110	400	270	430
Future Volume (veh/h)	610	710	160	130	540	160	290	180	110	400	270	430
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	649	755	170	146	607	68	294	321	138	435	293	315
Peak Hour Factor	0.94	0.94	0.94	0.89	0.89	0.89	0.80	0.80	0.80	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	639	893	687	175	763	84	339	356	290	458	481	394
Arrive On Green	0.19	0.25	0.25	0.10	0.17	0.17	0.19	0.19	0.19	0.26	0.26	0.26
Sat Flow, veh/h	3428	3526	1522	1767	4605	509	1767	1856	1512	1767	1856	1523
Grp Volume(v), veh/h	649	755	170	146	443	232	294	321	138	435	293	315
Grp Sat Flow(s), veh/h/ln	1714	1763	1522	1767	1689	1737	1767	1856	1512	1767	1856	1523
Q Serve(g_s), s	20.5	22.4	7.7	8.9	13.9	14.2	17.7	18.6	8.9	26.6	15.3	21.3
Cycle Q Clear(g_c), s	20.5	22.4	7.7	8.9	13.9	14.2	17.7	18.6	8.9	26.6	15.3	21.3
Prop In Lane	1.00		1.00	1.00		0.29	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	639	893	687	175	559	288	339	356	290	458	481	394
V/C Ratio(X)	1.02	0.85	0.25	0.84	0.79	0.81	0.87	0.90	0.48	0.95	0.61	0.80
Avail Cap(c_a), veh/h	639	893	687	198	559	288	361	380	309	458	481	394
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.7	39.0	19.1	48.7	44.1	44.2	43.1	43.5	39.6	40.1	35.9	38.1
Incr Delay (d2), s/veh	14.9	1.0	0.1	21.2	7.0	14.4	17.7	22.3	0.5	29.4	1.6	10.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.8	9.5	3.7	4.9	6.2	7.1	9.2	10.5	3.3	14.9	6.9	8.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.6	40.0	19.2	69.9	51.1	58.6	60.8	65.8	40.0	69.5	37.5	48.3
LnGrp LOS	F	D	B	E	D	E	E	E	D	E	D	D
Approach Vol, veh/h	1574			821			753			1043		
Approach Delay, s/veh	45.9			56.5			59.1			54.1		
Approach LOS	D			E			E			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.6	34.7		33.6	25.2	25.0		26.2				
Change Period (Y+Rc), s	4.7	6.8		5.1	* 4.7	6.8		5.1				
Max Green Setting (Gmax), s	12	25.0		28.5	* 21	16.8		22.5				
Max Q Clear Time (g_c+I1), s	11	24.4		28.6	22.5	16.2		20.6				
Green Ext Time (p_c), s	0.0	0.3		0.0	0.0	0.2		0.5				

Intersection Summary

HCM 6th Ctrl Delay	52.4
HCM 6th LOS	D

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.

APPENDIX G

LONG-TERM (HORIZON YEAR 2050) + PROJECT INTERSECTION ANALYSIS WORKSHEETS

HCM 6th Signalized Intersection Summary

1: N Rancho Santa Fe Rd & W. Mission Rd

Year 2050 + P AM

11/28/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	651	380	222	384	0	300	0	161	0	0	0
Future Volume (veh/h)	0	651	380	222	384	0	300	0	161	0	0	0
Initial Q (Qb), 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		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	1856	1856	1856	1856	1856	0	1856	0	1856			
Adj Flow Rate, veh/h	0	824	481	261	452	0	326	0	175			
Peak Hour Factor	0.79	0.79	0.79	0.85	0.85	0.85	0.92	0.92	0.92			
Percent Heavy Veh, %	3	3	3	3	3	0	3	0	3			
Cap, veh/h	82	1238	528	360	1793	0	968	0	781			
Arrive On Green	0.00	0.35	0.35	0.20	0.51	0.00	0.28	0.00	0.28			
Sat Flow, veh/h	1767	3526	1503	1767	3618	0	3428	0	2768			
Grp Volume(v), veh/h	0	824	481	261	452	0	326	0	175			
Grp Sat Flow(s),veh/h/ln	1767	1763	1503	1767	1763	0	1714	0	1384			
Q Serve(g_s), s	0.0	21.4	33.0	14.9	7.8	0.0	8.1	0.0	5.2			
Cycle Q Clear(g_c), s	0.0	21.4	33.0	14.9	7.8	0.0	8.1	0.0	5.2			
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	82	1238	528	360	1793	0	968	0	781			
V/C Ratio(X)	0.00	0.67	0.91	0.73	0.25	0.00	0.34	0.00	0.22			
Avail Cap(c_a), veh/h	82	1302	555	360	1857	0	968	0	781			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	29.7	33.5	40.2	15.0	0.0	30.7	0.0	29.7			
Incr Delay (d2), s/veh	0.0	1.2	18.9	12.0	0.1	0.0	0.9	0.0	0.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	8.7	14.0	7.4	2.9	0.0	3.4	0.0	1.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	30.9	52.3	52.2	15.0	0.0	31.7	0.0	30.4			
LnGrp LOS	A	C	D	D	B	A	C	A	C			
Approach Vol, veh/h	1305			713			501					
Approach Delay, s/veh	38.8			28.7			31.2					
Approach LOS	D			C			C					
Timer - Assigned Phs	1	2			5	6		8				
Phs Duration (G+Y+Rc), s	27.0	44.0			10.0	61.0		37.0				
Change Period (Y+Rc), s	5.0	* 6.1			5.0	* 6.1		6.5				
Max Green Setting (Gmax), s	22.0	* 40			5.0	* 57		30.5				
Max Q Clear Time (g_c+I1), s	16.9	35.0			0.0	9.8		10.1				
Green Ext Time (p_c), s	0.3	2.9			0.0	3.0		1.7				

Intersection Summary

HCM 6th Ctrl Delay	34.4
HCM 6th LOS	C

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.

User approved changes to right turn type.

HCM 6th Signalized Intersection Summary

2: N Pacific St & W. Mission Rd

Year 2050 + P AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	732	90	0	646	30	0	0	70	90	0	50
Future Volume (veh/h)	30	732	90	0	646	30	0	0	70	90	0	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	1.00		0.97	1.00		0.94
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	1726	1726	1726	0	1726	1726	0	1726	1726	1726	1726	1726
Adj Flow Rate, veh/h	37	893	110	0	828	38	0	0	95	120	0	67
Peak Hour Factor	0.82	0.82	0.82	0.78	0.78	0.78	0.74	0.74	0.74	0.75	0.75	0.75
Percent Heavy Veh, %	3	3	3	0	3	3	0	3	3	3	3	3
Cap, veh/h	144	1256	155	0	915	42	0	0	384	191	0	160
Arrive On Green	0.09	0.43	0.43	0.00	0.29	0.29	0.00	0.00	0.27	0.12	0.00	0.12
Sat Flow, veh/h	1643	2923	360	0	3270	146	0	0	1417	1643	0	1381
Grp Volume(v), veh/h	37	501	502	0	426	440	0	0	95	120	0	67
Grp Sat Flow(s),veh/h/ln	1643	1639	1643	0	1639	1690	0	0	1417	1643	0	1381
Q Serve(g_s), s	1.9	23.3	23.3	0.0	23.2	23.2	0.0	0.0	4.9	6.5	0.0	4.2
Cycle Q Clear(g_c), s	1.9	23.3	23.3	0.0	23.2	23.2	0.0	0.0	4.9	6.5	0.0	4.2
Prop In Lane	1.00		0.22	0.00		0.09	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	144	705	706	0	471	486	0	0	384	191	0	160
V/C Ratio(X)	0.26	0.71	0.71	0.00	0.90	0.90	0.00	0.00	0.25	0.63	0.00	0.42
Avail Cap(c_a), veh/h	144	771	773	0	523	540	0	0	384	445	0	374
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.5	21.7	21.7	0.0	31.8	31.8	0.0	0.0	26.4	39.1	0.0	38.1
Incr Delay (d2), s/veh	4.3	2.2	2.2	0.0	17.1	16.7	0.0	0.0	1.5	1.3	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	8.5	8.5	0.0	10.8	11.0	0.0	0.0	1.8	2.6	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.8	23.9	23.9	0.0	48.9	48.5	0.0	0.0	28.0	40.4	0.0	38.7
LnGrp LOS	D	C	C	A	D	D	A	A	C	D	A	D
Approach Vol, veh/h	1040			866			95			187		
Approach Delay, s/veh	24.6			48.7			28.0			39.8		
Approach LOS	C			D			C			D		
Timer - Assigned Phs	2		4		5	6	8					
Phs Duration (G+Y+Rc), s	46.6		15.8		13.2	33.4	30.2					
Change Period (Y+Rc), s	* 6.8		5.1		5.1	6.8	5.1					
Max Green Setting (Gmax), s	* 44		25.1		8.1	29.6	25.1					
Max Q Clear Time (g_c+I1), s	25.3		8.5		3.9	25.2	6.9					
Green Ext Time (p_c), s	3.6		0.4		0.0	1.4	0.3					

Intersection Summary

HCM 6th Ctrl Delay 35.6
HCM 6th LOS D

Notes

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

HCM 6th Signalized Intersection Summary

3: N. Las Posas Rd & W. Mission Rd

Year 2050 + P AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑	↗	↖↗	↑↑		↖	↑↑	↗	↖↗	↑↑	↗
Traffic Volume (veh/h)	180	500	102	402	450	150	96	520	357	150	770	60
Future Volume (veh/h)	180	500	102	402	450	150	96	520	357	150	770	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		0.94	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	1856	1856	1726	1726	1856	1856	1726	1726	1726	1856	1726	1856
Adj Flow Rate, veh/h	225	625	128	462	517	172	117	634	435	158	811	63
Peak Hour Factor	0.80	0.80	0.80	0.87	0.87	0.87	0.82	0.82	0.82	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	212	1122	568	385	825	273	137	896	974	286	1215	94
Arrive On Green	0.12	0.32	0.32	0.12	0.32	0.32	0.08	0.27	0.27	0.08	0.27	0.27
Sat Flow, veh/h	1767	3526	1401	3188	2572	850	1643	3279	2424	3428	4446	344
Grp Volume(v), veh/h	225	625	128	462	353	336	117	634	435	158	572	302
Grp Sat Flow(s),veh/h/ln	1767	1763	1401	1594	1763	1659	1643	1639	1212	1714	1570	1649
Q Serve(g_s), s	14.4	17.6	7.2	14.5	20.4	20.7	8.4	20.9	15.9	5.3	19.4	19.6
Cycle Q Clear(g_c), s	14.4	17.6	7.2	14.5	20.4	20.7	8.4	20.9	15.9	5.3	19.4	19.6
Prop In Lane	1.00		1.00	1.00		0.51	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	212	1122	568	385	566	532	137	896	974	286	858	451
V/C Ratio(X)	1.06	0.56	0.23	1.20	0.62	0.63	0.85	0.71	0.45	0.55	0.67	0.67
Avail Cap(c_a), veh/h	212	1122	568	385	566	532	137	902	978	286	864	454
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.90	0.90	0.90	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.8	33.9	23.6	52.8	34.6	34.7	54.3	39.3	26.8	52.9	38.7	38.8
Incr Delay (d2), s/veh	78.9	2.0	0.9	112.1	5.1	5.6	42.2	4.2	1.3	7.5	4.1	7.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	7.6	2.4	11.6	9.2	8.8	5.0	8.6	4.6	2.5	7.7	8.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	131.7	35.9	24.6	164.9	39.8	40.3	96.5	43.5	28.2	60.4	42.8	46.5
LnGrp LOS	F	D	C	F	D	D	F	D	C	E	D	D
Approach Vol, veh/h	978				1151				1186			
Approach Delay, s/veh	56.4				90.1				43.1			
Approach LOS	E				F				D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.1	39.6	20.8	44.5	15.1	39.6	20.5	44.8				
Change Period (Y+Rc), s	5.1	6.8	6.3	6.3	5.1	6.8	* 6.1	* 6.3				
Max Green Setting (Gmax), s	10.0	33.0	14.5	38.0	10.0	33.0	* 14	* 39				
Max Q Clear Time (g_c+I1), s	17.3	22.9	16.5	19.6	10.4	21.6	16.4	22.7				
Green Ext Time (p_c), s	0.1	2.8	0.0	2.6	0.0	2.7	0.0	2.3				

Intersection Summary

HCM 6th Ctrl Delay 59.4
HCM 6th LOS E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
User approved changes to right turn type.

HCM 6th Signalized Intersection Summary

4: Knoll Rd/Drwy & W. Mission Rd

Year 2050 + P AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	525	222	270	681	10	201	10	190	10	10	20
Future Volume (veh/h)	10	525	222	270	681	10	201	10	190	10	10	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93	1.00		0.94	1.00		0.96	1.00		0.93
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	1856	1856	1726	1726	1856	1856	1726	1726	1726	1856	1726	1856
Adj Flow Rate, veh/h	13	700	296	297	748	11	285	0	260	12	12	25
Peak Hour Factor	0.75	0.75	0.75	0.91	0.91	0.91	0.73	0.73	0.73	0.81	0.81	0.81
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	37	1413	547	177	1750	26	702	0	301	50	50	87
Arrive On Green	0.02	0.40	0.40	0.11	0.49	0.49	0.21	0.00	0.21	0.06	0.06	0.06
Sat Flow, veh/h	1767	3526	1365	1643	3553	52	3287	0	1410	842	842	1455
Grp Volume(v), veh/h	13	700	296	297	371	388	285	0	260	24	0	25
Grp Sat Flow(s), veh/h/ln	1767	3526	1365	1643	3553	1842	1643	0	1410	1684	0	1455
Q Serve(g_s), s	0.7	14.8	16.6	10.8	13.5	13.5	7.5	0.0	17.8	1.4	0.0	1.6
Cycle Q Clear(g_c), s	0.7	14.8	16.6	10.8	13.5	13.5	7.5	0.0	17.8	1.4	0.0	1.6
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	0.50		1.00
Lane Grp Cap(c), veh/h	37	1413	547	177	868	908	702	0	301	100	0	87
V/C Ratio(X)	0.35	0.50	0.54	1.67	0.43	0.43	0.41	0.00	0.86	0.24	0.00	0.29
Avail Cap(c_a), veh/h	124	1413	547	177	868	908	887	0	381	135	0	116
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	48.3	22.4	22.9	44.6	16.3	16.3	33.9	0.0	37.9	44.9	0.0	45.0
Incr Delay (d2), s/veh	2.0	1.2	3.8	326.4	1.5	1.5	0.1	0.0	13.0	0.5	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	6.0	5.5	20.3	5.3	5.6	2.9	0.0	7.1	0.6	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.3	23.6	26.7	371.0	17.8	17.8	34.0	0.0	50.9	45.3	0.0	45.7
LnGrp LOS	D	C	C	F	B	B	C	A	D	D	A	D
Approach Vol, veh/h	1009			1056			545			49		
Approach Delay, s/veh	24.9			117.1			42.1			45.5		
Approach LOS	C			F			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.9	45.9		11.1	6.7	55.1		27.1				
Change Period (Y+Rc), s	5.1	5.8		* 5.2	4.6	5.8		5.7				
Max Green Setting (Gmax), s	10.8	32.4		* 8	7.0	36.7		27.0				
Max Q Clear Time (g_c+I12), s	11.8	18.6		3.6	2.7	15.5		19.8				
Green Ext Time (p_c), s	0.0	3.0		0.0	0.0	2.6		0.7				

Intersection Summary

HCM 6th Ctrl Delay 65.4

HCM 6th LOS E

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

5: N. Las Posas Rd & Armorlite Dr

Year 2050 + P AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	20	223	10	63	40	900	146	34	1380	10
Future Volume (veh/h)	10	0	20	223	10	63	40	900	146	34	1380	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	12	0	25	245	11	69	48	1071	174	40	1624	12
Peak Hour Factor	0.80	0.80	0.80	0.91	0.91	0.91	0.84	0.84	0.84	0.85	0.85	0.85
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	40	0	254	150	49	310	91	2048	332	83	2410	18
Arrive On Green	0.02	0.00	0.17	0.09	0.23	0.23	0.05	0.47	0.47	0.05	0.46	0.46
Sat Flow, veh/h	1767	0	1506	1767	214	1343	1767	4363	708	1767	5186	38
Grp Volume(v), veh/h	12	0	25	245	0	80	48	829	416	40	1058	578
Grp Sat Flow(s),veh/h/ln	1767	0	1506	1767	0	1558	1767	1689	1694	1767	1689	1847
Q Serve(g_s), s	0.7	0.0	1.4	8.5	0.0	4.2	2.6	17.3	17.3	2.2	24.4	24.4
Cycle Q Clear(g_c), s	0.7	0.0	1.4	8.5	0.0	4.2	2.6	17.3	17.3	2.2	24.4	24.4
Prop In Lane	1.00		1.00	1.00		0.86	1.00		0.42	1.00		0.02
Lane Grp Cap(c), veh/h	40	0	254	150	0	360	91	1585	795	83	1570	858
V/C Ratio(X)	0.30	0.00	0.10	1.63	0.00	0.22	0.53	0.52	0.52	0.48	0.67	0.67
Avail Cap(c_a), veh/h	141	0	587	150	0	615	124	1585	795	124	1570	858
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.16	0.16	0.16	0.53	0.53	0.53
Uniform Delay (d), s/veh	48.1	0.0	35.1	45.8	0.0	31.2	46.2	18.7	18.7	46.5	20.9	20.9
Incr Delay (d2), s/veh	1.5	0.0	0.1	312.1	0.0	0.1	0.3	0.2	0.4	0.9	1.2	2.3
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	0.3	0.0	0.5	16.8	0.0	1.6	1.1	6.2	6.3	1.0	9.0	10.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.6	0.0	35.2	357.9	0.0	31.3	46.5	18.9	19.1	47.3	22.1	23.1
LnGrp LOS	D	A	D	F	A	C	D	B	B	D	C	C
Approach Vol, veh/h	37			325			1293			1676		
Approach Delay, s/veh	39.9			277.5			19.9			23.0		
Approach LOS	D			F			B			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.7	52.9	14.0	22.4	11.2	52.5	7.8	28.6				
Change Period (Y+Rc), s	6.0	6.0	5.5	5.5	6.0	6.0	5.5	5.5				
Max Green Setting (Gmax), s	7.0	22.5	8.5	39.0	7.0	22.5	8.0	39.5				
Max Q Clear Time (g_c+I), s	14.2	19.3	10.5	3.4	4.6	26.4	2.7	6.2				
Green Ext Time (p_c), s	0.0	1.7	0.0	0.1	0.0	0.0	0.0	0.3				

Intersection Summary

HCM 6th Ctrl Delay	46.9
HCM 6th LOS	D

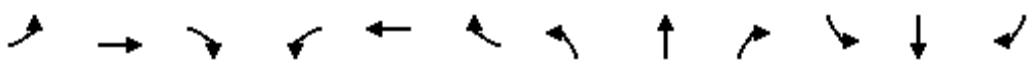
Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	20	90	230	0	0	66
Future Vol, veh/h	20	90	230	0	0	66
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	91	91	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	22	98	253	0	0	72
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	263	0	-	0	415	273
Stage 1	-	-	-	-	263	-
Stage 2	-	-	-	-	152	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1295	-	-	-	592	763
Stage 1	-	-	-	-	779	-
Stage 2	-	-	-	-	874	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1283	-	-	-	570	749
Mov Cap-2 Maneuver	-	-	-	-	570	-
Stage 1	-	-	-	-	757	-
Stage 2	-	-	-	-	865	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.4	0		10.3		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1283	-	-	-	749	
HCM Lane V/C Ratio	0.017	-	-	-	0.096	
HCM Control Delay (s)	7.9	0	-	-	10.3	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3	

HCM 6th Signalized Intersection Summary

7: N. Las Posas Rd & Descanso Ave

Year 2050 + P AM

11/28/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↶	↷	↶↷	↶		↷	↶↷↶		↷	↶↷↶	
Traffic Volume (veh/h)	20	40	130	170	20	30	70	966	140	20	1563	40
Future Volume (veh/h)	20	40	130	170	20	30	70	966	140	20	1563	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.95	1.00		0.94
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	24	47	153	233	27	41	71	878	136	20	1595	41
Peak Hour Factor	0.85	0.85	0.85	0.73	0.73	0.73	0.99	0.99	0.99	0.98	0.98	0.98
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	172	336	425	955	181	276	158	1091	168	88	1079	28
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.09	0.25	0.25	0.05	0.21	0.21
Sat Flow, veh/h	617	1208	1525	3428	652	989	1767	4390	676	1767	5069	130
Grp Volume(v), veh/h	71	0	153	233	0	68	71	674	340	20	1063	573
Grp Sat Flow(s),veh/h/ln	1825	0	1525	1714	0	1641	1767	1689	1688	1767	1689	1822
Q Serve(g_s), s	4.1	0.0	11.3	7.4	0.0	4.4	5.3	26.2	26.5	1.5	29.8	29.8
Cycle Q Clear(g_c), s	4.1	0.0	11.3	7.4	0.0	4.4	5.3	26.2	26.5	1.5	29.8	29.8
Prop In Lane	0.34		1.00	1.00		0.60	1.00		0.40	1.00		0.07
Lane Grp Cap(c), veh/h	508	0	425	955	0	457	158	839	420	88	719	388
V/C Ratio(X)	0.14	0.00	0.36	0.24	0.00	0.15	0.45	0.80	0.81	0.23	1.48	1.48
Avail Cap(c_a), veh/h	508	0	425	955	0	457	158	839	420	88	719	388
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.95	0.95	0.95	0.64	0.64	0.64
Uniform Delay (d), s/veh	37.9	0.0	40.5	39.1	0.0	38.0	60.5	49.4	49.5	63.9	55.1	55.1
Incr Delay (d2), s/veh	0.6	0.0	2.4	0.6	0.0	0.7	8.6	7.7	14.8	3.8	220.2	224.3
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	1.9	0.0	4.6	3.2	0.0	1.9	2.7	11.7	12.7	0.8	34.3	37.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.5	0.0	42.9	39.7	0.0	38.7	69.1	57.1	64.3	67.7	275.3	279.4
LnGrp LOS	D	A	D	D	A	D	E	E	E	E	F	F
Approach Vol, veh/h		224			301			1085			1656	
Approach Delay, s/veh		41.5			39.5			60.1			274.2	
Approach LOS		D			D			E			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.5	41.3		45.5	18.5	36.3		45.5				
Change Period (Y+Rc), s	6.5	* 6.5		6.5	6.0	6.5		6.5				
Max Green Setting (Gmax), s	7.0	* 30		39.0	12.5	24.0		39.0				
Max Q Clear Time (g_c+I1), s	3.5	28.5		13.3	7.3	31.8		9.4				
Green Ext Time (p_c), s	0.0	0.5		0.5	0.0	0.0		0.7				

Intersection Summary

HCM 6th Ctrl Delay 165.5

HCM 6th LOS F

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 8: N. Las Posas Rd & SR-78 WB Ramps

Year 2050 + P AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↰	↰		↰	↰			↰	↰
Traffic Volume (veh/h)	0	0	0	580	10	278	270	918	0	0	1640	463
Future Volume (veh/h)	0	0	0	580	10	278	270	918	0	0	1640	463
Initial Q (Qb), 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		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				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				472	233	302	307	1043	0	0	1822	514
Peak Hour Factor				0.92	0.92	0.92	0.88	0.88	0.88	0.90	0.90	0.90
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				465	189	245	256	3131	0	0	1678	455
Arrive On Green				0.26	0.26	0.26	0.15	0.62	0.00	0.00	0.43	0.43
Sat Flow, veh/h				1767	719	932	1767	5233	0	0	4105	1069
Grp Volume(v), veh/h				472	0	535	307	1043	0	0	1552	784
Grp Sat Flow(s),veh/h/ln				1767	0	1652	1767	1689	0	0	1689	1630
Q Serve(g_s), s				26.3	0.0	26.3	14.5	9.9	0.0	0.0	42.6	42.6
Cycle Q Clear(g_c), s				26.3	0.0	26.3	14.5	9.9	0.0	0.0	42.6	42.6
Prop In Lane				1.00		0.56	1.00		0.00	0.00		0.66
Lane Grp Cap(c), veh/h				465	0	434	256	3131	0	0	1439	694
V/C Ratio(X)				1.02	0.00	1.23	1.20	0.33	0.00	0.00	1.08	1.13
Avail Cap(c_a), veh/h				465	0	434	256	3131	0	0	1439	694
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.77	0.77	0.00	0.00	0.09	0.09
Uniform Delay (d), s/veh				36.8	0.0	36.9	42.8	9.2	0.0	0.0	28.7	28.7
Incr Delay (d2), s/veh				45.7	0.0	122.8	114.6	0.2	0.0	0.0	37.1	59.8
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				17.0	0.0	25.2	14.2	3.1	0.0	0.0	22.9	26.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				82.6	0.0	159.7	157.3	9.4	0.0	0.0	65.8	88.5
LnGrp LOS				F	A	F	F	A	A	A	F	F
Approach Vol, veh/h					1007			1350			2336	
Approach Delay, s/veh					123.5			43.0			73.4	
Approach LOS					F			D			E	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		68.6			19.2	49.4		31.4				
Change Period (Y+Rc), s		6.8			* 4.7	6.8		5.1				
Max Green Setting (Gmax), s		61.8			* 15	42.6		26.3				
Max Q Clear Time (g_c+I1), s		11.9			16.5	44.6		28.3				
Green Ext Time (p_c), s		5.0			0.0	0.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay	75.4
HCM 6th LOS	E

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

9: N. Las Posas Rd & Grand Ave

Year 2050 + P AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	220	20	130	200	586	30	482	190	643	797	630
Future Volume (veh/h)	180	220	20	130	200	586	30	482	190	643	797	630
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.97	1.00		0.95
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	247	301	27	144	222	651	35	567	224	739	916	724
Peak Hour Factor	0.73	0.73	0.73	0.90	0.90	0.90	0.85	0.85	0.85	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	595	950	85	145	369	757	112	1104	423	280	1154	764
Arrive On Green	0.17	0.29	0.29	0.08	0.20	0.20	0.06	0.31	0.31	0.08	0.33	0.33
Sat Flow, veh/h	3428	3265	291	1767	1856	2663	1767	3572	1367	3428	3526	1500
Grp Volume(v), veh/h	247	161	167	144	222	651	35	535	256	739	916	724
Grp Sat Flow(s),veh/h/ln	1714	1763	1793	1767	1856	1332	1767	1689	1562	1714	1763	1500
Q Serve(g_s), s	7.1	7.9	8.0	9.0	12.0	21.9	2.1	14.3	14.9	9.0	26.0	36.0
Cycle Q Clear(g_c), s	7.1	7.9	8.0	9.0	12.0	21.9	2.1	14.3	14.9	9.0	26.0	36.0
Prop In Lane	1.00		0.16	1.00		1.00	1.00		0.88	1.00		1.00
Lane Grp Cap(c), veh/h	595	513	522	145	369	757	112	1044	483	280	1154	764
V/C Ratio(X)	0.41	0.31	0.32	1.00	0.60	0.86	0.31	0.51	0.53	2.63	0.79	0.95
Avail Cap(c_a), veh/h	595	513	522	145	369	757	112	1044	483	280	1154	764
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.69	0.69	0.69	1.00	1.00	1.00	0.09	0.09	0.09
Uniform Delay (d), s/veh	40.5	30.4	30.5	50.5	40.1	37.6	49.2	31.2	31.4	50.5	33.6	26.4
Incr Delay (d2), s/veh	2.1	1.6	1.6	61.1	1.3	6.8	7.1	1.8	4.1	736.5	0.5	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.1	3.5	3.6	6.3	5.5	8.7	1.1	5.8	5.9	32.4	10.6	17.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.6	32.0	32.1	111.6	41.4	44.4	56.3	33.0	35.5	787.0	34.2	29.7
LnGrp LOS	D	C	C	F	D	D	E	C	D	F	C	C
Approach Vol, veh/h	575				1017		826				2379	
Approach Delay, s/veh	36.6				53.3		34.8				266.7	
Approach LOS	D				D		C				F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	40.5	40.5	15.5	38.5	13.5	42.5	25.6	28.4				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	34.0	34.0	9.0	32.0	7.0	36.0	19.1	21.9				
Max Q Clear Time (g_c+M1), s	16.9	16.9	11.0	10.0	4.1	38.0	9.1	23.9				
Green Ext Time (p_c), s	0.0	3.0	0.0	1.1	0.0	0.0	0.3	0.0				

Intersection Summary

HCM 6th Ctrl Delay 153.9
HCM 6th LOS F

Notes

User approved changes to right turn type.

HCM 6th Signalized Intersection Summary

10: Via Vera Cruz & Grand Ave

Year 2050 + P AM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↖↑↑↗			↖	↖	↖	↖	↑	↖
Traffic Volume (veh/h)	546	430	147	70	310	90	82	90	40	190	320	474
Future Volume (veh/h)	546	430	147	70	310	90	82	90	40	190	320	474
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.94	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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	581	457	156	79	348	101	93	102	45	198	333	494
Peak Hour Factor	0.94	0.94	0.94	0.89	0.89	0.89	0.88	0.88	0.88	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	531	939	579	173	819	225	194	204	163	546	573	472
Arrive On Green	0.16	0.27	0.27	0.10	0.21	0.21	0.11	0.11	0.11	0.31	0.31	0.31
Sat Flow, veh/h	3428	3526	1523	1767	3916	1075	1767	1856	1481	1767	1856	1528
Grp Volume(v), veh/h	581	457	156	79	297	152	93	102	45	198	333	494
Grp Sat Flow(s), veh/h/ln	1714	1763	1523	1767	1689	1614	1767	1856	1481	1767	1856	1528
Q Serve(g_s), s	15.5	10.9	7.1	4.2	7.6	8.2	4.9	5.2	2.8	8.7	15.1	30.9
Cycle Q Clear(g_c), s	15.5	10.9	7.1	4.2	7.6	8.2	4.9	5.2	2.8	8.7	15.1	30.9
Prop In Lane	1.00		1.00	1.00		0.67	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	531	939	579	173	706	338	194	204	163	546	573	472
V/C Ratio(X)	1.09	0.49	0.27	0.46	0.42	0.45	0.48	0.50	0.28	0.36	0.58	1.05
Avail Cap(c_a), veh/h	531	939	579	194	706	338	194	204	163	546	573	472
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.3	30.9	21.7	42.6	34.3	34.5	41.8	41.9	40.9	26.9	29.1	34.5
Incr Delay (d2), s/veh	45.3	0.2	0.1	0.7	0.1	0.3	0.7	0.7	0.3	0.2	1.0	54.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.7	4.5	3.0	1.8	3.0	3.1	2.1	2.3	1.0	3.6	6.6	17.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	87.6	31.1	21.8	43.3	34.4	34.9	42.5	42.6	41.2	27.0	30.1	88.7
LnGrp LOS	F	C	C	D	C	C	D	D	D	C	C	F
Approach Vol, veh/h	1194			528			240			1025		
Approach Delay, s/veh	57.4			35.9			42.3			57.7		
Approach LOS	E			D			D			E		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	34.5	33.4		36.0	20.2	27.7		16.1				
Change Period (Y+Rc), s	4.7	6.8		5.1	* 4.7	6.8		5.1				
Max Green Setting (Gmax), s	25.4			30.9	* 16	20.9		11.0				
Max Q Clear Time (g_c+I), s	12.9			32.9	17.5	10.2		7.2				
Green Ext Time (p_c), s	0.0	1.8		0.0	0.0	1.3		0.2				

Intersection Summary

HCM 6th Ctrl Delay 52.5

HCM 6th LOS D

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

1: N Rancho Santa Fe Rd & W. Mission Rd

Year 2050 + P PM

11/28/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 		 		 			
Traffic Volume (veh/h)	0	1015	210	221	462	0	440	0	562	0	0	0
Future Volume (veh/h)	0	1015	210	221	462	0	440	0	562	0	0	0
Initial Q (Qb), 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		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	1856	1856	1856	1856	1856	0	1856	0	1856			
Adj Flow Rate, veh/h	0	1253	259	266	557	0	489	0	624			
Peak Hour Factor	0.81	0.81	0.81	0.83	0.83	0.83	0.90	0.90	0.90			
Percent Heavy Veh, %	3	3	3	3	3	0	3	0	3			
Cap, veh/h	82	1384	592	311	1841	0	920	0	743			
Arrive On Green	0.00	0.39	0.39	0.18	0.52	0.00	0.27	0.00	0.27			
Sat Flow, veh/h	1767	3526	1507	1767	3618	0	3428	0	2768			
Grp Volume(v), veh/h	0	1253	259	266	557	0	489	0	624			
Grp Sat Flow(s),veh/h/ln	1767	1763	1507	1767	1763	0	1714	0	1384			
Q Serve(g_s), s	0.0	36.2	13.6	15.8	9.7	0.0	13.1	0.0	23.0			
Cycle Q Clear(g_c), s	0.0	36.2	13.6	15.8	9.7	0.0	13.1	0.0	23.0			
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	82	1384	592	311	1841	0	920	0	743			
V/C Ratio(X)	0.00	0.91	0.44	0.86	0.30	0.00	0.53	0.00	0.84			
Avail Cap(c_a), veh/h	82	1449	619	311	1906	0	920	0	743			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	30.9	24.1	43.2	14.6	0.0	33.7	0.0	37.3			
Incr Delay (d2), s/veh	0.0	8.2	0.5	24.8	0.1	0.0	2.2	0.0	11.0			
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	15.8	4.7	8.8	3.6	0.0	5.6	0.0	8.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	39.1	24.6	68.0	14.7	0.0	35.9	0.0	48.3			
LnGrp LOS	A	D	C	E	B	A	D	A	D			
Approach Vol, veh/h	1512			823			1113					
Approach Delay, s/veh	36.6			32.0			42.9					
Approach LOS	D			C			D					
Timer - Assigned Phs	1	2			5	6		8				
Phs Duration (G+Y+Rc), s	24.0	48.5			10.0	62.5		35.5				
Change Period (Y+Rc), s	5.0	* 6.1			5.0	* 6.1		6.5				
Max Green Setting (Gmax), s	19.0	* 44			5.0	* 58		29.0				
Max Q Clear Time (g_c+I1), s	17.8	38.2			0.0	11.7		25.0				
Green Ext Time (p_c), s	0.1	4.2			0.0	3.8		1.8				

Intersection Summary

HCM 6th Ctrl Delay 37.5

HCM 6th LOS D

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

2: N Pacific St & W. Mission Rd

Year 2050 + P PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↱			↱↰			↱		↰	↰	
Traffic Volume (veh/h)	50	1197	60	0	693	60	0	0	90	50	0	40
Future Volume (veh/h)	50	1197	60	0	693	60	0	0	90	50	0	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.95	1.00		0.99	1.00		0.95
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	1726	1726	1726	0	1726	1726	0	1726	1726	1726	1726	1726
Adj Flow Rate, veh/h	56	1345	67	0	762	66	0	0	120	57	0	45
Peak Hour Factor	0.89	0.89	0.89	0.91	0.91	0.91	0.75	0.75	0.75	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	0	3	3	0	3	3	3	3	3
Cap, veh/h	120	1247	62	0	834	72	0	0	327	372	0	314
Arrive On Green	0.07	0.39	0.39	0.00	0.27	0.27	0.00	0.00	0.23	0.23	0.00	0.23
Sat Flow, veh/h	1643	3169	157	0	3124	263	0	0	1443	1643	0	1388
Grp Volume(v), veh/h	56	694	718	0	411	417	0	0	120	57	0	45
Grp Sat Flow(s),veh/h/ln	1643	1639	1687	0	1639	1662	0	0	1443	1643	0	1388
Q Serve(g_s), s	3.6	43.6	43.6	0.0	26.9	26.9	0.0	0.0	7.8	3.1	0.0	2.9
Cycle Q Clear(g_c), s	3.6	43.6	43.6	0.0	26.9	26.9	0.0	0.0	7.8	3.1	0.0	2.9
Prop In Lane	1.00		0.09	0.00		0.16	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	120	645	664	0	450	456	0	0	327	372	0	314
V/C Ratio(X)	0.47	1.08	1.08	0.00	0.91	0.91	0.00	0.00	0.37	0.15	0.00	0.14
Avail Cap(c_a), veh/h	120	645	664	0	450	456	0	0	327	372	0	314
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	49.3	33.6	33.6	0.0	38.9	38.9	0.0	0.0	36.1	34.3	0.0	34.3
Incr Delay (d2), s/veh	12.4	57.7	58.9	0.0	22.6	22.5	0.0	0.0	3.2	0.9	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	26.4	27.4	0.0	13.1	13.3	0.0	0.0	3.0	1.3	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.7	91.3	92.5	0.0	61.5	61.4	0.0	0.0	39.3	35.2	0.0	35.2
LnGrp LOS	E	F	F	A	E	E	A	A	D	D	A	D
Approach Vol, veh/h	1468			828			120			102		
Approach Delay, s/veh	90.8			61.5			39.3			35.2		
Approach LOS	F			E			D			D		
Timer - Assigned Phs	2		4		5	6	8					
Phs Duration (G+Y+Rc), s	50.4		30.2		13.2	37.2	30.2					
Change Period (Y+Rc), s	* 6.8		5.1		5.1	6.8	5.1					
Max Green Setting (Gmax), s	* 44		25.1		8.1	29.6	25.1					
Max Q Clear Time (g_c+I1), s	45.6		5.1		5.6	28.9	9.8					
Green Ext Time (p_c), s	0.0		0.2		0.0	0.3	0.4					

Intersection Summary

HCM 6th Ctrl Delay 76.4

HCM 6th LOS E

Notes

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

HCM 6th Signalized Intersection Summary

3: N. Las Posas Rd & W. Mission Rd

Year 2050 + P PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	240	1070	167	457	460	130	173	910	584	150	590	70
Future Volume (veh/h)	240	1070	167	457	460	130	173	910	584	150	590	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.95	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	1856	1856	1726	1726	1856	1856	1726	1726	1726	1856	1726	1856
Adj Flow Rate, veh/h	253	1126	176	476	479	135	204	1071	687	170	670	80
Peak Hour Factor	0.95	0.95	0.95	0.96	0.96	0.96	0.85	0.85	0.85	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	191	1122	573	385	898	251	137	1082	1121	286	1405	166
Arrive On Green	0.11	0.32	0.32	0.12	0.33	0.33	0.08	0.33	0.33	0.08	0.33	0.33
Sat Flow, veh/h	1767	3526	1419	3188	2700	755	1643	3279	2456	3428	4256	503
Grp Volume(v), veh/h	253	1126	176	476	311	303	204	1071	687	170	492	258
Grp Sat Flow(s),veh/h/ln	1767	1763	1419	1594	1763	1693	1643	1639	1228	1714	1570	1618
Q Serve(g_s), s	13.0	38.2	10.2	14.5	17.2	17.4	10.0	39.0	25.6	5.7	15.0	15.2
Cycle Q Clear(g_c), s	13.0	38.2	10.2	14.5	17.2	17.4	10.0	39.0	25.6	5.7	15.0	15.2
Prop In Lane	1.00		1.00	1.00		0.45	1.00		1.00	1.00		0.31
Lane Grp Cap(c), veh/h	191	1122	573	385	586	563	137	1082	1121	286	1036	534
V/C Ratio(X)	1.32	1.00	0.31	1.24	0.53	0.54	1.49	0.99	0.61	0.60	0.48	0.48
Avail Cap(c_a), veh/h	191	1122	573	385	586	563	137	1082	1121	286	1036	534
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.36	0.36	0.36	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.5	40.9	24.5	52.8	32.5	32.6	55.0	40.0	25.1	53.0	31.9	32.0
Incr Delay (d2), s/veh	176.4	27.7	1.4	126.5	3.4	3.7	233.8	14.2	0.9	8.8	1.6	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	20.1	3.5	12.4	7.6	7.5	12.9	17.1	7.2	2.8	5.7	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	229.9	68.6	25.9	179.3	35.9	36.2	288.8	54.2	26.0	61.9	33.5	35.1
LnGrp LOS	F	F	C	F	D	D	F	D	C	E	C	D
Approach Vol, veh/h	1555					1090		1962		920		
Approach Delay, s/veh	90.0					98.6		68.7		39.2		
Approach LOS	F					F		E		D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.1	46.6	20.8	44.5	15.1	46.6	19.1	46.2				
Change Period (Y+Rc), s	5.1	6.8	6.3	6.3	5.1	6.8	* 6.1	* 6.3				
Max Green Setting (Gmax), s	10.0	33.0	14.5	38.0	10.0	33.0	* 13	* 40				
Max Q Clear Time (g_c+I1), s	17.5	41.0	16.5	40.2	12.0	17.2	15.0	19.4				
Green Ext Time (p_c), s	0.1	0.0	0.0	0.0	0.0	2.6	0.0	2.1				

Intersection Summary

HCM 6th Ctrl Delay 75.7
HCM 6th LOS E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
User approved changes to right turn type.

HCM 6th Signalized Intersection Summary

4: Knoll Rd/Drwy & W. Mission Rd

Year 2050 + P PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	1433	201	190	695	10	182	10	280	10	10	10
Future Volume (veh/h)	10	1433	201	190	695	10	182	10	280	10	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.97	1.00		0.92
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	1856	1856	1726	1726	1856	1856	1726	1726	1726	1856	1726	1856
Adj Flow Rate, veh/h	11	1592	223	209	764	11	210	0	311	17	17	17
Peak Hour Factor	0.90	0.90	0.90	0.91	0.91	0.91	0.90	0.90	0.90	0.60	0.60	0.60
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	32	1440	577	163	1757	25	778	0	335	48	48	83
Arrive On Green	0.02	0.41	0.41	0.10	0.49	0.49	0.24	0.00	0.24	0.06	0.06	0.06
Sat Flow, veh/h	1767	3526	1413	1643	3556	51	3287	0	1413	842	842	1445
Grp Volume(v), veh/h	11	1592	223	209	379	396	210	0	311	34	0	17
Grp Sat Flow(s), veh/h/ln	1767	1763	1413	1643	1763	1844	1643	0	1413	1684	0	1445
Q Serve(g_s), s	0.7	44.9	12.2	10.9	15.2	15.2	5.7	0.0	23.7	2.1	0.0	1.2
Cycle Q Clear(g_c), s	0.7	44.9	12.2	10.9	15.2	15.2	5.7	0.0	23.7	2.1	0.0	1.2
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	0.50		1.00
Lane Grp Cap(c), veh/h	32	1440	577	163	871	911	778	0	335	97	0	83
V/C Ratio(X)	0.34	1.11	0.39	1.28	0.43	0.43	0.27	0.00	0.93	0.35	0.00	0.20
Avail Cap(c_a), veh/h	112	1440	577	163	871	911	807	0	347	122	0	105
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	53.4	32.5	22.8	49.5	17.9	17.9	34.2	0.0	41.1	49.9	0.0	49.4
Incr Delay (d2), s/veh	2.3	58.1	1.9	166.0	1.6	1.5	0.1	0.0	29.7	0.8	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	29.3	4.2	11.8	6.1	6.4	2.3	0.0	10.8	0.9	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.7	90.6	24.8	215.5	19.5	19.4	34.3	0.0	70.7	50.7	0.0	49.9
LnGrp LOS	E	F	C	F	B	B	C	A	E	D	A	D
Approach Vol, veh/h	1826			984			521			51		
Approach Delay, s/veh	82.4			61.1			56.1			50.4		
Approach LOS	F			E			E			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	60.0	50.7		11.5	6.6	60.1		31.7				
Change Period (Y+Rc), s	5.1	5.8		* 5.2	4.6	5.8		5.7				
Max Green Setting (Gmax), s	10.0	42.3		* 8	7.0	46.7		27.0				
Max Q Clear Time (g_c+I12), s	10.0	46.9		4.1	2.7	17.2		25.7				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	2.7		0.2				

Intersection Summary

HCM 6th Ctrl Delay 71.6

HCM 6th LOS E

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

5: N. Las Posas Rd & Amorlite Dr

Year 2050 + P PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	10	160	10	87	10	1680	258	114	1160	10
Future Volume (veh/h)	10	0	10	160	10	87	10	1680	258	114	1160	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	15	0	15	170	11	93	11	1867	287	125	1275	11
Peak Hour Factor	0.67	0.67	0.67	0.94	0.94	0.94	0.90	0.90	0.90	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	47	0	241	133	34	289	32	2168	329	112	2780	24
Arrive On Green	0.03	0.00	0.16	0.08	0.21	0.21	0.02	0.49	0.49	0.06	0.54	0.54
Sat Flow, veh/h	1767	0	1504	1767	163	1382	1767	4412	669	1767	5178	45
Grp Volume(v), veh/h	15	0	15	170	0	104	11	1423	731	125	832	454
Grp Sat Flow(s),veh/h/ln	1767	0	1504	1767	0	1545	1767	1689	1703	1767	1689	1845
Q Serve(g_s), s	0.9	0.0	0.9	8.3	0.0	6.3	0.7	40.7	42.1	7.0	16.6	16.6
Cycle Q Clear(g_c), s	0.9	0.0	0.9	8.3	0.0	6.3	0.7	40.7	42.1	7.0	16.6	16.6
Prop In Lane	1.00		1.00	1.00		0.89	1.00		0.39	1.00		0.02
Lane Grp Cap(c), veh/h	47	0	241	133	0	323	32	1660	837	112	1813	991
V/C Ratio(X)	0.32	0.00	0.06	1.27	0.00	0.32	0.34	0.86	0.87	1.11	0.46	0.46
Avail Cap(c_a), veh/h	129	0	533	133	0	552	112	1660	837	112	1813	991
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.54	0.54	0.54
Uniform Delay (d), s/veh	52.5	0.0	39.2	50.8	0.0	36.9	53.4	24.6	24.9	51.5	15.6	15.6
Incr Delay (d2), s/veh	1.4	0.0	0.0	169.4	0.0	0.2	0.2	0.6	1.3	95.5	0.5	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.4	10.0	0.0	2.4	0.3	14.9	15.6	6.0	5.9	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.0	0.0	39.2	220.3	0.0	37.1	53.6	25.2	26.2	147.0	16.1	16.5
LnGrp LOS	D	A	D	F	A	D	D	C	C	F	B	B
Approach Vol, veh/h	30			274			2165			1411		
Approach Delay, s/veh	46.6			150.7			25.7			27.8		
Approach LOS	D			F			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.0	60.1	13.8	23.1	8.0	65.1	8.4	28.5				
Change Period (Y+Rc), s	6.0	6.0	5.5	5.5	6.0	6.0	5.5	5.5				
Max Green Setting (Gmax), s	32.7	8.3	39.0	7.0	32.7	8.0	39.3					
Max Q Clear Time (g_c+I), s	44.1	10.3	2.9	2.7	18.6	2.9	8.3					
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	4.6	0.0	0.4				

Intersection Summary

HCM 6th Ctrl Delay 35.4

HCM 6th LOS D

Notes

User approved pedestrian interval to be less than phase max green.

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	72	320	220	0	0	37
Future Vol, veh/h	72	320	220	0	0	37
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	94	94	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	78	348	234	0	0	40
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	244	0	-	0	758	254
Stage 1	-	-	-	-	244	-
Stage 2	-	-	-	-	514	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1316	-	-	-	373	782
Stage 1	-	-	-	-	794	-
Stage 2	-	-	-	-	598	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1303	-	-	-	339	767
Mov Cap-2 Maneuver	-	-	-	-	339	-
Stage 1	-	-	-	-	728	-
Stage 2	-	-	-	-	592	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.5	0		10		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1303	-	-	-	767	
HCM Lane V/C Ratio	0.06	-	-	-	0.052	
HCM Control Delay (s)	7.9	0	-	-	10	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0.2	-	-	-	0.2	

HCM 6th Signalized Intersection Summary

7: N. Las Posas Rd & Descanso Ave

Year 2050 + P PM

11/28/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	40	80	240	20	40	80	1948	310	30	1340	30
Future Volume (veh/h)	40	40	80	240	20	40	80	1948	310	30	1340	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.95	1.00		0.95
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	47	47	94	273	23	45	86	2095	333	34	1540	34
Peak Hour Factor	0.85	0.85	0.85	0.88	0.88	0.88	0.93	0.93	0.93	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	252	252	425	955	153	299	88	1444	223	88	1692	37
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.05	0.33	0.33	0.05	0.33	0.33
Sat Flow, veh/h	905	905	1525	3428	549	1074	1767	4394	678	1767	5094	112
Grp Volume(v), veh/h	94	0	94	273	0	68	86	1596	833	34	1021	553
Grp Sat Flow(s),veh/h/ln	1810	0	1525	1714	0	1623	1767	1689	1695	1767	1689	1829
Q Serve(g_s), s	5.5	0.0	6.6	8.7	0.0	4.4	6.8	46.0	46.0	2.6	40.5	40.5
Cycle Q Clear(g_c), s	5.5	0.0	6.6	8.7	0.0	4.4	6.8	46.0	46.0	2.6	40.5	40.5
Prop In Lane	0.50		1.00	1.00		0.66	1.00		0.40	1.00		0.06
Lane Grp Cap(c), veh/h	504	0	425	955	0	452	88	1110	557	88	1122	607
V/C Ratio(X)	0.19	0.00	0.22	0.29	0.00	0.15	0.97	1.44	1.49	0.38	0.91	0.91
Avail Cap(c_a), veh/h	504	0	425	955	0	452	88	1110	557	88	1122	607
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	0.84	0.84	0.84	0.87	0.87	0.87
Uniform Delay (d), s/veh	38.4	0.0	38.8	39.6	0.0	38.0	66.4	47.0	47.0	64.4	44.8	44.8
Incr Delay (d2), s/veh	0.8	0.0	1.2	0.8	0.0	0.7	80.8	201.4	230.6	10.7	11.1	18.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	2.7	3.8	0.0	1.9	5.0	49.7	54.4	1.4	18.1	20.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.2	0.0	40.0	40.3	0.0	38.7	147.2	248.4	277.6	75.1	55.9	62.8
LnGrp LOS	D	A	D	D	A	D	F	F	F	E	E	E
Approach Vol, veh/h		188			341			2514			1608	
Approach Delay, s/veh		39.6			40.0			254.6			58.7	
Approach LOS		D			D			F			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.5	53.0		45.5	13.0	53.5		45.5				
Change Period (Y+Rc), s	6.5	* 6.5		6.5	6.0	6.5		6.5				
Max Green Setting (Gmax), s	7.0	* 30		39.0	7.0	29.5		39.0				
Max Q Clear Time (g_c+I1), s	4.6	48.0		8.6	8.8	42.5		10.7				
Green Ext Time (p_c), s	0.0	0.0		0.5	0.0	0.0		0.8				

Intersection Summary

HCM 6th Ctrl Delay 162.5

HCM 6th LOS F

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

8: N. Las Posas Rd & SR-78 WB Ramps

Year 2050 + P PM

11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↰	↰		↰	↰			↰	↰
Traffic Volume (veh/h)	0	0	0	560	10	339	570	1699	0	0	1152	548
Future Volume (veh/h)	0	0	0	560	10	339	570	1699	0	0	1152	548
Initial Q (Qb), 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		0.97
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				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				494	172	368	600	1788	0	0	1200	571
Peak Hour Factor				0.92	0.92	0.92	0.95	0.95	0.95	0.96	0.96	0.96
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				384	111	238	503	3417	0	0	1173	529
Arrive On Green				0.22	0.22	0.22	0.57	1.00	0.00	0.00	0.35	0.35
Sat Flow, veh/h				1767	513	1097	1767	5233	0	0	3544	1522
Grp Volume(v), veh/h				494	0	540	600	1788	0	0	1200	571
Grp Sat Flow(s),veh/h/ln				1767	0	1610	1767	1689	0	0	1689	1522
Q Serve(g_s), s				23.9	0.0	23.9	31.3	0.0	0.0	0.0	38.2	38.2
Cycle Q Clear(g_c), s				23.9	0.0	23.9	31.3	0.0	0.0	0.0	38.2	38.2
Prop In Lane				1.00		0.68	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				384	0	350	503	3417	0	0	1173	529
V/C Ratio(X)				1.29	0.00	1.54	1.19	0.52	0.00	0.00	1.02	1.08
Avail Cap(c_a), veh/h				384	0	350	503	3417	0	0	1173	529
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.09	0.09	0.00	0.00	0.09	0.09
Uniform Delay (d), s/veh				43.0	0.0	43.1	23.7	0.0	0.0	0.0	35.9	35.9
Incr Delay (d2), s/veh				147.4	0.0	258.4	88.9	0.1	0.0	0.0	14.8	39.7
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				26.0	0.0	34.5	19.5	0.0	0.0	0.0	17.1	19.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				190.4	0.0	301.4	112.6	0.1	0.0	0.0	50.7	75.6
LnGrp LOS				F	A	F	F	A	A	A	F	F
Approach Vol, veh/h					1034			2388			1771	
Approach Delay, s/veh					248.4			28.3			58.7	
Approach LOS					F			C			E	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		81.0			36.0	45.0		29.0				
Change Period (Y+Rc), s		6.8			* 4.7	6.8		5.1				
Max Green Setting (Gmax), s		74.2			* 31	38.2		23.9				
Max Q Clear Time (g_c+I1), s		2.0			33.3	40.2		25.9				
Green Ext Time (p_c), s		11.7			0.0	0.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay 82.5

HCM 6th LOS F

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

9: N. Las Posas Rd & Grand Ave

Year 2050 + P PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	410	700	30	110	170	1082	50	1057	240	688	864	340
Future Volume (veh/h)	410	700	30	110	170	1082	50	1057	240	688	864	340
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.97	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No				No			
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	539	921	39	116	179	1139	54	1137	258	871	1094	430
Peak Hour Factor	0.76	0.76	0.76	0.95	0.95	0.95	0.93	0.93	0.93	0.79	0.79	0.79
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	496	1001	42	145	423	834	117	1270	288	277	1144	712
Arrive On Green	0.14	0.29	0.29	0.08	0.23	0.23	0.07	0.31	0.31	0.08	0.32	0.32
Sat Flow, veh/h	3428	3441	146	1767	1856	2672	1767	4098	930	3428	3526	1495
Grp Volume(v), veh/h	539	472	488	116	179	1139	54	937	458	871	1094	430
Grp Sat Flow(s),veh/h/ln	1714	1763	1824	1767	1856	1336	1767	1689	1650	1714	1763	1495
Q Serve(g_s), s	15.9	28.5	28.5	7.1	9.1	25.1	3.2	29.1	29.2	8.9	33.4	23.6
Cycle Q Clear(g_c), s	15.9	28.5	28.5	7.1	9.1	25.1	3.2	29.1	29.2	8.9	33.4	23.6
Prop In Lane	1.00		0.08	1.00		1.00	1.00		0.56	1.00		1.00
Lane Grp Cap(c), veh/h	496	513	531	145	423	834	117	1047	512	277	1144	712
V/C Ratio(X)	1.09	0.92	0.92	0.80	0.42	1.37	0.46	0.89	0.90	3.14	0.96	0.60
Avail Cap(c_a), veh/h	496	513	531	145	423	834	117	1047	512	277	1144	712
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.18	0.18	0.18	1.00	1.00	1.00	0.09	0.09	0.09
Uniform Delay (d), s/veh	47.0	37.8	37.8	49.6	36.3	38.1	49.5	36.2	36.2	50.5	36.4	21.8
Incr Delay (d2), s/veh	66.3	24.2	23.6	8.3	0.0	166.2	12.5	11.7	20.8	963.9	2.7	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	1.2	15.2	15.7	3.4	4.0	30.0	1.8	13.1	14.1	40.8	14.0	7.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	113.3	61.9	61.3	57.9	36.3	204.3	61.9	48.0	57.1	1014.4	39.1	22.1
LnGrp LOS	F	E	E	E	D	F	E	D	E	F	D	C
Approach Vol, veh/h	1499				1434				1449		2395	
Approach Delay, s/veh	80.2				171.5				51.4		390.8	
Approach LOS	F				F				D		F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	40.6	40.6	15.5	38.5	13.8	42.2	22.4	31.6				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	34.1	34.1	9.0	32.0	7.3	35.7	15.9	25.1				
Max Q Clear Time (g_c+I1), s	31.2	31.2	9.1	30.5	5.2	35.4	17.9	27.1				
Green Ext Time (p_c), s	0.0	1.8	0.0	0.7	0.0	0.2	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	203.1
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.
User approved changes to right turn type.

HCM 6th Signalized Intersection Summary

10: Via Vera Cruz & Grand Ave

Year 2050 + P PM
11/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑	↗	↔	↑	↗	↔	↑	↗	↔	↑	↗
Traffic Volume (veh/h)	625	710	164	130	540	160	297	180	110	400	270	445
Future Volume (veh/h)	625	710	164	130	540	160	297	180	110	400	270	445
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	665	755	174	146	607	68	298	327	138	435	293	332
Peak Hour Factor	0.94	0.94	0.94	0.89	0.89	0.89	0.80	0.80	0.80	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	639	883	687	175	751	83	343	360	294	458	481	394
Arrive On Green	0.19	0.25	0.25	0.10	0.16	0.16	0.19	0.19	0.19	0.26	0.26	0.26
Sat Flow, veh/h	3428	3526	1522	1767	4605	509	1767	1856	1512	1767	1856	1523
Grp Volume(v), veh/h	665	755	174	146	443	232	298	327	138	435	293	332
Grp Sat Flow(s), veh/h/ln	1714	1763	1522	1767	1689	1737	1767	1856	1512	1767	1856	1523
Q Serve(g_s), s	20.5	22.5	7.9	8.9	13.9	14.2	18.0	19.0	8.9	26.6	15.3	22.7
Cycle Q Clear(g_c), s	20.5	22.5	7.9	8.9	13.9	14.2	18.0	19.0	8.9	26.6	15.3	22.7
Prop In Lane	1.00		1.00	1.00		0.29	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	639	883	687	175	551	283	343	360	294	458	481	394
V/C Ratio(X)	1.04	0.85	0.25	0.84	0.80	0.82	0.87	0.91	0.47	0.95	0.61	0.84
Avail Cap(c_a), veh/h	639	883	687	198	551	283	361	380	309	458	481	394
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.7	39.3	19.1	48.7	44.3	44.5	43.0	43.3	39.3	40.1	35.9	38.6
Incr Delay (d2), s/veh	23.4	1.1	0.1	21.2	7.9	16.1	18.0	23.4	0.4	29.4	1.6	14.3
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	10.5	9.5	3.9	4.9	6.3	7.2	9.3	10.8	3.3	14.9	6.9	9.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.2	40.4	19.2	69.9	52.2	60.6	60.9	66.7	39.7	69.5	37.5	52.9
LnGrp LOS	F	D	B	E	D	E	E	E	D	E	D	D
Approach Vol, veh/h	1594			821			763			1060		
Approach Delay, s/veh	49.7			57.7			59.6			55.4		
Approach LOS	D			E			E			E		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.6	34.4		33.6	25.2	24.7		26.5				
Change Period (Y+Rc), s	4.7	6.8		5.1	* 4.7	6.8		5.1				
Max Green Setting (Gmax), s	12	25.0		28.5	* 21	16.8		22.5				
Max Q Clear Time (g_c+I1), s	10.5	24.5		28.6	22.5	16.2		21.0				
Green Ext Time (p_c), s	0.0	0.2		0.0	0.0	0.2		0.4				

Intersection Summary

HCM 6th Ctrl Delay 54.5
HCM 6th LOS D

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.

APPENDIX H

EXCERPTS FROM THE CITY OF SAN MARCOS MUNICIPAL CODE PARKING RATE

VOLUME I

2018 Republication of the Code of Ordinances of
San Marcos, California



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P.O. Box 2235 Tallahassee, FL 32316

PREFACE

This Code constitutes a complete republication of the general and permanent ordinances of the City of San Marcos, California.

Page Numbering System

The page numbering system used in this Code is a prefix system. The letters to the left of the colon are an abbreviation which represents a certain portion of the volume. The number to the right of the colon represents the number of the page in that portion. In the case of a title of the Code, the number to the left of the colon indicates the number of the title. The following are typical parts of codes of ordinances, which may or may not appear in this Code at this time, and their corresponding prefixes:

CHARTER	CHT:1
CHARTER COMPARATIVE TABLE	CHTCT:1
RELATED LAWS COMPARATIVE TABLE	RLCT:1
CODE	CD1:1
CODE COMPARATIVE TABLES	CCT:1

- C. **Mixed Use Sites.** Where multiple land uses are combined within a single building, structure, or parcel, off-street parking facilities for a single use shall not be considered as providing required parking facilities for any other uses. The aggregate number of parking spaces for each separate use, required by this chapter, shall be met, except where otherwise specified and a reduction of parking is allowed in compliance with Section 20.340.050 (Off-Street Parking and Trip Reduction Measures).
- D. **Rounding Calculations.** Calculations resulting in a fractional number shall be treated as follows: one (1) parking space is required for fractions of one-half (0.5) or greater; no additional parking space is required for fractions of less than one-half (0.5).
- E. **Calculations.**
1. **Gross Floor Area Calculations.** Gross floor area calculations are based on the area within the surrounding exterior walls of a building or any portion, thereof, including shared bathroom spaces, storage areas, and areas for circulation.
 2. **Seating Calculations.** Where fixed seats provided are either benches, bleachers, or pews, such seats shall be calculated at one (1) seat per eighteen (18) inches and one (1) seat per twenty-four (24) inches of booth length for dining.
 3. **Assembly Area Calculations.** All rooms or areas that can be logically used for seating, in addition to any fixed seating area, shall be calculated in determining the parking requirement for assembly areas.

Table 20.340-1
Parking Requirements by Land Use

Land Use	Minimum Required Parking	Additional Use Regulations
Residential Uses		
Animal Keeping, Small	None required	
Accessory Dwelling Unit/Accessory Dwelling (Ord. 2017-1445, 7/11/2017)	1 space/accessory dwelling unit	
Caretaker Unit	1 space	Interior dimension: 20 feet x 20 feet

Multifamily Dwelling	Studio: 1 space/unit; <u>1 Bedroom Unit:</u> 1.5 space/unit <u>2+ Bedroom Unit*:</u> 2 spaces/unit; 1 space shall be covered Guest Parking: 1 space/3 units	*1 garage space shall be provided for condominiums, duplexes, townhomes, patio homes. Apartments shall provide one covered parking space (garage or carport) of the required ratio. Additional multifamily requirements are provided in Section 20.340.040.G
Multifamily Dwelling, Affordable Housing (deed restricted)	1.7 spaces/unit	Additional multifamily requirements are provided in Section 20.340.040.G
Non-Commercial Horticulture	None required.	
Planned Residential Development (PRD)	Sum of individual parking requirements for each use; residential parking by bedroom count	<u>Chapter 20.435</u> (Planned Residential Development)
Private Residential Garage	None required.	
Recreational Vehicles (RVs)/Parks	To be determined by the Director during SDP or CUP review process.	

Residential Care Facility, Small & Large	1 space/3 residents	Provision of parking shall be based on the population served and level of care provided at the facility. Minimum requirements here are guidelines for establishing appropriate service levels on a case by case basis at time of SDP review
Rooming House	1 space/room; plus 2 spaces	
Senior/Age-Restricted Dwelling or Unit	1.25 spaces/unit	Satisfies resident and visitor parking
Single-Family Attached	2 spaces/unit	1 space shall be covered
Single-Family Detached	≤3,000 s.f. unit: 2 attached covered spaces required; >3,000 s.f. unit: 3 attached covered spaces required	See Table 20.340-5 for additional standards; Section 20.340.060.H
Sport Court, on a Residential Lot	None required.	Residential Zones only.
Supportive Housing	Studio: 1 space/unit 1 Bedroom Unit: 1.5 space/unit 2+ Bedroom Unit: 2 spaces/unit; 1 space shall be covered, Guest Parking: 1 space/3 units	

Agricultural/Horticultural, Non-Commercial	No parking required.	
Agricultural/Horticultural, Commercial	1 space/250 s.f. gross floor area plus 1 space/1,000 s.f. outdoor area usage	
Agricultural/Horticultural, Processing and Packaging	1 space/250 s.f. gross floor area plus 1 space/1,500 s.f. outdoor area/greenhouse space	
Small Animals		
Plants and Crops		
Wholesale Production	1 space/3 employees plus on- site area for 1 commercial loading/unloading vehicle	Only applies in R-1-20 Zone
Greenhouse/Nursery	1 space/250 s.f. gross floor area; plus 1 space/1,500 s.f. outdoor area usage	
Commercial Production		
Retail		
Sales Stand	2 spaces	
General Retail Uses		
Adult Entertainment Business	1 space/250 s.f. gross floor area plus 1 space/2 employees	
Animal Shelter	1 space/250 s.f. gross floor area	

Bar	1 space/3 seats or 1 space/100 s.f. gross floor area whichever is greater	
Catering	2.5 space/1,000 s.f. gross floor area	
Catering, Food Truck	Per issued food facility permit requirements	
Cigar Lounge/Smoke Shop	1 space/250 s.f. gross floor area	
Commercial Artist/Production Studio	1 space/350 s.f. gross floor area	
Commercial Entertainment	1 space/3 seats up to 800 seats then 1 space/6 seats +1 space/employee	
Commercial Recreation, Indoor	1 space/250 s.f. gross floor area; plus 1 space/employee	
Commercial Recreation, Outdoor	4 spaces/court and/or 1 space/200 s.f. gross floor area	
Drive-Through	Parking per primary land use	Refer to stacking per Section 20.340.040.H
Dry Cleaning or Laundry, Plant	1 space/500 s.f. gross floor area	
Employee Services	3 spaces/1,000 s.f.	

Funeral Home/Mortuary	14 spaces/1,000 s.f.	
Kiosk (stand-alone)	2 spaces	
Lodging, Bed & Breakfast	1 space/guest room; plus 2 spaces	
Lodging, Hotel	1 space/guest room; plus 10 spaces/1,000 s.f. banquet, assembly, meeting, or restaurant floor area or 1 space/8 seats; for accessory retail uses greater than 5,000 s.f.: 2.5 spaces/1,000 s.f.	Additional parking per standards if additional uses (e.g., restaurants, conference/convention centers) are open to public patronage
Lodging, Motel		
Market, Grocery/Supermarket	1 space/250 s.f. gross floor area	
Market; Convenience		
Market; Liquor		
Market; Specialty Food and Beverage		
Merchandise Sales, Discount	1 space/250 s.f. gross floor area	
Merchandise Sales, New Retail <100,000 s.f.		
Merchandise Sales, New Retail <30,000 s.f.		

Merchandise Sales, New Retail >100,000 s.f.	1 space/250 s.f. gross floor area	
Merchandise Sales, Showrooms		
Merchandise Sales, Used/Pawn		
Moving Company	1 space/4,000 s.f. gross floor area	
Nightclub	1 space/30 s.f. of dance floor area; 1 space/100 sf of bar/seating area	
Nursery (Retail-Plant)	1 space/250 s.f. gross floor area plus 1 space/1,000 s.f. outdoor area usage	
Outdoor Dining	Area comprising less than 25% of indoor seating shall not require additional parking; area greater than 25% of the indoor spaces shall require 1 space/150 s.f.	
Parcel Delivery Service	1 space/250 s.f. gross floor area For office space; 1 space/500 s.f. gross floor area	

Parking Facility, Enclosed Freestanding	No parking required.	
Parking Lot Sale	No parking required for temporary events; minimum of 80% of parking lot shall be available for parking during event.	<u>20.455</u> Temporary Events
Restaurant, Sit-Down and/or Take-Out	1,000 s.f. or less: 1 space/250 s.f. gross floor area plus 2 employee spaces; 1,001-4,000 s.f.: 1 space/3 seats or 1 space/100 s.f. gross floor area whichever is greater; plus 3 employee spaces; 4,001 s.f. and larger: 1 space/3 seats or 1 space/100 s.f. gross floor area whichever is greater; plus 1 space/employee	
Office, Professional, and Business Support Services		
Business Support Service	4 spaces/1,000 s.f. gross floor area	
Financial Institution	4 spaces/1,000 s.f. gross floor area; for drive-through facilities, refer to stacking per Section 20.340.040.H	
Financial Institution, with Drive-Through		

APPENDIX I

BUS ROUTE SCHEDULE AND MAP

See pg. 6 for Holiday schedules/Ver pág. 276 para obtener los horarios de días festivos

Monday - Friday Westbound to Palomar College <i>Lunes a Viernes • Dirección hacia el oeste</i> <i>a Palomar College</i>				Monday - Friday Eastbound to Cal State San Marcos <i>Lunes a Viernes • Dirección hacia el este</i> <i>a Cal State San Marcos</i>			
CSUSM SPRINTER Station	CSUSM Craven Circle	San Marcos Bl. & Via Vera Cruz	Palomar College Transit Center	Palomar College Transit Center	San Marcos Bl. & Via Vera Cruz	CSUSM Craven Circle	CSUSM SPRINTER Station
1	2	3	4	4	3	2	1
5:16	5:18	5:26	5:33a	5:54	5:59	6:08	6:13a
5:46	5:48	5:57	6:04	6:23	6:28	6:38	6:43
6:16	6:18	6:28	6:35	6:51	6:57	7:07	7:12
6:46	6:48	6:59	7:06	7:21	7:27	7:39	7:44
7:15	7:18	7:29	7:36	7:49	7:56	8:08	8:13
7:47	7:50	8:01	8:08	8:19	8:26	8:39	8:44
8:16	8:19	8:30	8:38	8:49	8:56	9:09	9:14
8:47	8:50	9:01	9:09	9:19	9:26	9:39	9:44
9:17	9:20	9:31	9:39	9:49	9:56	10:09	10:14
9:47	9:50	10:01	10:09	10:19	10:26	10:39	10:44
10:17	10:20	10:31	10:39	10:49	10:56	11:09	11:14
10:47	10:50	11:02	11:10	11:19	11:26	11:39	11:44
11:17	11:20	11:32	11:40	11:49	11:56	12:09	12:14p
11:47	11:50	12:02	12:10p	12:19	12:26	12:39	12:44
12:17	12:20	12:32	12:40	12:49	12:56	1:09	1:14
12:47	12:50	1:02	1:11	1:19	1:26	1:39	1:44
1:17	1:20	1:32	1:41	1:49	1:56	2:09	2:14
1:47	1:50	2:02	2:11	2:18	2:26	2:39	2:44
2:17	2:20	2:32	2:41	2:48	2:57	3:10	3:15
2:47	2:50	3:02	3:11	3:17	3:26	3:40	3:45
3:18	3:21	3:34	3:43	3:47	3:56	4:10	4:15
3:48	3:51	4:04	4:13	4:17	4:26	4:41	4:46
4:18	4:21	4:34	4:43	4:47	4:55	5:10	5:15
4:49	4:52	5:05	5:14	5:18	5:26	5:40	5:45
5:18	5:21	5:34	5:43	5:49	5:56	6:07	6:12
5:48	5:51	6:02	6:10	6:19	6:26	6:37	6:42
6:15	6:17	6:28	6:36	6:51	6:57	7:08	7:13
6:45	6:47	6:58	7:06	7:23	7:29	7:40	7:45

Route 347 does not operate on Sundays or when a Sunday schedule is operated. See page 6 (Holiday Transit Schedule) for details.

La ruta 347 no opera los domingos ni cuando haya programado un horario de domingo. Consulte la pág. 276 (calendario de tránsito para días festivos) para obtener más detalles.

See pg. 6 for Holiday schedules/Ver pág. 276 para obtener los horarios de días festivos

Saturday Westbound to Palomar College <i>Sábado • Dirección hacia el oeste a Palomar College</i>			
CSUSM SPRINTER Station	CSUSM Craven Circle	San Marcos Bl. & Via Vera Cruz	Palomar College Transit Center
1	2	3	4
7:48	7:51	8:01	8:08 _a
8:48	8:51	9:01	9:08
9:47	9:50	10:01	10:08
10:47	10:50	11:01	11:08
11:48	11:51	12:02	12:09_p
12:50	12:53	1:04	1:11
1:50	1:53	2:04	2:11
2:48	2:51	3:02	3:09
3:48	3:51	4:01	4:08
4:48	4:51	5:01	5:08
5:49	5:52	6:01	6:08
6:49	6:52	7:01	7:08

Saturday Eastbound to Cal State San Marcos <i>Sábado • Dirección hacia el este a Cal State San Marcos</i>			
Palomar College Transit Center	San Marcos Bl. & Via Vera Cruz	CSUSM Craven Circle	CSUSM SPRINTER Station
4	3	2	1
7:20	7:25	7:34	7:38 _a
8:20	8:26	8:35	8:39
9:20	9:26	9:36	9:40
10:20	10:27	10:38	10:42
11:20	11:27	11:38	11:42
12:20	12:27	12:40	12:44_p
1:20	1:27	1:40	1:44
2:20	2:26	2:38	2:42
3:20	3:26	3:37	3:41
4:20	4:26	4:37	4:41
5:20	5:26	5:37	5:41
6:20	6:26	6:37	6:41

Route 347 does not operate on Sundays or when a Sunday schedule is operated.
See page 6 (Holiday Transit Schedule) for details.

La ruta 347 no opera los domingos ni cuando haya programado un horario de domingo. Consulte la pág. 276 (calendario de tránsito para días festivos) para obtener más detalles.

445

Carlsbad Poinsettia COASTER Connection to Palomar College

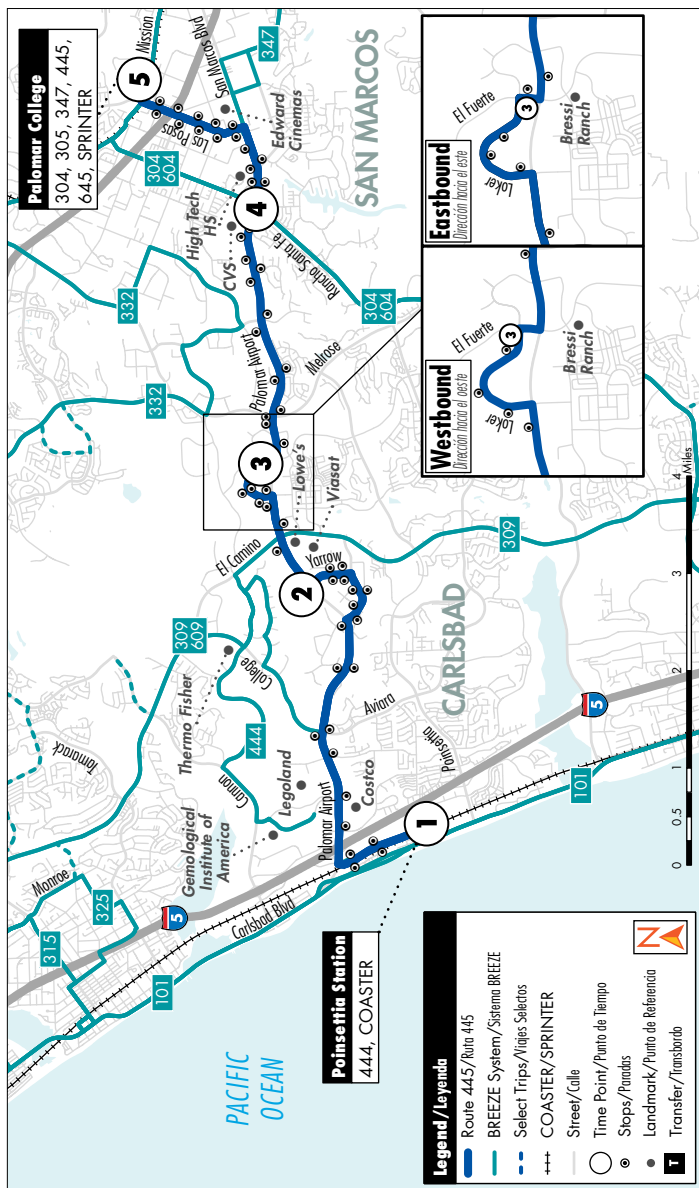
Conexión 445 Carlsbad Poinsettia COASTER a Palomar College

M-F
L-V

Destinations/Destinos

- McClellan Palomar Airport
- Palomar College
- San Marcos High School

- High Tech High School — North County
- Carlsbad Poinsettia COASTER Station
- Viasat



See pg. 6 for Holiday schedules/Ver pág. 276 para obtener los horarios de días festivos

Monday - Friday Eastbound to Palomar College <i>Lunes a Viernes • Dirección hacia el este a Palomar College</i>						
ARRIVING SB COASTER From Oceanside <i>Llegada SB COASTER desde Oceanside</i>	ARRIVING NB COASTER From San Diego <i>Llegada NB COASTER desde San Diego</i>	Carlsbad Poinsettia Station	Palomar Airport Rd. & Yarrow Dr.	Loker Ave. & El Fuerte St.	San Marcos Blvd. & Rancho Santa Fe Rd.	Palomar College Transit Center
COASTER	COASTER	1	2	3	4	5
7:29	7:31	7:36	7:51	7:59	8:08	8:22a
7:49	8:31	8:36	8:51	8:57	9:06	9:19
–	9:11	9:16	9:31	9:37	9:46	9:59
–	9:31	9:36	9:51	9:57	10:06	10:19
4:29	4:31	4:36	4:49	4:56	5:06	5:19p
5:29	5:11	5:36	5:49	5:56	6:06	6:19
6:29	6:31	6:36	6:49	6:56	7:06	7:19

Monday - Friday Westbound to Carlsbad Poinsettia Station <i>Lunes a Viernes • Dirección hacia el oeste a la Estación Carlsbad Poinsettia</i>						
Palomar College Transit Center	San Marcos Blvd. & Rancho Santa Fe Rd.	Loker Ave. & El Fuerte St.	Palomar Airport Rd. & Yarrow Dr.	Carlsbad Poinsettia Station	DEPARTING NB COASTER To Oceanside <i>SALIDA NB COASTER a Oceanside</i>	DEPARTING SB COASTER To San Diego <i>SALIDA SB COASTER a San Diego</i>
5	4	3	2	1	COASTER	COASTER
6:34	6:43	6:50	6:57	7:13a	7:31	7:29a
7:33	7:47	7:56	8:03	8:18	8:31	–
8:31	8:45	8:54	9:01	9:16	9:31	9:49
3:36	3:45	3:52	3:59	4:16p	4:31	4:29p
3:56	4:05	4:12	4:19	4:36	5:11	4:49
4:37	4:46	4:53	5:00	5:16	–	5:29
5:41	5:50	5:56	6:03	6:19	6:31	6:29

Route 445 does not operate on Saturdays, Sundays, or holidays.

La Ruta 445 no opera los sábados, domingos o en días festivos.

Bus may wait up to ten minutes for a late arriving COASTER train.

El autobús puede esperar hasta diez minutos en caso que un tren COASTER esté atrasado.

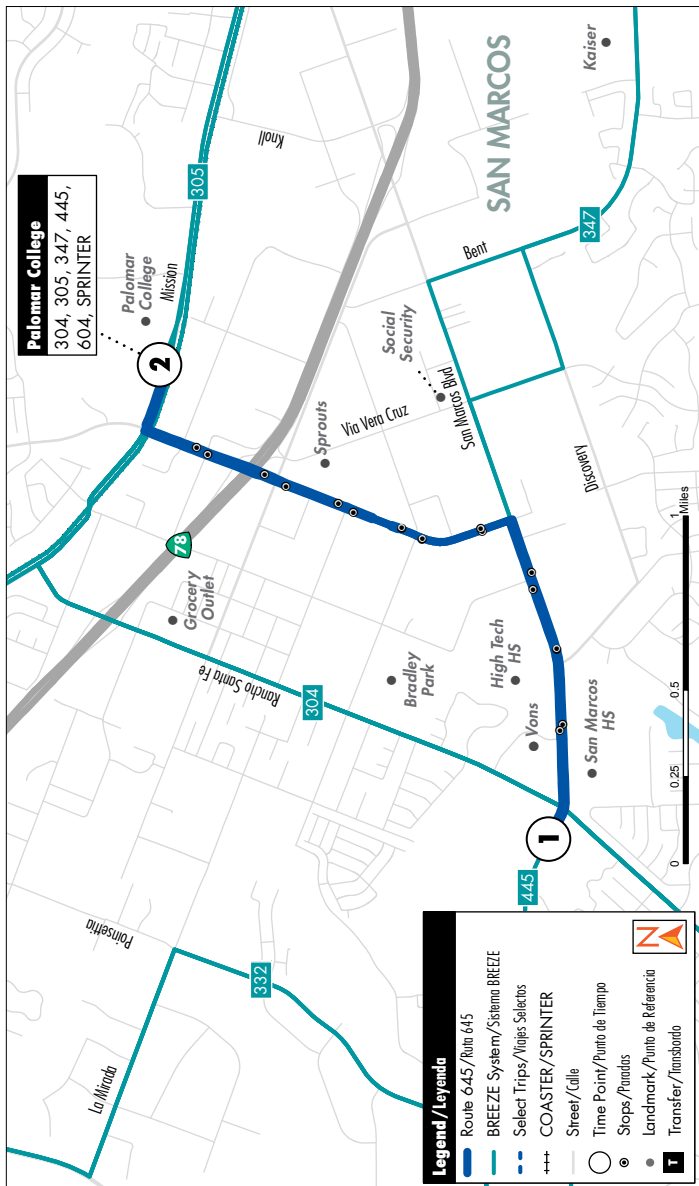
M-F

L-V

Destinations/Destinos

- Palomar College
- San Marcos High School

- High Tech High School — North County
- Edwards Cinemas



See pg. 6 for Holiday schedules/Ver pág. 276 para obtener los horarios de días festivos

Monday - Friday Westbound to San Marcos High School <i>Lunes a Viernes • Dirección hacia el oeste a San Marcos High School</i>	
Palomar College Transit Center	San Marcos Blvd. & Rancho Santa Fe Rd.
1	2
*7:50	*8:10a
**8:33	**8:53

Monday - Friday Eastbound to Palomar College <i>Lunes a Viernes • Dirección hacia el este a Palomar College</i>	
San Marcos Blvd. & Rancho Santa Fe Rd.	Palomar College Transit Center
2	1
3:30	3:50p

Trips will operate when NCTD runs weekday service. NCTD will update trip planning applications and GoNCTD.com if this service changes.

Los viajes funcionarán cuando NCTD opere el servicio en días laborables. Si este servicio se modifica, NCTD actualizará las aplicaciones de planificación de viajes y el sitio **GoNCTD.com**.

- * **Operates Monday, Wednesday, Thursday, and Friday.**
Opera Lunes, Miércoles, Jueves y Viernes.
- ** **Operates Tuesdays only.**
Opera solamente los Martes.

BREEZE "school tripper" bus service only runs while San Marcos High School and/or High Tech High are in session for in-person learning and are subject to change based on bell times. NCTD will update trip planning applications and GoNCTD.com if this service changes.

El servicio de autobús "school tripper" de BREEZE solo opera mientras San Marcos High School y/o High Tech High se encuentre abierta para clases en persona y está sujeto a cambios en función de los horarios de entrada y salida. NCTD actualizará las aplicaciones de planificación de viaje y GoNCTD.com si este servicio cambia.

SPRINTER SCHEDULE

Schedule subject to change / Los horarios están sujetos a cambios

EASTBOUND			OCEANSIDE TO ESCONDIDO																																				
STATIONS	READ DOWN	30 MIN FREQUENCY	MONDAY-SUNDAY (Half-shaded boxes indicate NO SATURDAY, SUNDAY, or HOLIDAY service)																																				
Oceanside Transit Center	↓	:03 :33	4:03a	4:33a	5:03a	5:33a	6:03a	6:33a	7:03a	7:33a	8:03a	8:33a	9:03a	9:33a	10:03a	10:33a	11:03a	11:33a	12:03p	12:33p	1:03p	1:33p	2:03p	2:33p	3:03p	3:33p	4:03p	4:33p	5:03p	5:33p	6:03p	6:33p	7:03p	7:33p	8:03p	8:33p			
Coast Highway	↓	:05 :35	4:05a	4:35a	5:05a	5:35a	6:05a	6:35a	7:05a	7:35a	8:05a	8:35a	9:05a	9:35a	10:05a	10:35a	11:05a	11:35a	12:05p	12:35p	1:05p	1:35p	2:05p	2:35p	3:05p	3:35p	4:05p	4:35p	5:05p	5:35p	6:05p	6:35p	7:05p	7:35p	8:05p	8:35p			
Crouch Street	↓	:07 :37	4:07a	4:37a	5:07a	5:37a	6:07a	6:37a	7:07a	7:37a	8:07a	8:37a	9:07a	9:37a	10:07a	10:37a	11:07a	11:37a	12:07p	12:37p	1:07p	1:37p	2:07p	2:37p	3:07p	3:37p	4:07p	4:37p	5:07p	5:37p	6:07p	6:37p	7:07p	7:37p	8:07p	8:37p			
El Camino Real	↓	:11 :41	4:11a	4:41a	5:11a	5:41a	6:11a	6:41a	7:11a	7:41a	8:11a	8:41a	9:11a	9:41a	10:11a	10:41a	11:11a	11:41a	12:11p	12:41p	1:11p	1:41p	2:11p	2:41p	3:11p	3:41p	4:11p	4:41p	5:11p	5:41p	6:11p	6:41p	7:11p	7:41p	8:11p	8:41p			
Rancho Del Oro	↓	:14 :44	4:14a	4:44a	5:14a	5:44a	6:14a	6:44a	7:14a	7:44a	8:14a	8:44a	9:14a	9:44a	10:14a	10:44a	11:14a	11:44a	12:14p	12:44p	1:14p	1:44p	2:14p	2:44p	3:14p	3:44p	4:14p	4:44p	5:14p	5:44p	6:14p	6:44p	7:14p	7:44p	8:14p	8:44p			
College Boulevard	↓	:17 :47	4:17a	4:47a	5:17a	5:47a	6:17a	6:47a	7:17a	7:47a	8:17a	8:47a	9:17a	9:47a	10:17a	10:47a	11:17a	11:47a	12:17p	12:47p	1:17p	1:47p	2:17p	2:47p	3:17p	3:47p	4:17p	4:47p	5:17p	5:47p	6:17p	6:47p	7:17p	7:47p	8:17p	8:47p			
Melrose Drive	↓	:22 :52	4:22a	4:52a	5:22a	5:52a	6:22a	6:52a	7:22a	7:52a	8:22a	8:52a	9:22a	9:52a	10:22a	10:52a	11:22a	11:52a	12:22p	12:52p	1:22p	1:52p	2:22p	2:52p	3:22p	3:52p	4:22p	4:52p	5:22p	5:52p	6:22p	6:52p	7:22p	7:52p	8:22p	8:52p			
Vista Transit Center	↓	:26 :56	4:26a	4:56a	5:26a	5:56a	6:26a	6:56a	7:26a	7:56a	8:26a	8:56a	9:26a	9:56a	10:26a	10:56a	11:26a	11:56a	12:26p	12:56p	1:26p	1:56p	2:26p	2:56p	3:26p	3:56p	4:26p	4:56p	5:26p	5:56p	6:26p	6:56p	7:26p	7:56p	8:26p	8:56p			
Civic Center-Vista	↓	:29 :59	4:29a	4:59a	5:29a	5:59a	6:29a	6:59a	7:29a	7:59a	8:29a	8:59a	9:29a	9:59a	10:29a	10:59a	11:29a	11:59a	12:29p	12:59p	1:29p	1:59p	2:29p	2:59p	3:29p	3:59p	4:29p	4:59p	5:29p	5:59p	6:29p	6:59p	7:29p	7:59p	8:29p	8:59p			
Buena Creek	↓	:35 :05	4:35a	5:05a	5:35a	6:05a	6:35a	7:05a	7:35a	8:05a	8:35a	9:05a	9:35a	10:05a	10:35a	11:05a	11:35a	12:05p	12:35p	1:05p	1:35p	2:05p	2:35p	3:05p	3:35p	4:05p	4:35p	5:05p	5:35p	6:05p	6:35p	7:05p	7:35p	8:05p	8:35p	9:05p			
Palomar College	↓	:40 :10	4:40a	5:10a	5:40a	6:10a	6:40a	7:10a	7:40a	8:10a	8:40a	9:10a	9:40a	10:10a	10:40a	11:10a	11:40a	12:10p	12:40p	1:10p	1:40p	2:10p	2:40p	3:10p	3:40p	4:10p	4:40p	5:10p	5:40p	6:10p	6:40p	7:10p	7:40p	8:10p	8:40p	9:10p			
San Marcos Civic Center	↓	:43 :13	4:43a	5:13a	5:43a	6:13a	6:43a	7:13a	7:43a	8:13a	8:43a	9:13a	9:43a	10:13a	10:43a	11:13a	11:43a	12:13p	12:43p	1:13p	1:43p	2:13p	2:43p	3:13p	3:43p	4:13p	4:43p	5:13p	5:43p	6:13p	6:43p	7:13p	7:43p	8:13p	8:43p	9:13p			
Cal State San Marcos	↓	:46 :16	4:46a	5:16a	5:46a	6:16a	6:46a	7:16a	7:46a	8:16a	8:46a	9:16a	9:46a	10:16a	10:46a	11:16a	11:46a	12:16p	12:46p	1:16p	1:46p	2:16p	2:46p	3:16p	3:46p	4:16p	4:46p	5:16p	5:46p	6:16p	6:46p	7:16p	7:46p	8:16p	8:46p	9:16p			
Nordahl Road	↓	:51 :21	4:51a	5:21a	5:51a	6:21a	6:51a	7:21a	7:51a	8:21a	8:51a	9:21a	9:51a	10:21a	10:51a	11:21a	11:51a	12:21p	12:51p	1:21p	1:51p	2:21p	2:51p	3:21p	3:51p	4:21p	4:51p	5:21p	5:51p	6:21p	6:51p	7:21p	7:51p	8:21p	8:51p	9:21p			
Escondido Transit Center	↓	:56 :26	4:56a	5:26a	5:56a	6:26a	6:56a	7:26a	7:56a	8:26a	8:56a	9:26a	9:56a	10:26a	10:56a	11:26a	11:56a	12:26p	12:56p	1:26p	1:56p	2:26p	2:56p	3:26p	3:56p	4:26p	4:56p	5:26p	5:56p	6:26p	6:56p	7:26p	7:56p	8:26p	8:56p	9:26p			

EASTBOUND						EB	
FRIDAY NIGHT ONLY						SATURDAY NIGHT ONLY	
9:03p	9:33p	10:03p	10:33p	11:03p	11:33p	9:33p	10:33p 11:33p
9:05p	9:35p	10:05p	10:35p	11:05p	11:35p	9:35p	10:35p 11:35p
9:07p	9:37p	10:07p	10:37p	11:07p	11:37p	9:37p	10:37p 11:37p
9:11p	9:41p	10:11p	10:41p	11:11p	11:41p	9:41p	10:41p 11:41p
9:14p	9:44p	10:14p	10:44p	11:14p	11:44p	9:44p	10:44p 11:44p
9:17p	9:47p	10:17p	10:47p	11:17p	11:47p	9:47p	10:47p 11:47p
9:22p	9:52p	10:22p	10:52p	11:22p	11:52p	9:52p	10:52p 11:52p
9:26p	9:56p	10:26p	10:56p	11:26p	11:56p	9:56p	10:56p 11:56p
9:29p	9:59p	10:29p	10:59p	11:29p	11:59p	9:59p	10:59p 11:59p
9:35p	10:05p	10:35p	11:05p	11:35p	12:05a	10:05p	11:05p 12:05a
9:40p	10:10p	10:40p	11:10p	11:40p	12:10a	10:10p	11:10p 12:10a
9:43p	10:13p	10:43p	11:13p	11:43p	12:13a	10:13p	11:13p 12:13a
9:46p	10:16p	10:46p	11:16p	11:46p	12:16a	10:16p	11:16p 12:16a
9:51p	10:21p	10:51p	11:21p	11:51p	12:21a	10:21p	11:21p 12:21a
9:56p	10:26p	10:56p	11:26p	11:56p	12:26a	10:26p	11:26p 12:26a

WESTBOUND			ESCONDIDO TO OCEANSIDE																																						
STATIONS	READ DOWN	30 MIN FREQUENCY	MONDAY-SUNDAY (Half-shaded boxes indicate NO SATURDAY, SUNDAY, or HOLIDAY service)																																						
Escondido Transit Center	↓	:03 :33	4:03a	4:33a	5:03a	5:33a	6:03a	6:33a	7:03a	7:33a	8:03a	8:33a	9:03a	9:33a	10:03a	10:33a	11:03a	11:33a	12:03p	12:33p	1:03p	1:33p	2:03p	2:33p	3:03p	3:33p	4:03p	4:33p	5:03p	5:33p	6:03p	6:33p	7:03p	7:33p	8:03p	8:33p					
Nordahl Road	↓	:06 :36	4:06a	4:36a	5:06a	5:36a	6:06a	6:36a	7:06a	7:36a	8:06a	8:36a	9:06a	9:36a	10:06a	10:36a	11:06a	11:36a	12:06p	12:36p	1:06p	1:36p	2:06p	2:36p	3:06p	3:36p	4:06p	4:36p	5:06p	5:36p	6:06p	6:36p	7:06p	7:36p	8:06p	8:36p					
Cal State San Marcos	↓	:11 :41	4:11a	4:41a	5:11a	5:41a	6:11a	6:41a	7:11a	7:41a	8:11a	8:41a	9:11a	9:41a	10:11a	10:41a	11:11a	11:41a	12:11p	12:41p	1:11p	1:41p	2:11p	2:41p	3:11p	3:41p	4:11p	4:41p	5:11p	5:41p	6:11p	6:41p	7:11p	7:41p	8:11p	8:41p					
San Marcos Civic Center	↓	:14 :44	4:14a	4:44a	5:14a	5:44a	6:14a	6:44a	7:14a	7:44a	8:14a	8:44a	9:14a	9:44a	10:14a	10:44a	11:14a	11:44a	12:14p	12:44p	1:14p	1:44p	2:14p	2:44p	3:14p	3:44p	4:14p	4:44p	5:14p	5:44p	6:14p	6:44p	7:14p	7:44p	8:14p	8:44p					
Palomar College	↓	:17 :47	4:17a	4:47a	5:17a	5:47a	6:17a	6:47a	7:17a	7:47a	8:17a	8:47a	9:17a	9:47a	10:17a	10:47a	11:17a	11:47a	12:17p	12:47p	1:17p	1:47p	2:17p	2:47p	3:17p	3:47p	4:17p	4:47p	5:17p	5:47p	6:17p	6:47p	7:17p	7:47p	8:17p	8:47p					
Buena Creek	↓	:22 :52	4:22a	4:52a	5:22a	5:52a	6:22a	6:52a	7:22a	7:52a	8:22a	8:52a	9:22a	9:52a	10:22a	10:52a	11:22a	11:52a	12:22p	12:52p	1:22p	1:52p	2:22p	2:52p	3:22p	3:52p	4:22p	4:52p	5:22p	5:52p	6:22p	6:52p	7:22p	7:52p	8:22p	8:52p					
Civic Center-Vista	↓	:27 :57	4:27a	4:57a	5:27a	5:57a	6:27a	6:57a	7:27a	7:57a	8:27a	8:57a	9:27a	9:57a	10:27a	10:57a	11:27a	11:57a	12:27p	12:57p	1:27p	1:57p	2:27p	2:57p	3:27p	3:57p	4:27p	4:57p	5:27p	5:57p	6:27p	6:57p	7:27p	7:57p	8:27p	8:57p					
Vista Transit Center	↓	:30 :00	4:30a	5:00a	5:30a	6:00a	6:30a	7:00a	7:30a	8:00a	8:30a	9:00a	9:30a	10:00a	10:30a	11:00a	11:30a	12:00p	12:30p	1:00p	1:30p	2:00p	2:30p	3:00p	3:30p	4:00p	4:30p	5:00p	5:30p	6:00p	6:30p	7:00p	7:30p	8:00p	8:30p	9:00p					
Melrose Drive	↓	:35 :05	4:35a	5:05a	5:35a	6:05a	6:35a	7:05a	7:35a	8:05a	8:35a	9:05a	9:35a	10:05a	10:35a	11:05a	11:35a	12:05p	12:35p	1:05p	1:35p	2:05p	2:35p	3:05p	3:35p	4:05p	4:35p	5:05p	5:35p	6:05p	6:35p	7:05p	7:35p	8:05p	8:35p	9:05p					
College Boulevard	↓	:40 :10	4:40a	5:10a	5:40a	6:10a	6:40a	7:10a	7:40a	8:10a	8:40a	9:10a	9:40a	10:10a	10:40a	11:10a	11:40a	12:10p	12:40p	1:10p	1:40p	2:10p	2:40p	3:10p	3:40p	4:10p	4:40p	5:10p	5:40p	6:10p	6:40p	7:10p	7:40p	8:10p	8:40p	9:10p					
Rancho Del Oro	↓	:43 :13	4:43a	5:13a	5:43a	6:13a	6:43a	7:13a	7:43a	8:13a	8:43a	9:13a	9:43a	10:13a	10:43a	11:13a	11:43a	12:13p	12:43p	1:13p	1:43p	2:13p	2:43p	3:13p	3:43p	4:13p	4:43p	5:13p	5:43p	6:13p	6:43p	7:13p	7:43p	8:13p	8:43p	9:13p					
El Camino Real	↓	:46 :16	4:46a	5:16a	5:46a	6:16a	6:46a	7:16a	7:46a	8:16a	8:46a	9:16a	9:46a	10:16a	10:46a	11:16a	11:46a	12:16p	12:46p	1:16p	1:46p	2:16p	2:46p	3:16p	3:46p	4:16p	4:46p	5:16p	5:46p	6:16p	6:46p	7:16p	7:46p	8:16p	8:46p	9:16p					
Crouch Street	↓	:49 :19	4:49a	5:19a	5:49a	6:19a	6:49a	7:19a	7:49a	8:19a	8:49a	9:19a	9:49a	10:19a	10:49a	11:19a	11:49a	12:19p	12:49p	1:19p	1:49p	2:19p	2:49p	3:19p	3:49p	4:19p	4:49p	5:19p	5:49p	6:19p	6:49p	7:19p	7:49p	8:19p	8:49p	9:19p					
Coast Highway	↓	:52 :22	4:52a	5:22a	5:52a	6:22a	6:52a	7:22a	7:52a	8:22a	8:52a	9:22a	9:52a	10:22a	10:52a	11:22a	11:52a	12:22p	12:52p	1:22p	1:52p	2:22p	2:52p	3:22p	3:52p	4:22p	4:52p	5:22p	5:52p	6:22p	6:52p	7:22p	7:52p	8:22p	8:52p	9:22p					
Oceanside Transit Center	↓	:56 :26	4:56a	5:26a	5:56a	6:26a	6:56a	7:26a	7:56a	8:26a	8:56a	9:26a	9:56a	10:26a	10:56a	11:26a	11:56a	12:26p	12:56p	1:26p	1:56p	2:26p	2:56p	3:26p	3:56p	4:26p	4:56p	5:26p	5:56p	6:26p	6:56p	7:26p	7:56p	8:26p	8:56p	9:26p					