

LOCAL TRANSPORTATION ANALYSIS
SANTA FE FLORES PROJECT
San Marcos, California
August 30, 2022

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EXECUTIVE SUMMARY

Linscott, Law & Greenspan, Engineers (LLG) has prepared the following Local Transportation Analysis (LTA) to determine and evaluate the potential effects to the local roadway system due to the proposed Santa Fe Flores project (proposed Project). The Project is located in the city of San Marcos at 2972 and 2982 South Santa Fe Avenue adjacent to Las Flores Drive on assessor parcel numbers 217-161-1800 and 217-161-1900. The 2.5-acre Project site is undeveloped and is currently designated Commercial and Light Industrial in the City General Plan and zoned as Commercial and Light Industrial. The Project would be located on a previously graded site and require a General Plan amendment and Rezone to Multifamily Residential to allow the development of 50 multi-family residential units.

The Project is calculated to generate a total of 300 ADT with 24 AM peak hour trips (5 inbound / 19 outbound) and 27 PM peak hour trips (19 inbound and 8 outbound).

While Level of Service (LOS) analysis is not used to determine CEQA significance, the intersection and segment analysis provided in this study shows that the Project will not have any substantial effects at the study area intersections and street segments. Additionally, The LTA shows that the Project will add a small amount of traffic to the intersection of S. Santa Fe Avenue / Smilax Road, which operates below City standards. However, the Project contributes only 0.45% (15 trips) of the total combined AM and PM peak hour traffic to this intersection under Near-Term conditions. The existing traffic conditions at this location are already substandard. The provision of a traffic signal would result in acceptable LOS D or better operations. A traffic signal is planned at the S. Santa Fe Avenue / Smilax Road intersection as part of the City's Capital Improvement Project (CIP) 881479 (IP 4750).

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LOCAL TRANSPORTATION ANALYSIS
SANTA FE FLORES PROJECT

San Marcos, California
August 30, 2022

1.0 INTRODUCTION

Linscott, Law & Greenspan, Engineers (LLG) has prepared the following Local Transportation Analysis (LTA) for the proposed Santa Fe Flores project (proposed Project) located at 2972 and 2982 S. Santa Fe Avenue on the northwest corner of the S. Santa Fe Avenue / Las Flores Drive intersection in the City of San Marcos.

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

- **CEQA Analysis** primarily consisting of Vehicle Miles Traveled (VMT) analysis. Impacts to pedestrians, bicyclists, transit, hazards, and emergency access are also addressed. This is addressed under a separate cover.
- **Non-CEQA Local Transportation Analysis** to evaluate the effects of a development project on the circulation network. The analysis is used to determine consistency with the City's General Plan.

The following items are included in this transportation study:

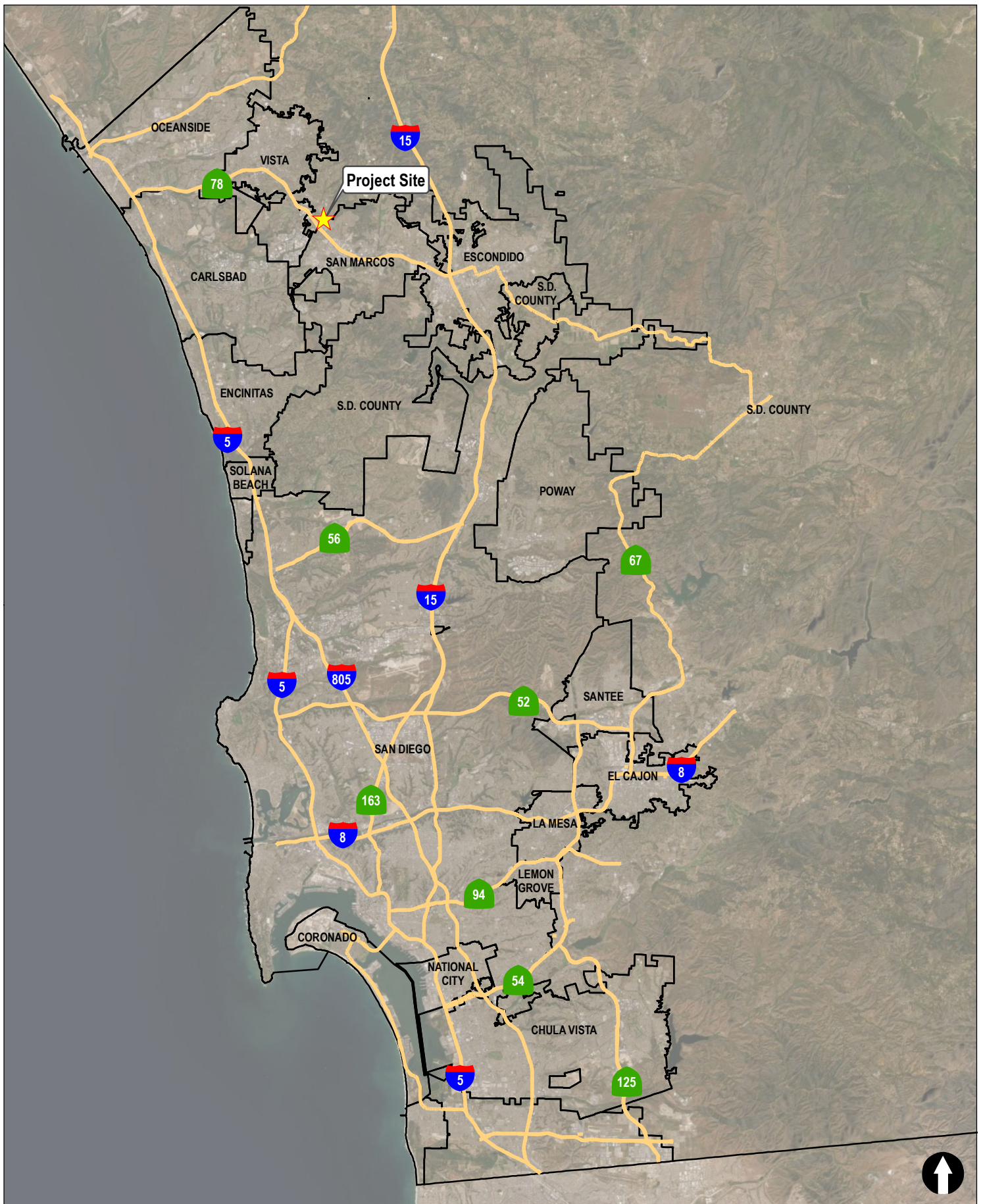
- Project Description
- Existing Conditions Discussion
- Local Transportation Analysis Approach and Methodology
- Analysis of Existing Conditions
- Near-Term Conditions Discussion
- Trip Generation, Distribution, and Assignment
- Analysis of Near-Term Scenarios
- Long-Term Conditions Discussion
- Analysis of Long-Term Scenarios
- Active Transportation Review
- Access Assessment
- Parking Discussion
- Conclusions

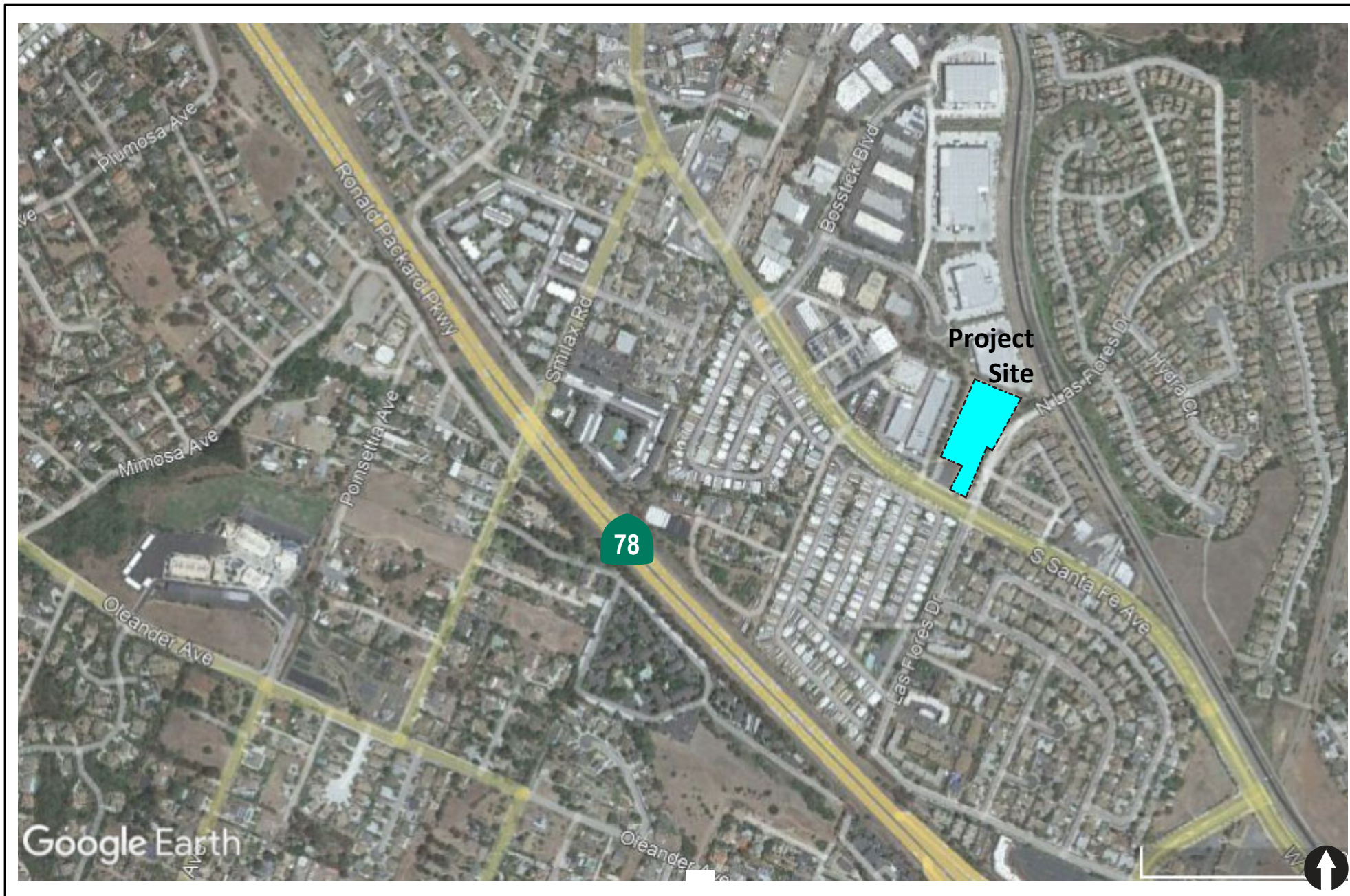
2.0 PROJECT DESCRIPTION

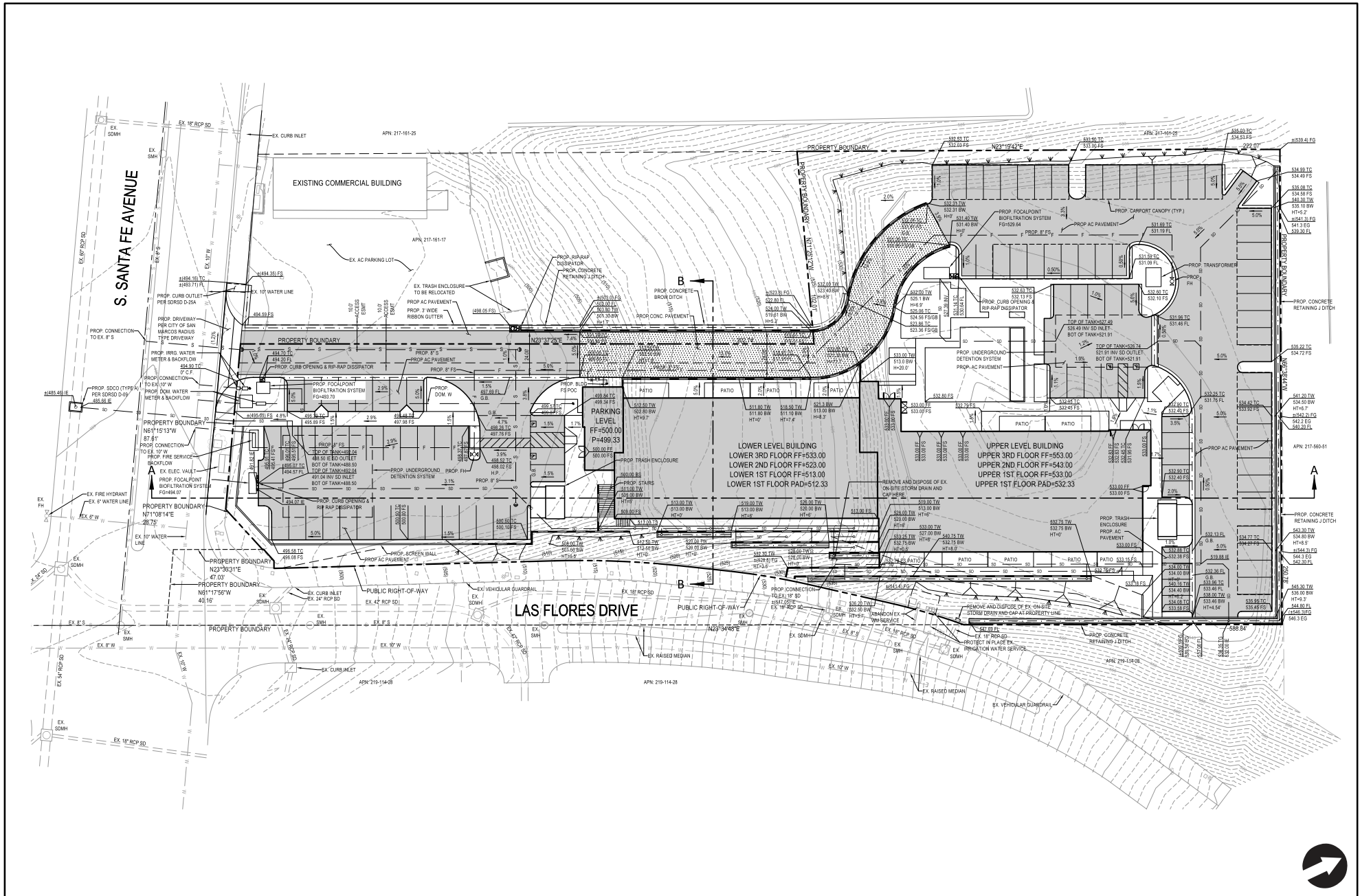
The Project is located in the city of San Marcos at 2972 and 2982 South Santa Fe Avenue adjacent to Las Flores Drive on assessor parcel numbers 217-161-1800 and 217-161-1900. The 2.5-acre Project site is undeveloped and is currently designated Commercial and Light Industrial in the City General Plan and zoned as Commercial and Light Industrial. The Project would be located on a previously graded site and require a General Plan amendment and Rezone to Multifamily Residential to allow the development of 50 multi-family residential units that would be 3-4 stories in height. The Project would also include a 1,000 square-foot roof deck for fitness and leisure, a 1,170 square-foot ground floor leasing and amenity center, and a 120 square-foot ground floor fire command center. Vehicle parking would include a total of 107 surface parking spaces and bicycle parking would include a total of 11 lockers or bike storage rooms located on the upper and lower levels.

Access to the site will be provided via a single right-in/right-out only driveway on S. Santa Fe Avenue.

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







3.0 EXISTING CONDITIONS

Effective evaluation of the traffic impacts associated with the proposed project requires an understanding of the existing transportation system within the project area. **Figure 3-1** shows an existing conditions diagram, including signalized intersections and lane configurations. The study area includes the following intersections and street segments based on the anticipated distribution of the project traffic:

Intersections:

1. S. Santa Fe Avenue / Smilax Road
2. S. Santa Fe Avenue / Bosstick Boulevard
3. S. Santa Fe Avenue / Vern Road
4. S. Santa Fe Avenue / Las Flores Drive
5. Las Flores Drive / Hollencrest Road
6. S. Santa Fe Avenue (W. Mission Road) / N. Rancho Santa Fe Road
7. Capalina Road / Hollencrest Road
8. N. Rancho Santa Fe Road / Capalina Road

Segments:

S. Santa Fe Avenue

1. Smilax Road to Bosstick Boulevard
2. Bosstick Boulevard to Vern Road
3. Vern Road to Las Flores Drive
4. Las Flores Drive to N. Rancho Santa Fe Road
5. N. Rancho Santa Fe Road to N. Pacific Street

Hollencrest Road

6. De Leone Road to Hollenbeck Road

N. Rancho Santa Fe Road

7. S. Santa Fe Avenue to Capalina Road

3.1 Existing Street Network

The principal roadways in the project study area are described briefly below. Roadway classification was determined from a review of the *City of San Marcos Mobility Element* and information gathered from field observations.

S. Santa Fe Avenue is currently constructed as a 2-lane undivided roadway north of Bosstick Boulevard, and as a 4-lane divided roadway south of Bosstick Boulevard. The posted speed limit is 45 mph. On-street parking is prohibited. Class II bike lanes are provided. S. Santa Fe Avenue is classified as a 4-Lane Arterial with Enhanced Bicycle/Pedestrian Facilities on the City's Mobility Element.

Las Flores Drive is constructed as a 2-lane undivided roadway. The posted speed limit is 25 mph. On-street parking is permitted on both sides of the roadway south of S. Santa Fe Avenue, and prohibited north of S. Santa Fe Avenue. No bicycle facilities are present. Las Flores Drive is unclassified on the City's Mobility Element.

N. Rancho Santa Fe Road is constructed as a 4-lane divided roadway. The posted speed limit is 40 mph. On-street parking is prohibited. Class II bike lanes are provided. Within the Project study area, N. Rancho Santa Fe Road is classified as a 4-lane Arterial with Class II or III Bicycle Facilities and Sidewalks on the City's Mobility Element.

Capalina Road is constructed as a 2-lane undivided roadway west of Hollenbeck Road, and as a 2-lane undivided roadway with a two-way left-turn lane east of Hollenbeck Road. The posted speed limit is 25 mph. On-street parking is generally permitted on both sides of the roadway west of N. Rancho Santa Fe Road and prohibited on both sides of the roadway east of N. Rancho Santa Fe Road. Sidewalks are provided. There are no bicycle facilities present. Capalina Road is unclassified on the City's Mobility Element.

3.2 Existing Traffic Volumes

Average daily traffic (ADT) volumes and peak hour (7:00-9:00 AM and 4:00-6:00 PM) intersection turning movement counts, including bicycle and pedestrian counts, were conducted in February 2022 within the Project study area.

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

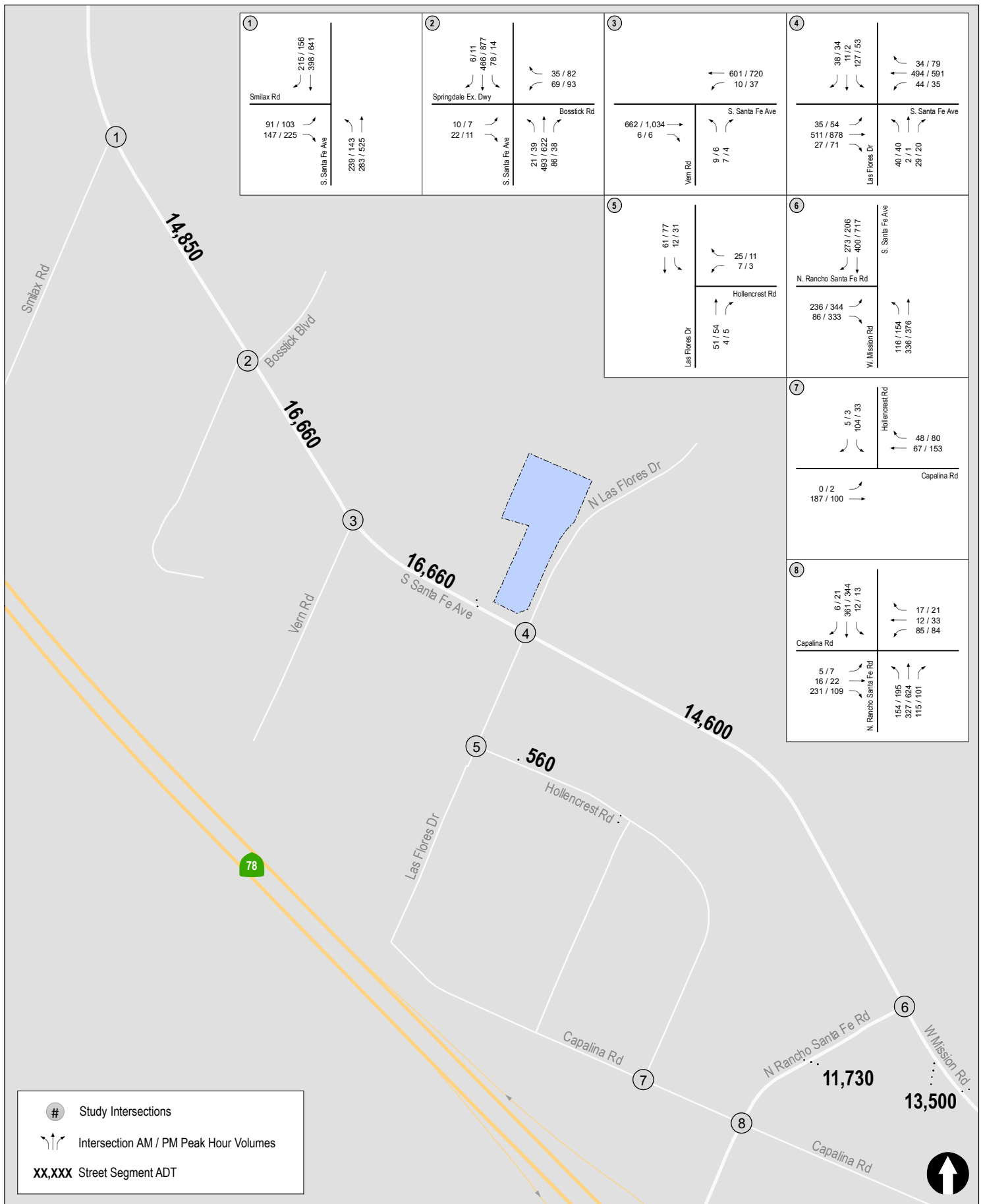


Figure 3-2

Existing Traffic Volumes

Santa Fe Las Flores

4.0 LOCAL TRANSPORTATION ANALYSIS APPROACH AND METHODOLOGY

4.1 Study Scenarios

The following scenarios were analyzed:

- Existing Conditions.
- Near-Term (Interim Year) Conditions are based on the SANDAG pre-established interim year scenario closest to the project's anticipated opening year.
- Near-Term (Interim Year) Plus Project Conditions include project-generated traffic added to interim year volumes.
- Long-Term (Year 2050) Conditions with the current zoning.
- Long-Term (Year 2050) Plus Project (with proposed zoning).

4.2 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. Level of service provides an index to the operational qualities of a roadway segment or an intersection. Level of service designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. Level of service designation is reported differently for signalized and unsignalized intersections, as well as for roadway segments.

4.2.1 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 6th Edition (HCM 6)*, with the assistance of the *Synchro 10* computer software. The delay values (represented in seconds) were qualified with a corresponding intersection Level of Service (LOS).

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

4.2.2 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**.

4.3 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 peak hour intersection operations under Existing conditions. As seen in *Table 5–1*, the study intersections are calculated to operate acceptably at LOS D or better with the exception of S. Santa Fe Avenue / Smilax Road, where the minor-street left-turn movement calculated to operate at LOS F.

Appendix C contains the Existing intersection analysis worksheets.

5.2 Daily Street Segment Levels of Service

Table 5–2 summarizes the street segment operations under Existing conditions. As seen in *Table 5–2*, the study street segments are calculated to operate acceptably at LOS D or better with the exception of S. Santa Fe Avenue between Smilax Road and Bosstick Boulevard, which is calculated to operate at LOS F.

**TABLE 5-1
EXISTING INTERSECTION OPERATIONS**

Intersection	Control Type	Peak Hour	Existing	
			Delay ^a	LOS ^b
1. S. Santa Fe Avenue / Smilax Road	MSSC ^c	AM PM	>100 >100	F F
2. S. Santa Fe Avenue / Bosstick Boulevard	Signal	AM PM	16.7 17.3	B B
3. S. Santa Fe Avenue / Vern Road	MSSC	AM PM	17.3 32.6	C D
4. S. Santa Fe Avenue / Las Flores Drive	Signal	AM PM	18.6 19.9	B B
5. Las Flores Drive / Hollencrest Road	MSSC	AM PM	8.9 8.9	A A
6. S. Santa Fe Avenue (W. Mission Road) / N. Rancho Santa Fe Rd	Signal	AM PM	12.7 14.5	B B
7. Capalina Road / Hollencrest Road	MSSC	AM PM	11.7 10.9	B B
8. N. Rancho Santa Fe Rd / Capalina Road	Signal	AM PM	29.3 28.6	C C

Footnotes:

- a. Average delay expressed in seconds per vehicle.
- b. Level of Service.
MSSC = Minor-Street Stop Controlled intersection. Worst-case movement level of service reported.

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 5-2
EXISTING STREET SEGMENT OPERATIONS

Street Segment	Classification	Capacity (LOS E) ^a	ADT ^b	LOS ^c	V/C ^d
S. Santa Fe Avenue					
1. Smilax Road to Bosstick Boulevard	2-Lane Collector	8,000	14,850	F	1.856
2. Bosstick Boulevard to Vern Road	4-Lane Arterial with Class II or Class III Bike Lanes	40,000	16,660	B	0.417
3. Vern Road to Las Flores Drive	4-Lane Arterial with Class II or Class III Bike Lanes	40,000	16,660	B	0.417
4. Las Flores Drive to N. Rancho Santa Fe Road	4-Lane Arterial with Class II or Class III Bike Lanes	40,000	14,600	A	0.365
5. N. Rancho Santa Fe Road to N. Pacific Street	4-Lane Arterial with Class II or Class III Bike Lanes	40,000	13,500	A	0.338
Hollencrest Road					
6. De Leone Road to Hollenbeck Road	2-Lane Sub-Collector	2,200 ^e	560	+C	0.070
N. Rancho Santa Fe Road					
7. S. Santa Fe Avenue to Capalina Road	4-Lane Arterial with Class II or Class III Bike Lanes	40,000	11,730	A	0.293

Footnotes:

- a. Capacities based on based on the City of San Marcos' *Roadway Classifications, Capacity, and LOS* (see Appendix B).
- b. Average Daily Traffic Volumes.
- c. Level of Service.
- d. Volume to Capacity.
- e. Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Per the City of San Marcos' *Roadway Classifications, Capacity, and LOS*, the LOS C capacity of a Sub-Collector is 2,200 ADT.

6.0 NEAR-TERM (INTERIM YEAR 2025) CONDITIONS

This section describes Near-Term (Interim Year 2025) roadway network and traffic volume conditions. Year 2025 was selected as the closest to the opening year of the proposed Project, based on SANDAG's pre-established interim year scenarios.

6.1 Network Conditions

The existing street system as illustrated in *Figure 3-1* is assumed for Near-Term (Interim Year 2025) conditions with no assumed improvements within the study area.

Near-Term (Interim Year 2025) Traffic Volumes

To forecast future traffic volumes for Near-Term (Interim Year 2025) conditions, the SANDAG ABM2+ model was first utilized to forecast Year 2050 volumes. Year 2025 traffic volumes were then developed based on an interpolation between Existing and Year 2050 traffic volumes. The forecasted ADT volumes were then used to calculate peak hour volumes based partially on the existing relationship between ADT and peak hour volumes.

Several other traffic engineering principles and factors such as the K-factor (the proportion of daily volume that occurs during the peak period) and D-factor (the directional split of the traffic volumes) were also considered in the forecast analysis (see *Appendix D* for definitions). The forecast volumes were also checked for consistency between intersections, where no driveways or roadways exist between intersections, and were compared to existing volumes for accuracy.

Figure 6-1 illustrates the peak hour and ADT segment volumes under the Near-Term scenario.

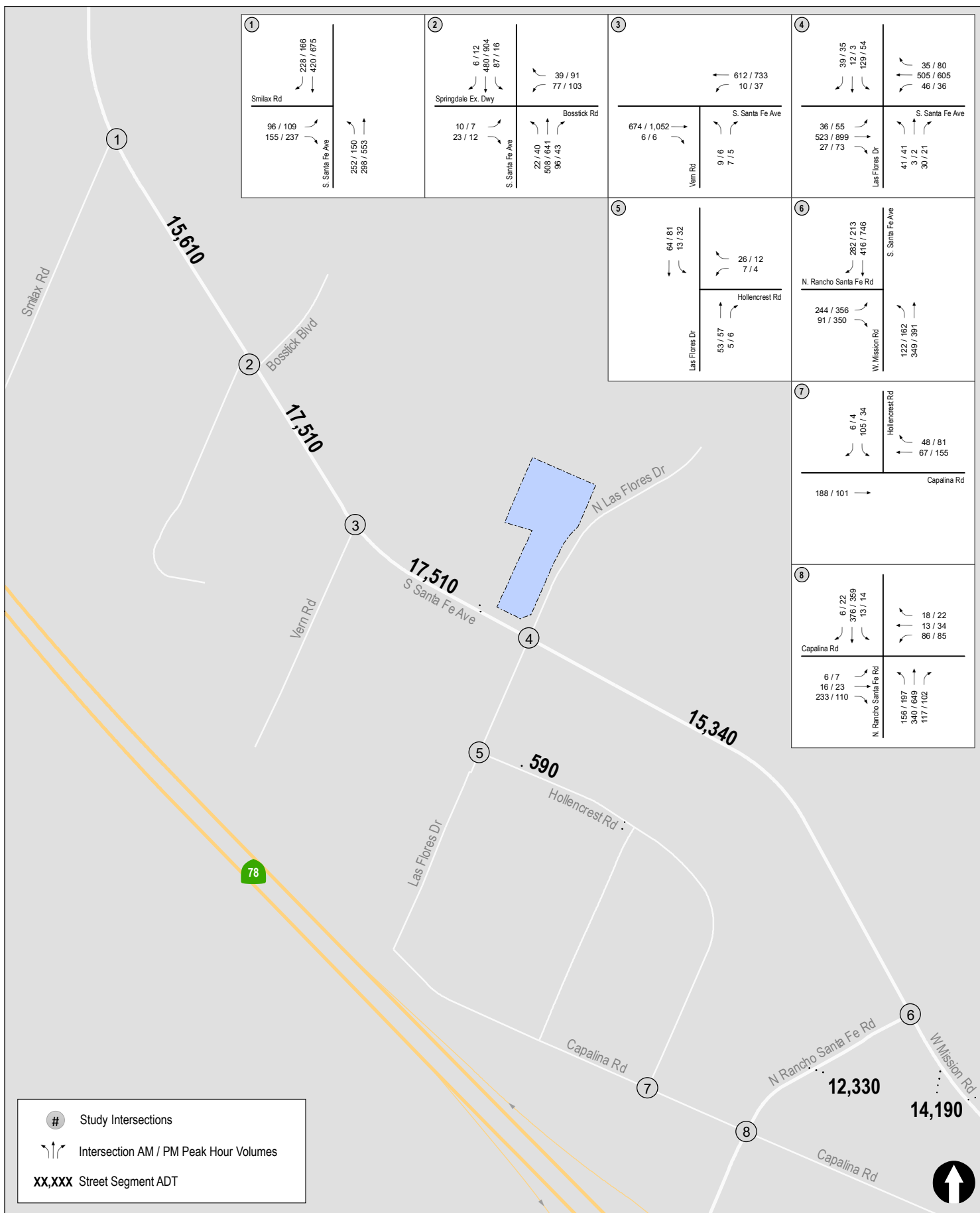


Figure 6-1

Near-Term without Project Traffic Volumes

Santa Fe Las Flores

7.0 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

As described in *Section 2*, the proposed Project would provide 50 apartment units. The following is a discussion of the traffic expected to be generated by the Project.

7.1 Trip Generation

7.1.1 Trip Rates

Trip generation for the Project's multi-family housing was estimated using trip rates from SANDAG's *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002*. The trip generation rate for "Apartment (or any multi-family units more than 20 DU/acre)" was used based on the proposed use.

7.1.2 Project Trips

Table 7-1 tabulates the total Project traffic generation. The Project is calculated to generate a total of 300 ADT with 24 AM peak hour trips (5 inbound / 19 outbound) and 27 PM peak hour trips (19 inbound and 8 outbound).

7.2 Trip Distribution and Assignment

The traffic generated by the Project was distributed and assigned based on anticipated traffic patterns to and from the site, suggested travel routes provided by Google Maps (additional information provided in **Appendix E**), and the Project site's proximity to state highways and arterials.

Access to the site will be restricted to right-in/right-out movements via S. Santa Fe Avenue. Therefore, westbound to eastbound U-turns were assumed at the S. Santa Fe Avenue / Vern Road intersection for a portion of the Project's outbound trips and eastbound to westbound U-turns were assumed at the S. Santa Fe Avenue / Las Flores Drive intersection for a portion of the Project's inbound trips.

Residents traveling to/from the SR 78 / Rancho Santa Fe Road interchange have a few route options, including traveling along Las Flores Drive to/from Capalina Road and/or Hollencrest Road. Given the Project's proposed right-in/right-out access via S. Santa Fe Avenue and a review of the suggested travel routes provided by Google Maps, this "cut-thru" route is not expected to be a major attractor of Project trips. The potential for cut-thru traffic would be much greater if access to the Project were provided via N Las Flores Drive and residents were able to travel straight thru the traffic signal at S Santa Fe Avenue / Las Flores Drive on their way to/from the interchange. Nevertheless, to provide a conservative analysis of potential cut-thru traffic, 20% of the Project's trips were assumed along Capalina Road and/or Hollencrest Road. This equates to 30 additional ADT on Hollencrest Road, with two (2) trips during the AM peak hour and three (3) trips during the PM peak hour.

Figure 7-1 shows the Project traffic distribution. **Figure 7-2** shows the Project traffic volumes. **Figure 7-3** shows the Near-Term + Project traffic volumes.

TABLE 7-1
PROJECT TRIP GENERATION

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

Footnotes:

- a. Trip rates from SANDAG's (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region
- b. Average Daily Trips

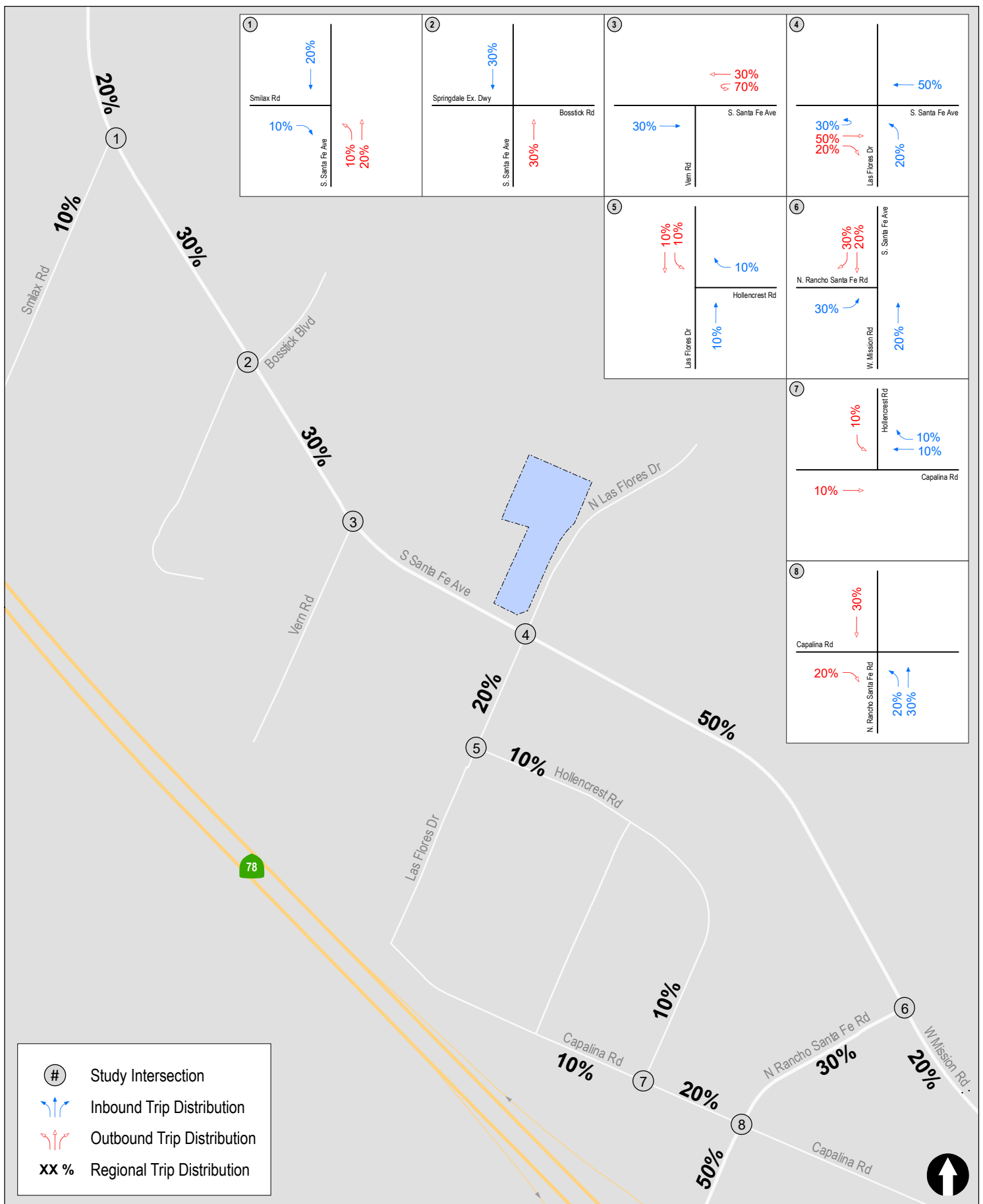


Figure 7-1

Project Traffic Distribution

Santa Fe Las Flores

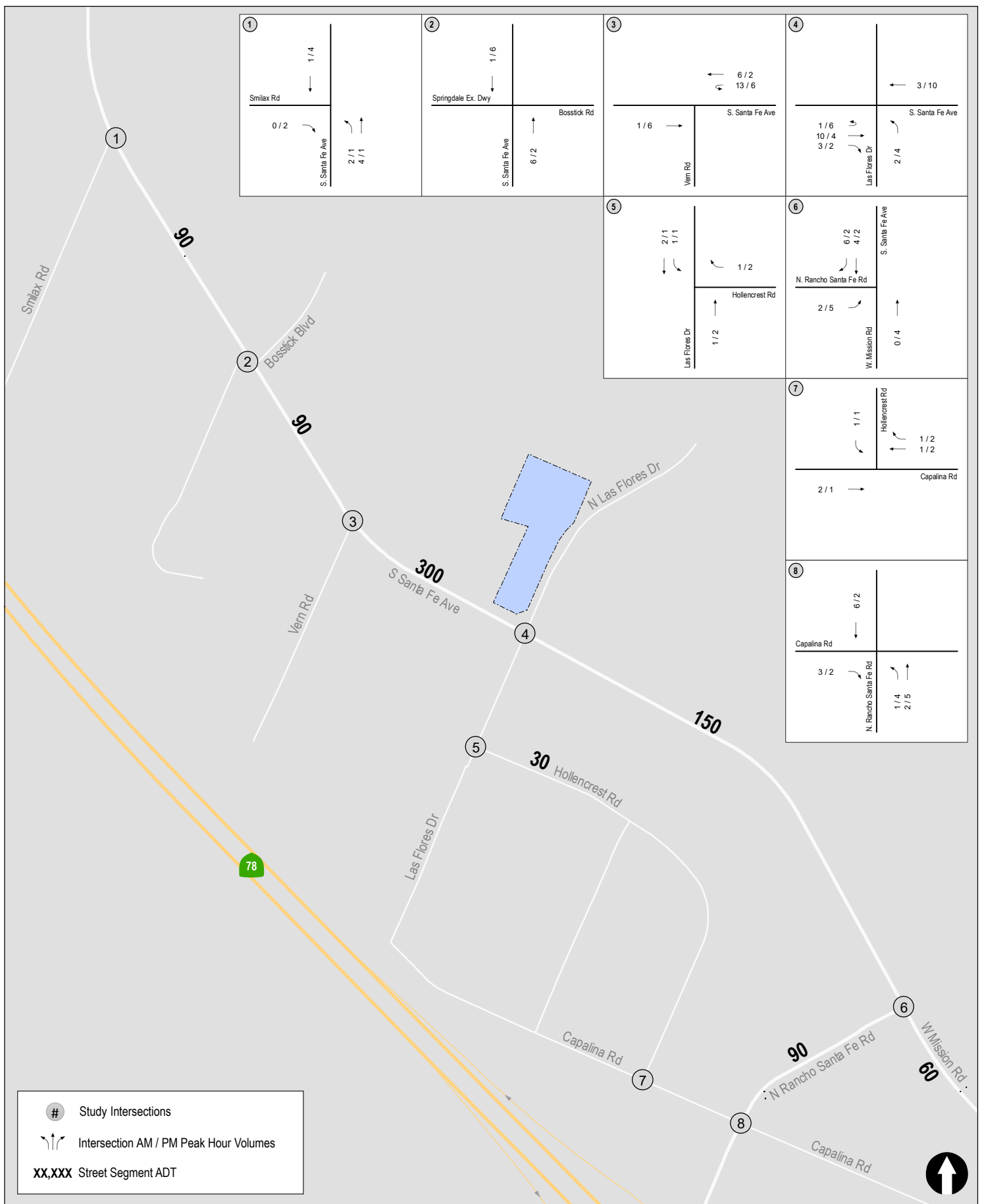


Figure 7-2

Project Traffic Volumes

Santa Fe Las Flores

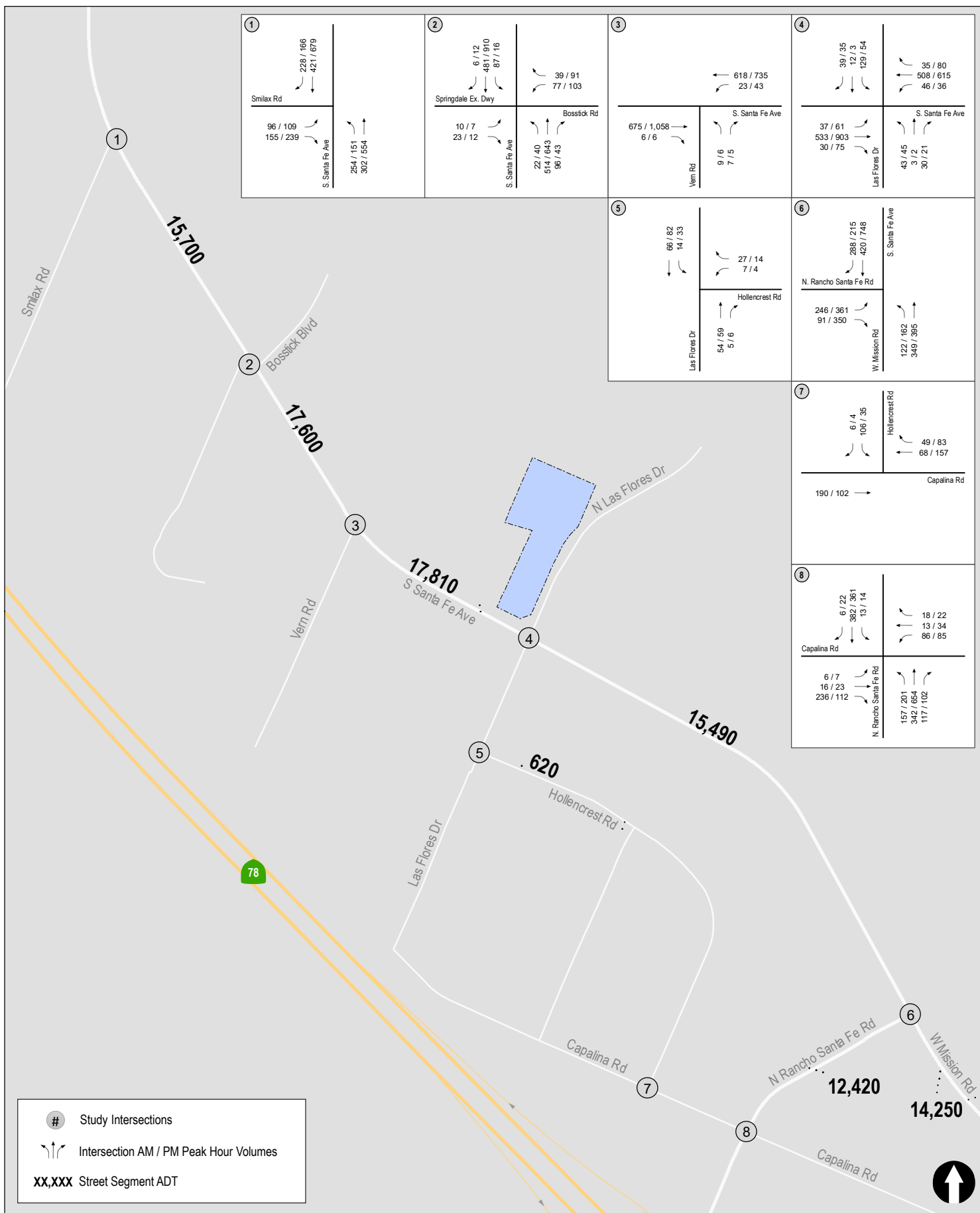


Figure 7-3

Near-Term + Project Traffic Volumes

Santa Fe Las Flores

8.0 ANALYSIS OF NEAR-TERM SCENARIOS

The following section presents the analysis of study area intersections and street segments under Near-Term conditions without and with the Project.

8.1 Near-Term Without Project

8.1.1 Intersection Analysis

Table 8–1 summarizes the intersection operations under Near-Term without Project conditions. As seen in *Table 8–1*, the study intersections are calculated to operate acceptably at LOS D or better with the exception of S. Santa Fe Avenue / Smilax Road, where the minor-street left-turn movement is calculated to continue to operate at LOS F.

Appendix F contains the Near-Term without Project intersection analysis calculation worksheets.

8.1.2 Segment Operations

Table 8–2 summarizes the street segment operations under Near-Term without Project conditions. As seen in *Table 8–2*, the study street segments are calculated to operate acceptably at LOS D or better with the exception of S. Santa Fe Avenue between Smilax Road and Bosstick Boulevard, which is calculated to continue to operate at LOS F.

8.2 Near-Term + Project

8.2.1 Intersection Analysis

Table 8–1 summarizes the intersection operations under Near-Term + Project conditions. As seen in *Table 8–1*, with the addition of Project traffic, the study intersections are calculated to continue to operate acceptably at LOS D or better with the exception of S. Santa Fe Avenue / Smilax Road, where the minor-street left-turn movement is calculated to continue to operate at LOS F.

Based on the established Level of Service Standards outlined in *Section 4.3*, the Project is calculated to result in a substantial effect to the above-listed intersection. Roadway improvements to address this Level of Service deficiency are proposed in *Section 14.0*.

Appendix G contains the Near-Term + Project intersection analysis calculation worksheets.

8.2.2 Segment Operations

Table 8–2 summarizes the street segment operations under Near-Term + Project conditions. As seen in *Table 8–2*, with the addition of Project traffic, the study street segments are calculated to continue to operate acceptably at LOS D or better with the exception of S. Santa Fe Avenue between Smilax Road and Bosstick Boulevard, which is calculated to continue to operate at LOS F.

The Project-related increase in the V/C ratio for the above-listed street segment already operating at an unacceptable LOS is less than the threshold of 0.02. The Project is not calculated to result in a substantial effect to the study segment and no improvements are required.

TABLE 8-1
NEAR-TERM INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Near-Term Without Project		Near-Term + Project		Δ^c	Substantial Effect?
			Delay ^a	LOS ^b	Delay	LOS		
1. S. Santa Fe Avenue / Smilax Road	MSSC ^d	AM	>100	F	>100	F	>10	Yes
		PM	>100	F	>100	F	>10	Yes
2. S. Santa Fe Avenue / Bosstick Boulevard	Signal	AM	17.4	B	17.5	B	0.1	No
		PM	18.0	B	18.0	B	0.0	No
3. S. Santa Fe Avenue / Vern Road	MSSC	AM	17.7	C	18.3	C	0.6	No
		PM	32.0	D	33.3	D	1.3	No
4. S. Santa Fe Avenue / Las Flores Drive	Signal	AM	18.8	B	18.8	B	0.0	No
		PM	20.7	C	21.2	C	0.5	No
5. Las Flores Drive / Hollencrest Road	MSSC	AM	8.9	A	9.0	A	0.1	No
		PM	9.0	A	9.0	A	0.0	No
6. S. Santa Fe Avenue (W. Mission Road) / N. Rancho Santa Fe Rd	Signal	AM	12.8	B	12.9	B	0.1	No
		PM	14.9	B	14.9	B	0.0	No
7. Capalina Road / Hollencrest Road	MSSC	AM	11.7	B	11.8	B	0.1	No
		PM	10.9	B	11.0	B	0.1	No
8. N. Rancho Santa Fe Rd / Capalina Road	Signal	AM	29.8	C	30.1	C	0.3	No
		PM	29.7	C	30.6	C	0.9	No

Footnotes:

- Average delay expressed in seconds per vehicle.
- Level of Service.
- Δ denotes the increase in delay due to Project.
- MSSC = Minor-Street Stop Controlled intersection. Worst-case level of service reported.

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
NEAR-TERM STREET SEGMENT OPERATIONS

Street Segment	Capacity (LOS E) ^a	Near-Term Without Project			Near-Term With Project			Δ^e	Substantial Effect?
		ADT ^b	LOS ^c	V/C ^d	ADT	LOS	V/C		
S. Santa Fe Avenue									
1. Smilax Road to Bosstick Boulevard	8,000	15,610	F	1.951	15,700	F	1.963	0.012	No
2. Bosstick Boulevard to Vern Road	40,000	17,510	B	0.438	17,600	B	0.440	0.002	No
3. Vern Road to Las Flores Drive	40,000	17,510	B	0.438	17,810	B	0.445	0.007	No
4. Las Flores Drive to N. Rancho Santa Fe Road	40,000	15,340	B	0.384	15,490	B	0.387	0.003	No
5. N. Rancho Santa Fe Road to N. Pacific Street	40,000	14,190	A	0.355	14,250	A	0.356	0.001	No
Hollencrest Road									
6. De Leone Road to Hollenbeck Road	2,200 ^f	590	+C	0.074	620	+C	0.078	0.004	No
N. Rancho Santa Fe Road									
7. S. Santa Fe Avenue to Capalina Road	40,000	12,330	A	0.308	12,420	A	0.311	0.003	No

Footnotes:

- a. Capacities based on the City of San Marcos' *Roadway Classifications, Capacity, and LOS* (see Appendix B)
- b. Average Daily Traffic Volumes.
- c. Level of Service.
- d. Volume to Capacity.
- e. Δ denotes a Project-induced increase in the Volume to Capacity (V/C) ratio.
- f. Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Per the City of San Marcos' *Roadway Classifications, Capacity, and LOS*, the LOS C capacity of a Sub-Collector is 2,200 ADT.

9.0 LONG-TERM (YEAR 2050) CONDITIONS

9.1 Long-Term (Year 2050) Network Conditions

The Long-Term (Year 2050) street network in the SANDAG Series 14 forecast model includes changes to the roadway system in the vicinity of the study area including the planned widening of S. Santa Fe Avenue between Smilax Road and Bosstick Boulevard to 4-lane Arterial standards per the City of San Marcos' Mobility Element.

For the purposes of this traffic study, this network addition is assumed in the long-term traffic volumes forecast but no changes to the study area roadway geometry or intersection control as shown in *Figure 3-1*, were assumed.

9.2 Long-Term (Year 2050) Traffic Volumes

To forecast future traffic volumes for Long-Term (Year 2050) conditions, the SANDAG ABM2+ Model was utilized. The forecasted ADT volumes were then used to calculate peak hour volumes based partially on the existing relationship between ADT and peak hour volumes.

Several other traffic engineering principles and factors such as the K-factor (the proportion of daily volume that occurs during the peak period) and D-factor (the directional split of the traffic volumes) were also considered in the forecast analysis (see *Appendix D* for definitions). The forecast volumes were also checked for consistency between intersections, where no driveways or roadways exist between intersections, and were compared to existing volumes for accuracy.

Figure 9-1 shows the Long Term (Year 2050) without Project traffic volumes. **Figure 9-2** shows the Long Term (Year 2050) + Project traffic volumes.

9.3 Existing and Proposed Zoning

The Project site is currently designated Commercial and Light Industrial in the City General Plan and zoned as Commercial and Light Industrial. The Project requires a General Plan amendment and Rezone to Multifamily Residential. The Project will result in reduced traffic as compared to the current zoning. A comparison of the Project's trip generation calculations and trip generation calculations for a conceptual development plan based on the current zoning is shown below in **Table 9-1**. As shown, the Project is calculated to generate approximately 200 fewer ADT as compared to the current zoning.

TABLE 9-1
TRIP GENERATION COMPARISON

Land Use	Size	Daily Trip Ends (ADT) ^b		AM Peak Hour					PM Peak Hour						
		Rate ^a	Volume	% of ADT	In:Out Split	Volume			% of ADT	In:Out Split	Volume				
						In	Out	Total			In	Out	Total		
Existing Zoning (Commercial and Light Industrial)															
Industrial / Business Park (commercial included)	2.5 Acres	200 /Acre	500	12%	80 : 20	48	12	60	12%	20 : 80	12	48	60		
Proposed Project															
Apartments	50 DU	6 /DU	300	8%	20 : 80	5	19	24	9%	70 : 30	19	8	27		
Net-New Trips			-200				-43	7	-36				7	-40	-33

Footnotes:

- a. Trip rates from SANDAG's (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region
- b. Average Daily Trips

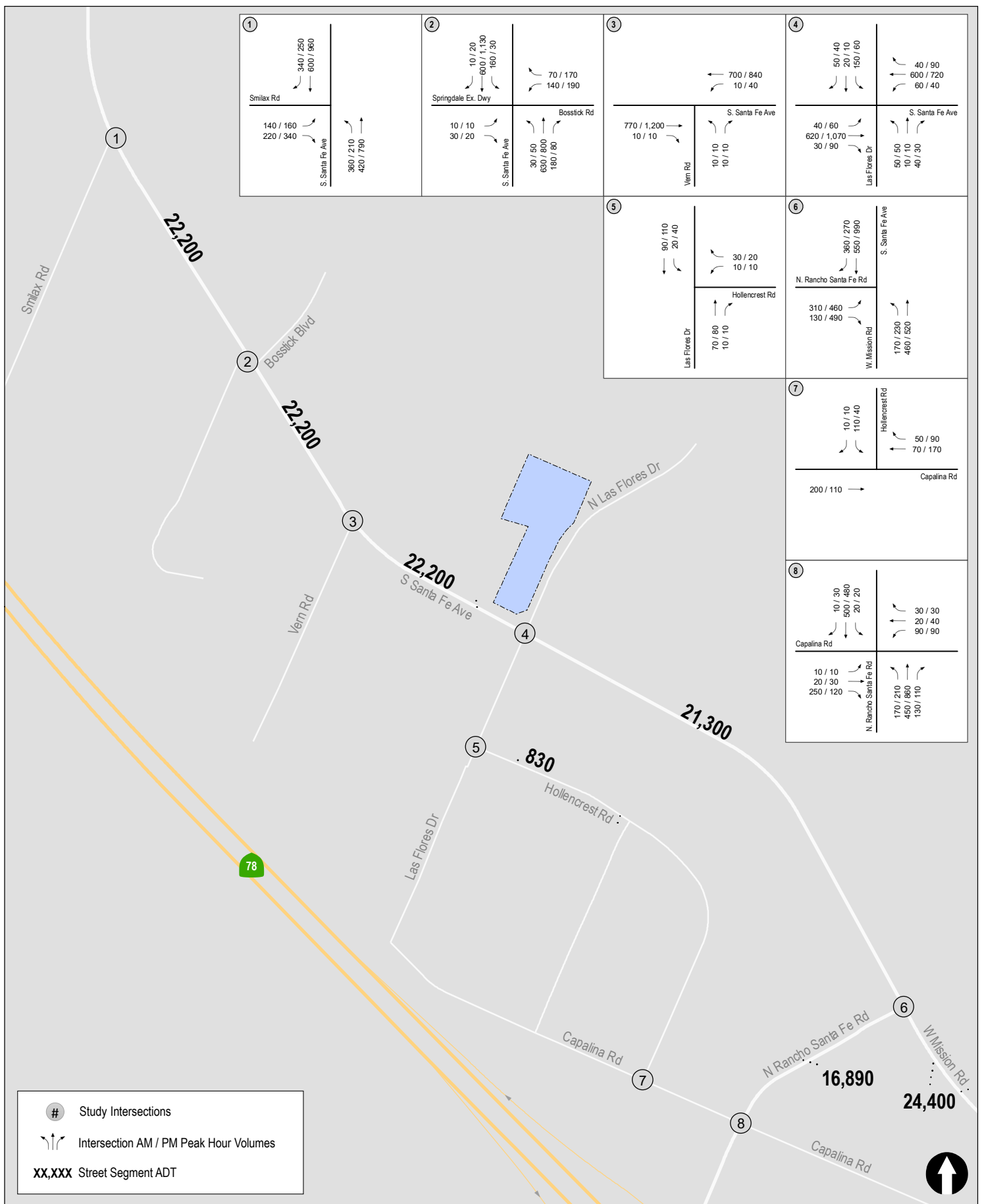


Figure 9-1

Long-Term without Project Traffic Volumes

Santa Fe Las Flores

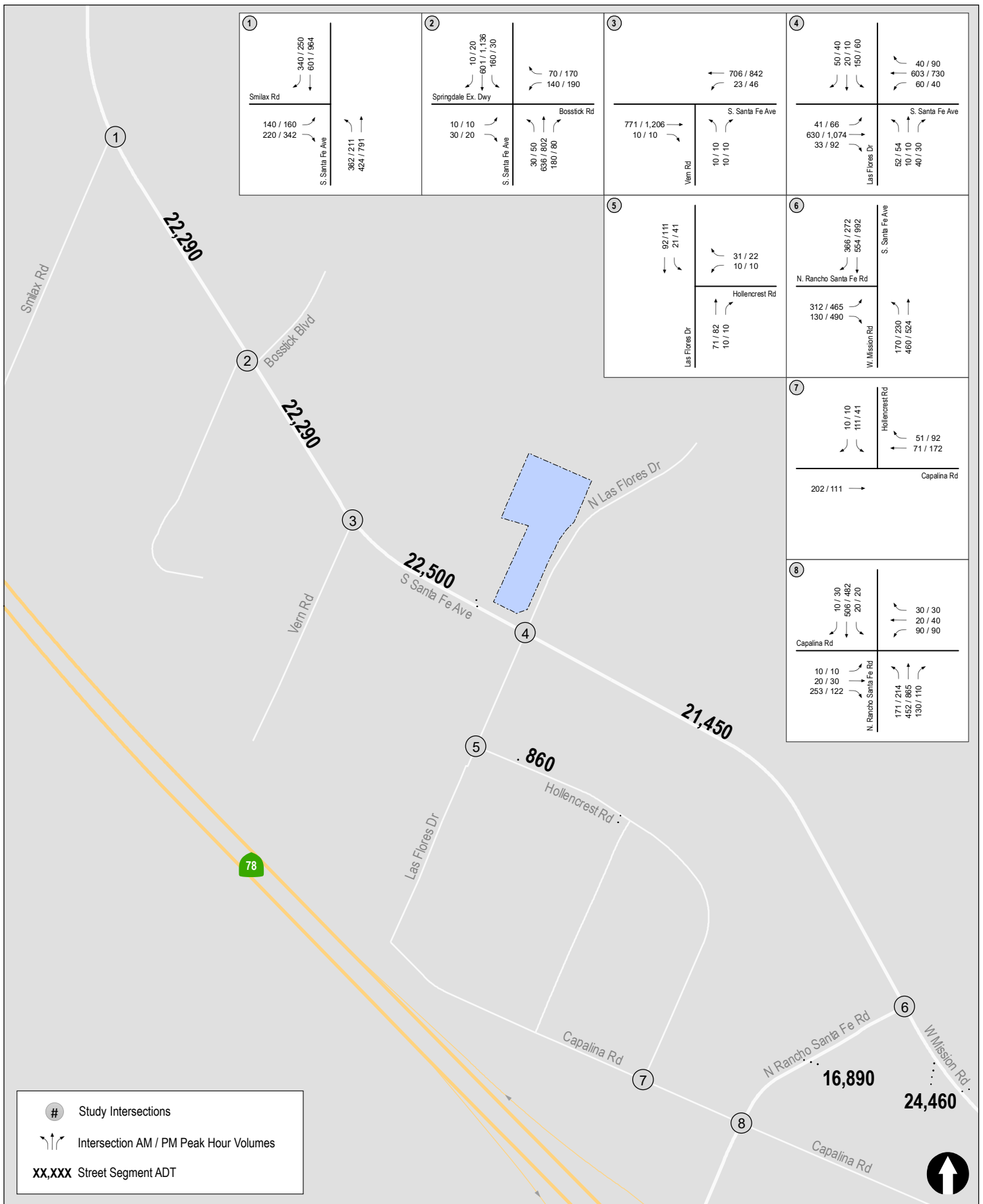


Figure 9-2

Long-Term + Project Traffic Volumes

Santa Fe Las Flores

10.0 ANALYSIS OF LONG-TERM SCENARIOS

10.1 Long-Term Without Project

10.1.1 Intersection Analysis

Table 10–1 summarizes the intersection operations under Long-Term without Project conditions. As seen in *Table 10–1*, the study intersections are calculated to operate acceptably at LOS D or better with the exception of:

- Intersection #1. S. Santa Fe Avenue / Smilax Road (minor-street left-turn movement calculated to operate at LOS F during the AM and PM peak hours)
- Intersection #3. S. Santa Fe Avenue / Vern Road (LOS E during the PM peak hour)

Appendix H contains the Long-Term without Project intersection analyses calculation worksheets.

10.1.2 Segment Operations

Table 10–2 summarizes the street segment operations under Long-Term without Project conditions. As seen in *Table 10–2*, the study street segments are calculated to operate acceptably at LOS D or better with the exception of S. Santa Fe Avenue between Smilax Road and Bosstick Boulevard, which is calculated to continue to operate at LOS F:

10.2 Long-Term + Project

10.2.1 Intersection Analysis

Table 10–1 summarizes the intersection operations under Long-Term + Project conditions. As seen in *Table 10–1*, with the addition of Project traffic, the study intersections are calculated to continue to operate acceptably at LOS D or better with the exception of:

- **Intersection #1. S. Santa Fe Avenue / Smilax Road (minor-street left-turn movement calculated to operate at LOS F during the AM and PM peak hours)**
- Intersection #3. S. Santa Fe Avenue / Vern Road (LOS E during the PM peak hour):

Based on the established Level of Service Standards outlined in *Section 4.3*, the Project is calculated to result in a substantial effect to the intersection of S. Santa Fe Avenue / Smilax Road. Roadway improvements to address this Level of Service deficiency are proposed in *Section 14.0*.

The Project-related increase in delay at the intersection of S. Santa Fe Avenue / Vern Road is less than the threshold of 2.0 seconds. The Project is not calculated to result in a substantial effect to this study intersection and no improvements are required.

Appendix I contains the Long-Term + Project intersection analyses calculation worksheets.

10.2.2 Segment Operations

Table 10–2 summarizes the segment operations under Long-Term + Project conditions. As seen in *Table 10–2*, with the addition of Project traffic, the study street segments are calculated to continue to operate acceptably at LOS D or better with the exception of S. Santa Fe Avenue between Smilax Road and Bosstick Boulevard, which is calculated to continue to operate at LOS F.

The Project-related increase in the V/C ratio for the above-listed street segment already operating at an unacceptable LOS is less than the threshold of 0.02. The Project is not calculated to result in a substantial effect to the study segment and no improvements are required.

TABLE 10-1
LONG-TERM INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Long-Term Without Project		Long-Term With Project		Δ^c	Substantial Effect?
			Delay ^a	LOS ^b	Delay	LOS		
1. S. Santa Fe Avenue / Smilax Road	MSSC ^d	AM	>100	F	>100	F	>10	Yes
		PM	>100	F	>100	F	>10	Yes
2. S. Santa Fe Avenue / Bosstick Boulevard	Signal	AM	26.7	C	27.1	C	0.4	No
		PM	40.4	D	40.6	D	0.2	No
3. S. Santa Fe Avenue / Vern Road	MSSC	AM	19.8	C	20.7	C	0.9	No
		PM	45.9	E	47.3	E	1.4	No
4. S. Santa Fe Avenue / Las Flores Drive	Signal	AM	20.0	B	20.2	C	0.2	No
		PM	31.1	C	32.3	C	1.2	No
5. Las Flores Drive / Hollencrest Road	MSSC	AM	9.2	A	9.2	A	0.0	No
		PM	9.6	A	9.6	A	0.0	No
6. S. Santa Fe Avenue (W. Mission Road) / N. Rancho Santa Fe Rd	Signal	AM	13.9	B	14.0	B	0.1	No
		PM	22.1	C	22.2	C	0.1	No
7. Capalina Road / Hollencrest Road	MSSC	AM	12.0	B	12.0	B	0.0	No
		PM	11.2	B	11.3	B	0.1	No
8. N. Rancho Santa Fe Rd / Capalina Road	Signal	AM	36.5	D	37.1	D	0.6	No
		PM	41.8	D	43.3	D	1.5	No

Footnotes:

- Average delay expressed in seconds per vehicle.
- Level of Service.
- Δ denotes the increase in delay due to Project.
- MSSC = Minor-Street Stop Controlled intersection. Worst-case level of service reported.

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 10-2
LONG-TERM STREET SEGMENT OPERATIONS

Street Segment	Capacity (LOS E) ^a	Long-Term Without Project			Long-Term With Project			Δ^e	Substantial Effect?
		ADT ^b	LOS ^c	V/C ^d	ADT	LOS	V/C		
S. Santa Fe Avenue									
1. Smilax Road to Bosstick Boulevard	8,000	22,200	F	2.775	22,290	F	2.786	0.011	No
2. Bosstick Boulevard to Vern Road	40,000	22,200	C	0.555	22,290	C	0.557	0.002	No
3. Vern Road to Las Flores Drive	40,000	22,200	C	0.555	22,500	C	0.563	0.008	No
4. Las Flores Drive to N. Rancho Santa Fe Road	40,000	21,300	C	0.533	21,450	C	0.536	0.003	No
5. N. Rancho Santa Fe Road to N. Pacific Street	40,000	24,400	C	0.610	24,460	C	0.612	0.002	No
Hollencrest Road									
6. De Leone Road to Hollenbeck Road	2,200	830	+C	0.104	860	+C	0.108	0.004	No
N. Ranchro Santa Fe Road									
7. S. Santa Fe Avenue to Capalina Road	40,000	16,800	B	0.420	16,890	B	0.422	0.002	No

Footnotes:

- a. Capacities based on based on the City of San Marcos' *Roadway Classifications, Capacity, and LOS* (see Appendix B)
- b. Average Daily Traffic Volumes.
- c. Level of Service.
- d. Volume to Capacity.
- e. Δ denotes a Project-induced increase in the Volume to Capacity (V/C) ratio.
- f. Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Per the City of San Marcos' *Roadway Classifications, Capacity, and LOS*, the LOS C capacity of a Sub-Collector is 2,200 ADT.

11.0 ACTIVE TRANSPORTATION REVIEW

11.1 Bicycle Network

Currently, Class II bike lanes are provided on the following study street segments:

- S. Santa Fe Avenue, from Bosstick Boulevard to slightly south of N. Rancho Santa Fe Road (both sides); and
- N. Rancho Santa Fe Road, along its entire length (both sides)

In the City of San Marcos *Bicycle and Pedestrian Master Plan*, no additional bike facilities are recommended along the study street segments.

11.2 Pedestrian Conditions

Pedestrian sidewalks are generally provided throughout the study area, except for:

- S. Santa Fe Avenue, north of Bosstick Boulevard (both sides)
- N. Las Flores Drive, north of S. Santa Fe Avenue (east side)

The City of San Marcos Bicycle and Pedestrian Master Plan notes the same missing sidewalks in the study area on S. Santa Fe Avenue and N. Las Flores Drive.

Pedestrian crossings are provided in all directions at the intersections of S. Rancho Santa Fe Avenue / Las Flores Drive and Capalina Road / N. Rancho Santa Fe Road. Formalized pedestrian crossings are not provided at the following locations:

- S. Santa Fe Avenue / Smilax Road (across all legs)
- S. Santa Fe Avenue / Bosstick Boulevard (crossing prohibited across the north leg)
- S. Santa Fe Avenue / Vern Road (across all legs)
- Las Flores Drive / Hollencrest Road (across all legs)
- S. Santa Fe Avenue / N. Rancho Santa Fe Road (crossing prohibited across the north leg)
- Capalina Road / Hollencrest Road (across all legs)

Las Flores Drive is considered a “Collector” route on the *Bicycle and Pedestrian Master Plan*. Collector sidewalks are typically along roads that support institutional, industrial, open space, agricultural, or low density residential with limited lateral access and low pedestrian levels. According to the *Bicycle and Pedestrian Master Plan*, Collector sidewalks typically warrant the “basic level” sidewalk treatment adequate to provide the minimum level of safety, connectivity, access, and walkability, though special circumstances may warrant enhanced treatments.

S. Santa Fe Avenue is considered an “Arterial” route in the *Bicycle and Pedestrian Master Plan*. Arterial sidewalks are typically along roads that support moderate density business and shopping districts with moderate pedestrian levels. Arterial sidewalks typically warrant the “enhanced” walkway treatment level according to the *Bicycle and Pedestrian Master Plan*, which may include features such as street trees or other buffer between the sidewalk and vehicle lanes, among other treatments.

11.3 Existing Transit Conditions

Transit service is provided to the project area via North County Transit District (NCTD) bus routes 304 and 305.

Route 304 provides bus service between Encinitas and San Marcos, with stops within the study area along N. Rancho Santa Fe Road and S. Santa Fe Avenue. This route provides a direct connection to Palomar College Station with transfers to SPRINTER Route 305 bus service. The route operates hourly between the hours of 5:00AM and 8:00PM, Monday through Friday, and between 7:30AM and 7:30PM on Saturday.

Route 305 provides bus service between Escondido and Vista, with stops within the study area along S. Santa Fe Avenue. This route provides a direct connection to Palomar College Station with transfers to SPRINTER, Route 304 bus service. The route operates hourly between the hours of 4:30AM and 11:00PM, Monday through Friday, and between 5:30AM and 11:00PM on Saturday & Sundays.

The project site is located within 1/2 mile walking distance, depending on ultimate pedestrian site access, from stop pairs serving both Route 304 and Route 305 located along S. Santa Fe Avenue. The closest bus stops to the project site are located near the intersection of S. Santa Fe Avenue / Las Flores Drive and the intersection of S. Santa Fe Avenue (Mission Rd) & Rancho Santa Fe Rd on both sides of the street. The project site is also approximately 1.25-mile walking or biking distance from Palomar College Station.

At the intersection of S. Santa Fe Avenue (Mission Rd) & Rancho Santa Fe Rd, the bus stop in the northbound direction provides route signage, seating with shade, and a trash receptacle and in the southbound direction the stop provides only route signage, seating, and a trash receptacle. At the intersection of S. Santa Fe Avenue / Las Flores Drive, the bus stop in the northbound direction provides route signage, seating, and a trash receptacle and in the southbound direction it provides route signage, seating with shade, and a trash receptacle.

12.0 ACCESS ASSESSMENT

Access is proposed via the existing driveway to S. Santa Fe Avenue which the Gourmet Liquor store currently utilizes. This driveway is limited to right turns in and out only, by the raised median within S. Santa Fe Avenue.

LLG conducted AM (7-9 AM) peak hour and PM (4-6 PM) peak hour counts on Wednesday June 8, 2022, at the subject driveway to obtain existing volumes. The AM/PM peak hour inbound counts were 11 and 30. These weekday counts were used in the analysis since weekday commute peak periods are what is analyzed based on City Guidelines. A traffic count was also conducted on Saturday, July 23, 2022, and Friday, August 5, 2022, from 5:00 PM to 6:30 PM. The inbound and outbound peak hour count was 27/27 on Saturday, and 33/37 on Friday. Project weekday volumes were added to existing volumes to conduct a peak hour analysis for the following scenarios. **Table 12-1** shows the project trip generation table. **Figure 12-1** shows the existing and existing + project traffic volumes.

- Existing Peak Hour
- Existing + Project Peak Hour

Table 12-2 shows the results of the peak hour analysis for the subject driveway. As shown on **Table 12-2**, the driveway is calculated to operate at a very good LOS B under both the existing and existing + project scenarios. LOS B is calculated using Friday and Saturday counts as well. The driveway can accommodate both existing and project traffic. **Table 12-3** shows a summary of the counts collected by LLG at the Gourmet Liquor driveway.

TABLE 12-1
SANTA FE LAS FLORES TRIP GENERATION

Land Use	Size	Daily Trip Ends (ADT) ^b		AM Peak Hour			PM Peak Hour		
		Rate ^a	Volume	Volume			Volume		
				In	Out	Total	In	Out	Total
Proposed Project									
Apartments	50 DU	6 /DU	300	5	19	24	19	8	27
Project Total			300	5	19	24	19	8	27

Footnotes:

- Trip rates from SANDAG's (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region
- Average Daily Trips

TABLE 12-2
ACCESS DRIVEWAY OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project	
			Delay ^a	LOS ^b	Delay	LOS
1. S. Santa Fe Ave / Project Access Dwy.	MSSC ^c	AM	10.4	B	10.6	B
		PM	11.1	B	11.3	B

Footnotes:

- a. Average delay expressed in seconds per vehicle.
- b. Level of Service.
- c. MSSC = Minor-Street Stop Controlled intersection. Worst-case level of service reported.

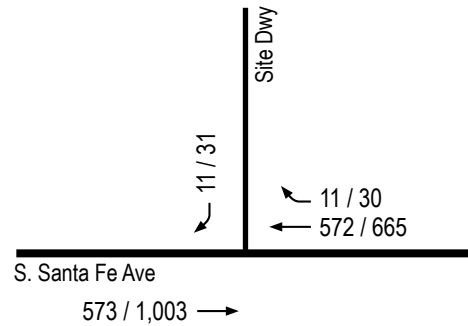
TABLE 12-3
GOURMET LIQUOR DRIVEWAY COUNTS

	Wednesday, June 8th, 2022		Friday, August 5th, 2022		Saturday, July 23, 2022	
	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound
AM Peak	11	11	- ^a	-	-	-
PM Peak	30	31	33	37	27	27

Footnotes:

- a. - = Counts not conducted during the AM peak hour.

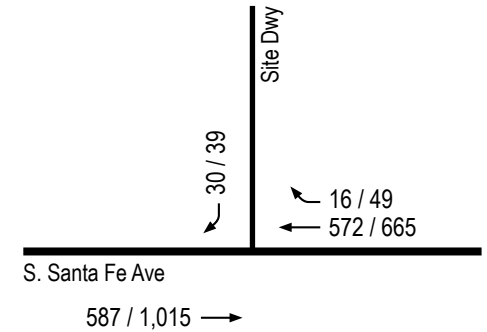
Existing Traffic Volumes (Liquor Store Traffic)



Project Traffic Volumes (Santa Fe / Las Flores 50-Unit Project Traffic)



Existing + Project Traffic Volumes



AM / PM ↗ ↘
AM / PM Intersection
Peak Hour Volumes



13.0 PARKING DISCUSSION

The project proposes a total of 50 apartment units. Per the City of San Marcos Municipal Code, Chapter 20.340, **104 parking spaces** are required. A summary of the parking code requirements and calculations are shown in *Table 13-1*.

The project proposes to provide **107 parking spaces**. Therefore, the project meets the parking requirements.

TABLE 13-1 CITY OF SAN MARCOS MUNICIPAL CODE PARKING REQUIREMENTS & CALCULATIONS			
Parking Code Land Use	Required Off-Street Parking Rate ^a	Project Quantity (dwelling units)	Required Parking
Residential Uses			
Studio	1 spaces / dwelling unit	1 studio	1
1 Bedroom	1.5 spaces / dwelling unit	22 1-bedroom	33
2 Bedroom	2 space / dwelling unit	22 2-bedroom	44
Affordable	1.7 spaces / dwelling unit	5 affordable	9
Guest	1 spaces / 3 dwelling units		17
Total Spaces			104

Footnotes:

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

14.0 CONCLUSIONS

The preceding Local Transportation Analysis (LTA) was prepared to determine and evaluate the potential impacts and effects to the local roadway system due to the proposed Project.

The LTA shows that the Project will add a small amount of traffic to the intersection of S. Santa Fe Avenue / Smilax Road, which operates below City standards. However, the Project contributes only 0.45% (15 trips) of the total combined AM and PM peak hour traffic to this intersection under Near-Term conditions. The existing traffic conditions at this location are already substandard. The provision of a traffic signal would result in acceptable LOS D or better operations. A traffic signal is planned at the S. Santa Fe Avenue / Smilax Road intersection as part of the City's Capital Improvement Project (CIP) 881479 (IP 4750).

The project should be conditioned to provide adequate corner sight distance at the project driveway. This analysis has been prepared by the project civil engineer. See **Appendix J** for the Sight Distance Exhibit.