

SEVEN PATIOS MIXED-USE RESIDENTIAL/ COMMERCIAL RETAIL PROJECT TRAFFIC IMPACT ANALYSIS

City of South Pasadena

February 26, 2020



Traffic Engineering • Transportation Planning • Parking • Noise & Vibration
Air Quality • Global Climate Change • Health Risk Assessment

SEVEN PATIOS MIXED-USE RESIDENTIAL/ COMMERCIAL RETAIL PROJECT TRAFFIC IMPACT ANALYSIS

City of South Pasadena

February 26, 2020

prepared by
Bryan Crawford
Giancarlo Ganddini, PE, PTP



GANDDINI GROUP INC
550 Parkcenter Drive, Suite 202
Santa Ana, CA 92705
(714) 795-3100 | www.ganddini.com

19-0204

TABLE OF CONTENTS

EXECUTIVE SUMMARY

1. INTRODUCTION.....	1
Purpose and Objectives	1
Project Description.....	1
Study Area	1
Analysis Scenarios	2
2. METHODOLOGY	5
Roadway Segments.....	5
Signalized Intersections - Intersection Capacity Utilization.....	5
Unsignalized Intersections - Intersection Delay Methodology.....	6
Thresholds of Significance	6
Roadway Segments	6
Intersections	7
3. EXISTING CONDITIONS.....	8
Existing Roadway System	8
Pedestrian Facilities.....	8
Bicycle Routes	8
Transit Facilities.....	9
General Plan Context	9
Existing Roadway Volumes	9
Existing Roadway Segment Level of Service	9
Existing Intersection Level of Service.....	10
4. PROJECT FEATURES AND TRIP FORECASTS	21
Project Design Features.....	21
Project Trip Generation	21
Other Factors Affecting Trip Generation.....	21
Project Trip Distribution and Assignment.....	22
5. FUTURE VOLUME FORECASTS	29
Cumulative Trips	29
Other Development	29
Ambient Growth.....	29
Analysis Scenario Volume Forecasts	29
Existing Plus Project	29
Opening Year (2022) Without Project	29
Opening Year (2022) With Project.....	29
6. LEVEL OF SERVICE IMPACT ANALYSIS.....	44
Existing Plus Project.....	44
Roadway Segment Capacity Analysis	44
Intersection Levels of Service.....	44
Significant Impact Evaluation.....	44
Opening Year (2022) Without Project.....	45
Roadway Segment Capacity Analysis	45
Intersection Levels of Service.....	45
Opening Year (2022) With Project	45
Roadway Segment Capacity Analysis	45
Intersection Levels of Service.....	45

	Significant Impact Evaluation.....	45
7.	CONGESTION MANAGEMENT PROGRAM.....	55
	CMP Analysis Requirements.....	55
	CMP Transit Impact Review	55
8.	VEHICLE MILES TRAVELLED ASSESSMENT	57
	Background	57
	VMT Assessment.....	57
9.	CONCLUSIONS	60
	Project Design Features.....	60
	Mitigation Measures	60

APPENDICES

Appendix A	Glossary
Appendix B	Memorandum of Understanding
Appendix C	Volume Count Worksheets
Appendix D	Level of Service Worksheets
Appendix E	Traffic Signal Warrant Worksheets

LIST OF TABLES

Table 1.	Existing Roadway Segment Level of Service	11
Table 2.	Existing Intersection Level of Service.....	12
Table 3.	Project Trip Generation.....	23
Table 4.	Other Development Trip Generation	30
Table 5.	Existing Plus Project Roadway Segment Level of Service.....	47
Table 6.	Existing Plus Project Intersection Level of Service	48
Table 7.	Existing Plus Project Significant Impact Evaluation.....	49
Table 8.	Opening Year (2022) Without Project Roadway Segment Level of Service.....	50
Table 9.	Opening Year (2022) Without Project Intersection Level of Service	51
Table 10.	Opening Year (2022) With Project Roadway Segment Level of Service	52
Table 11.	Opening Year (2022) With Project Intersection Level of Service.....	53
Table 12.	Opening Year (2022) Significant Impact Evaluation	54
Table 13.	VMT Screening Assessment for Projects Near Transit Stations	59

LIST OF FIGURES

Figure 1.	Project Location Map.....	3
Figure 2.	Site Plan	4
Figure 3.	Existing Lane Geometry and Intersection Traffic Controls.....	13
Figure 4.	Existing Pedestrian Facilities	14
Figure 5.	City of South Pasadena Existing and Proposed Bikeway Facilities Map	15
Figure 6.	Los Angeles Metropolitan Transportation Authority System Map	16
Figure 7.	City of South Pasadena Roadway Network.....	17
Figure 8.	Existing Average Daily Traffic Volumes	18
Figure 9.	Existing AM Peak Hour Intersection Turning Movement Volumes.....	19
Figure 10.	Existing PM Peak Hour Intersection Turning Movement Volumes	20
Figure 11.	Project Trip Distribution – Commercial Retail.....	24
Figure 12.	Project Trip Distribution – Residential	25
Figure 13.	Project Average Daily Traffic Volumes	26
Figure 14.	Project AM Peak Hour Intersection Turning Movement Volumes.....	27
Figure 15.	Project PM Peak Hour Intersection Turning Movement Volumes	28
Figure 16.	Other Development Location Map	31
Figure 17.	Other Development Average Daily Traffic Volumes.....	32
Figure 18.	Other Development AM Peak Hour Intersection Turning Movement Volumes	33
Figure 19.	Other Development PM Peak Hour Intersection Turning Movement Volumes.....	34
Figure 20.	Existing Plus Project Average Daily Traffic Volumes.....	35
Figure 21.	Existing Plus Project AM Peak Hour Intersection Turning Movement Volumes	36
Figure 22.	Existing Plus Project PM Peak Hour Intersection Turning Movement Volumes.....	37
Figure 23.	Opening Year (2022) Without Project Average Daily Traffic Volumes.....	38
Figure 24.	Opening Year (2022) Without Project AM Peak Hour Intersection Turning Movement Volumes	39
Figure 25.	Opening Year (2022) Without Project PM Peak Hour Intersection Turning Movement Volumes	40
Figure 26.	Opening Year (2022) With Project Average Daily Traffic Volumes	41
Figure 27.	Opening Year (2022) With Project AM Peak Hour Intersection Turning Movement Volumes	42
Figure 28.	Opening Year (2022) With Project PM Peak Hour Intersection Turning Movement Volumes	43

EXECUTIVE SUMMARY

The purpose of this Traffic Impact Analysis is to provide an assessment of traffic operations resulting from development of the proposed Seven Patios Mixed-Use Residential/Commercial Retail Project and to identify measures necessary to mitigate potentially significant traffic impacts. This report analyzes traffic impacts for the anticipated project opening year in Year 2022. Although this is a technical report, effort has been made to write the report clearly and concisely. A glossary is provided in Appendix A to assist the reader with terms related to transportation engineering.

PROJECT DESCRIPTION

The 70,116 square-foot project site is located along the south side of El Centro Street, immediately west of the Metro Gold Line right-of-way and north of Orange Grove Place in the City of South Pasadena. The project site is more specifically located at 845 El Centro Street/832 Orange Grove Place, with a common reference of 899 El Centro Street. Local access to the project area is provided via Mission Street to the north, Fremont Avenue to the east and Monterey Road to the south. Regional access is available via the 110 Freeway, accessible from both the north and west of the subject site. The project site is currently developed with a two-story office building and surface-level parking.

The proposed project consist of re-developing the project site with a mixed-use residential/commercial retail development consisting of 57 multi-family dwelling units and 6,100 square foot of commercial space. For purposes of the traffic analysis, half of the commercial space (3,050 square feet) is presumed to consist of café/food use and half is presumed to consist of retail use. The proposed project is anticipated to be constructed and fully operational by year 2022.

The project proposes one full access driveway at El Centro Street. Parking for the non-residential (65 spaces) and the residential (112 spaces) uses would be provided within two levels accessed from El Centro Street. Residential parking for Zone 1 would be gated and located within Basement Plan 1. Residential parking for Zone 2 would be gated and located within Basement Plan 2 under the cottage bungalows. The remainder of the parking spaces, including five ADA spaces within Basement Plan 2, would be available for visitors accessing the non-residential uses. Six bicycle parking spaces would also be provided.

EXISTING CONDITIONS

The study roadway segment currently operates at Level of Service A for Existing conditions (see Table 1).

The study intersections currently operate at Levels of Service D or better during the peak hours for Existing conditions, except for the following study intersection that currently operates at Level of Service F during the peak hours (see Table 2):

- Orange Grove Avenue at Monterey Road – #4 (AM & PM peak hours – LOS F)

PROJECT TRIPS

The proposed project is forecast to generate a total of approximately 757 daily vehicle trips, including 49 trips during the AM peak hour and 42 trips during the PM peak hour (see Table 3).

FUTURE LEVELS OF SERVICE & IMPACT FINDINGS

Existing Plus Project Conditions: The study roadway segment is forecast to operate at Level of Service A for Existing Plus Project conditions (see Table 5). The study intersections are forecast to operate at Levels of Service D or better during the peak hours for Existing Plus Project conditions, except for the following study intersection that is forecast to operate at Level of Service F during the peak hours (see Table 6):

- Orange Grove Avenue at Monterrey Road – #2 (AM & PM peak hours – LOS F)

The proposed project is forecast to result in no significant traffic impacts at the study intersections for Existing Plus Project conditions based on the City-established thresholds of significance (see Table 7).

Opening Year (2022) Without Conditions: The study roadway segment is forecast to operate at Level of Service A for Opening Year (2022) Without Project conditions (see Table 8). The study intersections are forecast to operate at Levels of Service D or better during the peak hours for Opening Year (2022) Without Project conditions, except for the following study intersection that is forecast to operate at Level of Service F during the peak hours (see Table 9):

- Orange Grove Avenue at Monterrey Road – #2 (AM & PM peak hours – LOS F)

Opening Year (2022) With Conditions: The study roadway segment is forecast to operate at Level of Service A for Opening Year (2022) With Project conditions (see Table 10). The study intersections are forecast to operate at Levels of Service D or better during the peak hours for Opening Year (2022) With Project conditions, except for the following study intersection that is forecast to operate at Level of Service F during the peak hours (see Table 11):

- Orange Grove Avenue at Monterrey Road – #4 (AM & PM peak hours – LOS F)

The proposed project is forecast to result in no significant traffic impacts at the study intersections for Existing Plus Project conditions based on the City-established thresholds of significance (see Table 12).

LOS ANGELES CONGESTION MANAGEMENT PROGRAM

The proposed project generates fewer than 50 peak hour trips and therefore would add 50 or more weekday peak hour trips to a CMP-monitored intersection or 150 or more weekday peak hour trips to a mainline freeway monitoring location. Therefore, a Congestion Management Program impact analysis is not required for this project.

Based on the relatively low project-generated transit trip estimate (see Section 7), the proposed project is expected to have a marginal impact on transit service capacity.

VEHICLE MILES TRAVELLED ANALYSIS

The proposed project is presumed to have a less than significant VMT impact based on State guidance for projects located near transit stations (see Table 13).

MITIGATION MEASURES

No mitigation measures were identified since the proposed project is forecast to result in no significant traffic impacts at the study intersections for the scenarios analyzed and the project is presumed to have a less than significant VMT impact.

1. INTRODUCTION

This section describes the purpose of this traffic impact analysis, project location, proposed development, and study area. Figure 1 shows the project location map. Figure 2 illustrates the project site plan.

PURPOSE AND OBJECTIVES

The purpose of this Traffic Impact Analysis is to provide an assessment of traffic operations resulting from development of the proposed Seven Patios Mixed-Use Residential/Commercial Retail Project and to identify measures necessary to mitigate potentially significant traffic impacts. This report analyzes traffic impacts for the anticipated project opening year in Year 2022. Although this is a technical report, effort has been made to write the report clearly and concisely. A glossary is provided in Appendix A to assist the reader with terms related to transportation engineering.

PROJECT DESCRIPTION

The 70,116 square foot project site is located along the south side of El Centro Street, immediately west of the Metro Gold Line right-of-way and north of Orange Grove Place in the City of South Pasadena, California. The project site is more specifically located at 845 El Centro Street/832 Orange Grove Place, with a common reference of 899 El Centro Street. Local access to the project area is provided via Mission Street to the north, Fremont Avenue to the east and Monterey Road to the south. Regional access is available via the 110 Freeway, accessible from both the north and west of the subject site. The project site is currently developed with a two-story office building and surface-level parking.

The proposed project consist of re-developing the project site with a mixed-use residential/commercial retail development consisting of 57 multi-family dwelling units and 6,100 square foot of commercial space. For purposes of the traffic analysis, half of the commercial space (3,050 square feet) is presumed to consist of café/food use and half is presumed to consist of retail use. The proposed project is anticipated to be constructed and fully operational by year 2022.

The project proposes one full access driveway at El Centro Street. Parking for the non-residential (65 spaces) and the residential (112 spaces) uses would be provided within two levels accessed from El Centro Street. Residential parking for Zone 1 would be gated and located within Basement Plan 1. Residential parking for Zone 2 would be gated and located within Basement Plan 2 under the cottage bungalows. The remainder of the parking spaces, including five ADA spaces within Basement Plan 2, would be available for visitors accessing the non-residential uses. Six bicycle parking spaces would also be provided.

STUDY AREA

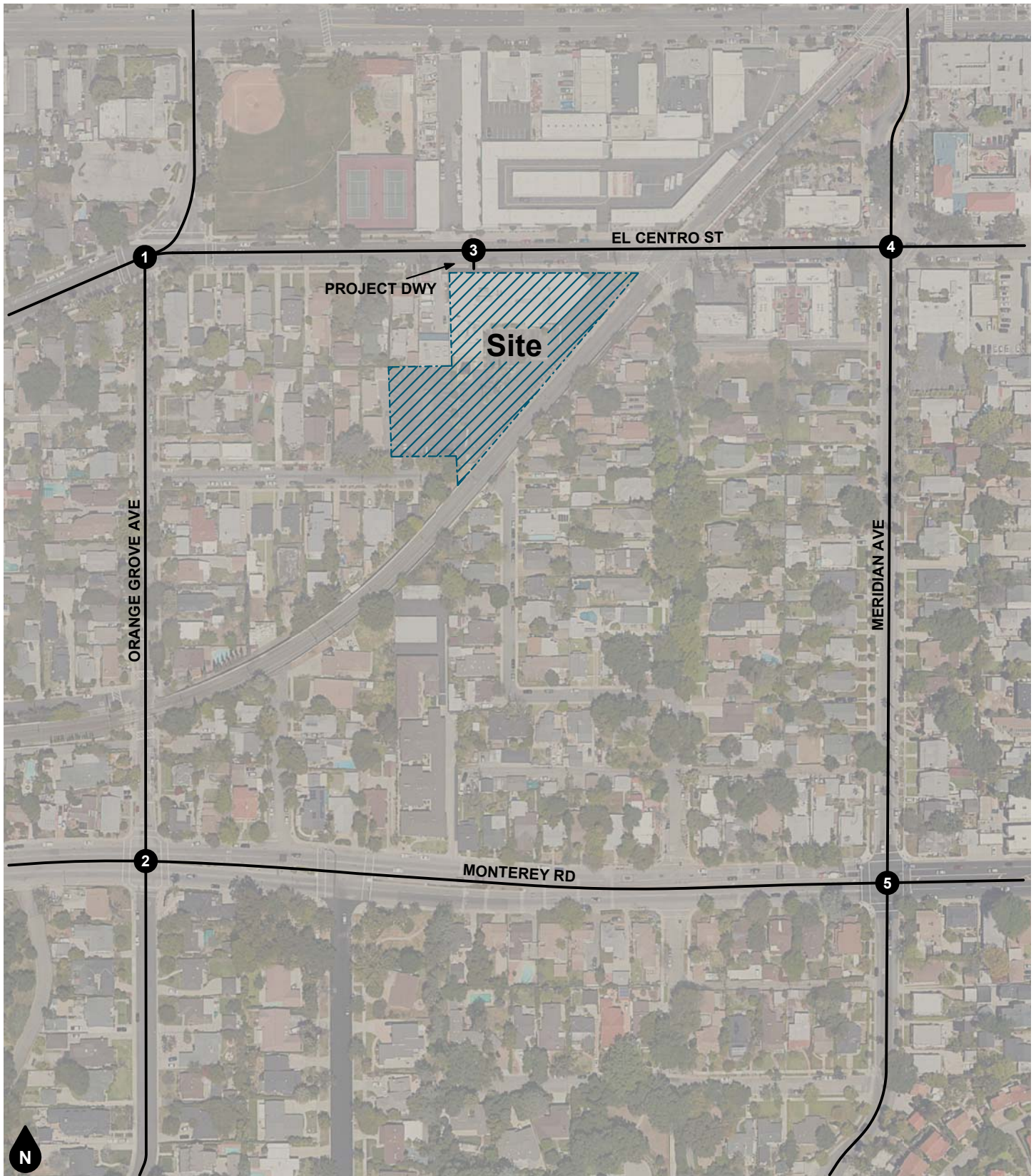
Based on the study intersections identified in the approved scoping agreement (Appendix B), the study area consists of the following study intersections within the City of South Pasadena:

Study Intersections	Jurisdiction
1. Orange Grove Avenue (NS) at El Centro Street (EW)	City of South Pasadena
2. Orange Grove Avenue (NS) at Monterey Road (EW)	City of South Pasadena
3. Project Driveway (NS) at El Centro Street (EW)	City of South Pasadena
4. Meridian Avenue (NS) at El Centro Street (EW)	City of South Pasadena
5. Meridian Avenue (NS) at Monterey Road (EW)	City of South Pasadena

ANALYSIS SCENARIOS

Based on City of South Pasadena requirements, the following scenarios are analyzed for weekday AM and PM peak hour conditions:

- Existing Conditions
- Existing Plus Project Conditions
- Opening Year (2022) Without Project Conditions
- Opening Year (2022) With Project Conditions



Legend

Study Intersection

Figure 1
Project Location Map

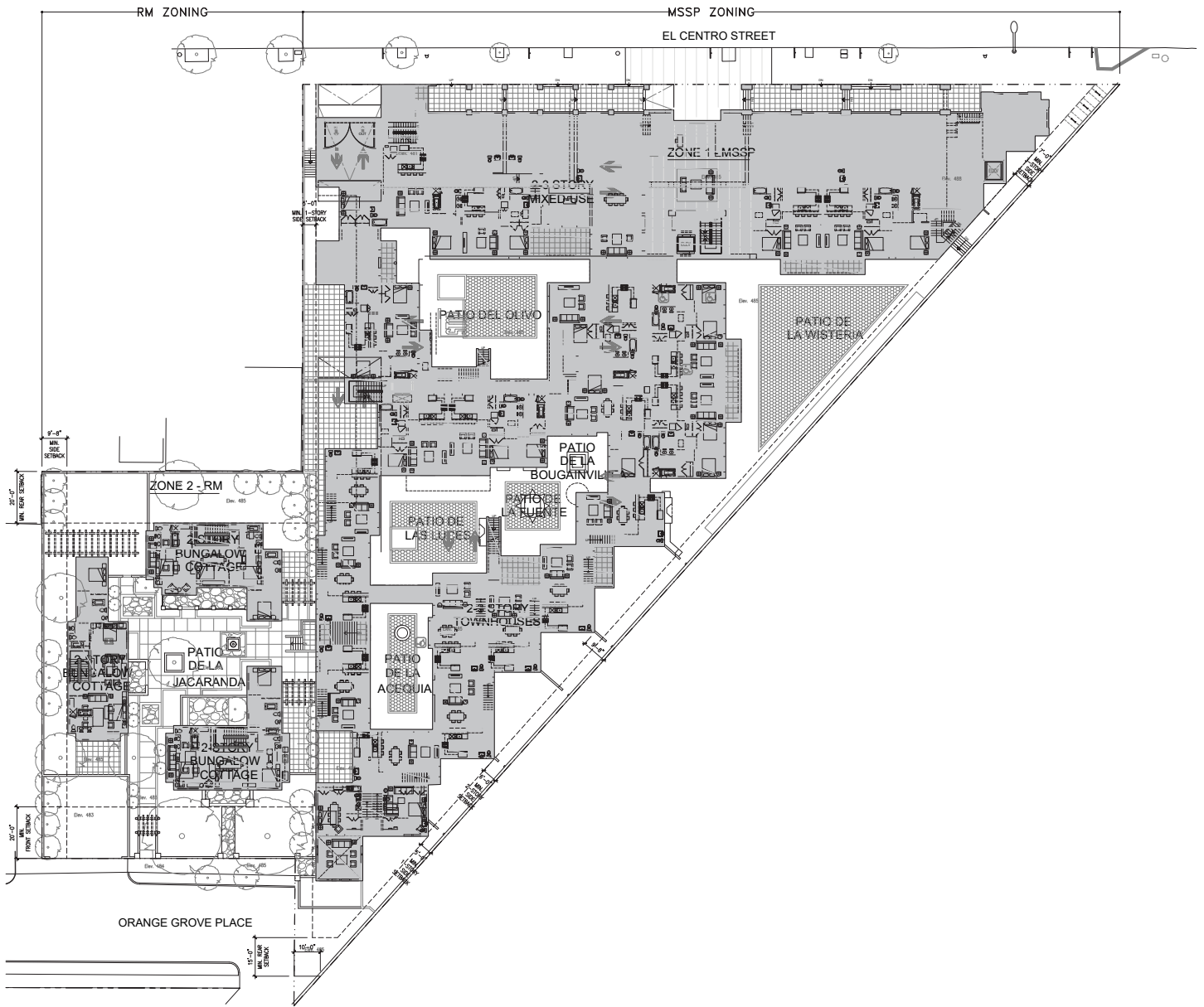


Figure 2
Site Plan

2. METHODOLOGY

This section discusses the analysis methodologies used to assess transportation facility performance as adopted by the respective jurisdictional agencies.

ROADWAY SEGMENTS

Roadway segments are considered to operate at an acceptable level when the daily traffic volumes do not exceed the average daily traffic volumes as specified by the roadway type. The City of South Pasadena average daily traffic volume as specified by the roadway type and these values are shown below¹:

Roadway Type	Maximum ADT by Level of Service				
	A	B	C	D	E
6 Lanes (Divided)	33,900	39,400	45,000	20,600	56,300
4 Lanes (Divided)	22,500	26,300	30,000	33,800	37,500
4 Lanes (Undivided)	15,000	17,500	20,000	22,500	25,000
2 Lanes (Divided)	10,000	11,700	13,000	15,000	16,600
2 Lanes (Undivided)	7,500	8,800	10,000	11,300	12,500
Local Road	3,000	3,500	4,000	4,500	12,500

Source: City of South Pasadena General Plan.

SIGNALIZED INTERSECTIONS - INTERSECTION CAPACITY UTILIZATION

In accordance with City of South Pasadena requirements, analysis of signalized intersections is based on the Intersection Capacity Utilization (ICU) methodology. The ICU methodology compares the volume of traffic using the intersection to the capacity of the intersection. The resulting volume-to-capacity (V/C) ratio represents that portion of the hour required to provide sufficient capacity to accommodate all intersection traffic if all approaches operate at capacity. The volume-to-capacity ratio is then correlated to a performance measure known as Level of Service (LOS) based on the following thresholds:

Level of Service (LOS)	Volume/Capacity Ratio
A	≤ 0.600
B	0.601 to 0.700
C	0.701 to 0.800
D	0.801 to 0.900
E	0.901 to 1.000
F	> 1.000

Source: Transportation Research Board, Interim Materials on Highway Capacity, Transportation Research Circular No. 212, January 1980.

¹ The roadway segment capacity thresholds represent the theoretical maximum two-way average daily traffic volumes that any given roadway is able to accommodate within one day, given typical peak hour characteristics. Generally, roadway segment analysis is performed for planning purposes only and is affected by such factors as the number of intersections (spacing, configuration and control features), degree of access control, roadway grades, design geometrics (horizontal and vertical alignments), sight distance, vehicle mix (truck and bus traffic), and bicycle/pedestrian traffic. Roadway segments benefit from on-going traffic signal progression timing adjustments that maximize green time during peak traffic demands.

Level of Service is used to qualitatively describe the performance of a roadway facility, ranging from Level of Service A (free-flow conditions) to Level of Service F (extreme congestion and system failure).

The ICU Level of Service analysis was performed using the Vistro software. In accordance with City of South Pasadena requirements, the ICU analysis generally utilizes a lane capacity of 1,600 vehicles per hour per lane with the following capacity adjustments: 20 percent penalty for dual left-turn lanes, 10 percent loss time per cycle, and 50 percent right turns on red.

UNSIGNALIZED INTERSECTIONS - INTERSECTION DELAY METHODOLOGY

The technique used to assess the performance of unsignalized intersections is known as the intersection delay methodology based on the procedures contained in the Highway Capacity Manual (Transportation Research Board, 6th Edition). The methodology considers the traffic volume and distribution of movements, traffic composition, geometric characteristics, and signalization details to calculate the average control delay per vehicle and corresponding Level of Service. Control delay is defined as the portion of delay attributed to the intersection traffic control (such as a traffic signal or stop sign) and includes initial deceleration, queue move-up time, stopped delay, and final acceleration delay. The intersection control delay is then correlated to Level of Service based on the following thresholds:

Level of Service	Intersection Control Delay (Seconds / Vehicle)
	Unsignalized Intersection
A	≤ 10.0
B	> 10.0 to ≤ 15.0
C	> 15.0 to ≤ 25.0
D	> 25.0 to ≤ 35.0
E	> 35.0 to ≤ 50.0
F	> 50.0

Source: Transportation Research Board, Highway Capacity Manual (6th Edition).

Level of Service is used to qualitatively describe the performance of a roadway facility, ranging from Level of Service A (free-flow conditions) to Level of Service F (extreme congestion and system failure). At intersections with traffic signal or all way stop control, Level of Service is determined by the average control delay for the overall intersection. At intersections with cross street stop control (i.e., one- or two-way stop control), Level of Service is determined by the average control delay for the worst individual movement (or movements sharing a single lane). Intersection delay analysis was performed using the Vistro software with recommended default values from the Highway Capacity Manual.

THRESHOLDS OF SIGNIFICANCE

Roadway Segments

To determine whether the addition of project-generated trips at a study roadway segment results in a significant impact, the City of South Pasadena has established the following thresholds of significance:

- A significant project-related impact would occur at a study roadway segment if the addition of project-generated trips reduces the roadway from acceptable operation (LOS A, B, or C) to deficient operation (LOS D, E, or F).

A significant project-related impact would occur at a study roadway segment already operating at a deficient level of service (LOS D, E, or F) pre-project if the addition of project-generated trips increases the traffic demand at the roadway by 2 percent of capacity ($V/C \geq 0.02$).

Intersections

Based on the Los Angeles County CMP, the City of South Pasadena has established the following traffic thresholds of significance to determine whether a project traffic impact at a signalized study intersection is considered significant and thus requires mitigation:

- A significant project-related impact would occur at a signalized study intersection if the addition of project-generated trips reduces the peak-hour level of service of the study intersection from acceptable operation (LOS A, B, C, or D) to deficient operation (LOS E or F).
- A significant project-related impact would occur at a signalized study intersection already operating at a deficient level of service (LOS E or F) pre-project if the addition of project-generated trips increases traffic demand at the intersection by 2 percent of capacity ($V/C \geq 0.02$).

To determine whether the addition of project-generated trips at an unsignalized study intersection results in a significant impact, the City of South Pasadena has established the following thresholds of significance:

- A significant project-related impact would occur at an unsignalized study intersection if the addition of project-generated trips reduces the peak-hour level of service of the study intersection from acceptable operation (LOS A, B, C, or D) to deficient operation (LOS E or F) and the unsignalized intersection satisfies a California Department of Transportation (Caltrans) traffic signal warrant.
- A significant project-related impact would occur at an unsignalized study intersection if the addition of project-generated trips changes the delay of a baseline (i.e., without project) LOS E or F by ≥ 2.0 seconds and the unsignalized intersection satisfies a Caltrans traffic signal warrant.

If a project is forecast to cause a significant traffic impact, feasible mitigation measures that will reduce the impact to a less than significant level are identified. Mitigation measures can be in many forms, including the addition of lanes, traffic control modification, or demand management measures. If no feasible mitigation measures can be identified for a significantly impacted facility, the impact will remain significant and unavoidable and a statement of overriding considerations is required.

3. EXISTING CONDITIONS

EXISTING ROADWAY SYSTEM

Figure 3 identifies the lane geometry and intersection traffic controls for Existing conditions based on a field survey of the study area. Regional access to the project area is provided by the 110 Freeway north and west of the project site. The key north-south roadways providing local circulation are Orange Grove Avenue and Meridian Avenue. The key east-west roadways providing local circulation are El Centro Street and Monterey Road.

Orange Grove Avenue is a 2-lane undivided roadway in the project vicinity. Orange Grove Avenue is classified as a Collector in the Circulation & Accessibility Element of the City of South Pasadena General Plan. On-street parking is generally permitted in the project vicinity. There are no bicycle facilities on Orange Grove Avenue and sidewalks are provided on both sides of the roadway in the project vicinity. The posted speed limit is 25 miles per hour in the project vicinity.

Meridian Avenue is a 2-lane generally undivided roadway in the project vicinity. Meridian Avenue is classified as a Collector in the Circulation & Accessibility Element of the City of South Pasadena General Plan. On-street parking is generally permitted in the project vicinity. There are no existing bicycle facilities on Meridian Avenue in the project vicinity; however, Class III bicycle facilities are proposed in the City of South Pasadena Bicycle Master Plan. Sidewalks are provided on both sides of the roadway. The posted speed limit is 25 miles per hour in the project vicinity.

El Centro Street is a 2-lane undivided roadway in the project vicinity. El Centro Street is classified as a Collector in the Circulation & Accessibility Element of the City of South Pasadena General Plan. On-street parking is generally permitted in the project vicinity. On-street Class II bicycle lanes are provided on El Centro Street west of Orange Grove Avenue. Class III bicycle facilities (with sharrow pavement markings) are currently provided along the project frontage and are proposed to be extended east of Meridian Avenue in the City of South Pasadena Bicycle Master Plan. Sidewalks are provided on both sides of the roadway. The posted speed limit is 25 miles per hour in the project vicinity.

Monterey Road is a 4-lane generally undivided roadway with intermittent left turn lanes in the project vicinity. Monterey Road is classified as a Minor Arterial in the Circulation & Accessibility Element of the City of South Pasadena General Plan. On-street parking is generally permitted in the project vicinity. There are no existing bicycle facilities on Monterey Road in the project vicinity. The City of South Pasadena Bicycle Master Plan identifies a future bicycle facility on Monterey Road, however, the classification is yet to be determined. Sidewalks are provided on both sides of the roadway. The posted speed limit is 35 miles per hour in the project vicinity.

PEDESTRIAN FACILITIES

Existing pedestrian facilities in the project vicinity are shown on Figure 4. As shown on Figure 4, the project vicinity is well-served with pedestrian facilities, including paved sidewalks along all roadways and marked crosswalks between the project site and bus and rail stops to the north.

BICYCLE ROUTES

Class III bicycle routes are proposed adjacent to the project site. The City of South Pasadena Existing and Proposed Bikeway Facilities Map is depicted on Figure 5.

TRANSIT FACILITIES

Figure 6 shows the existing transit routes available in the project vicinity provided by the Los Angeles Metropolitan Transportation Authority (Metro). As shown on Figure 6, the Metro Gold Line runs adjacent to the project site to the east. The South Pasadena Station is located north of El Centro Street across from the northeast corner of the project site. The Metro Gold Line provides rail service from its northern terminus in Azusa, through Union Station in downtown Los Angeles, to its southern terminus in East Los Angeles. As also shown on Figure 6, Metro Bus Line 176 runs east-west along Mission Street with a stop at the intersection of Mission Street and Meridian Avenue, adjacent to the South Pasadena Station.

GENERAL PLAN CONTEXT

Figure 7 shows the City of South Pasadena Roadway Network classifications map. This figure shows the nature and extent of arterial and collector highways that are needed to adequately serve the ultimate development depicted by the Land Use Element of the General Plan.

EXISTING ROADWAY VOLUMES

Figure 8 shows the Existing average daily traffic volumes. The Existing average daily traffic volumes have been obtained from 24-hour traffic counts and factored from peak hour intersection turning movement volumes using the following formula for each intersection leg:

$$\text{Evening Peak Hour (Approach Volume + Exit Volume)} \times 10 = \text{Leg Volume.}$$

Existing peak hour intersection volumes are based upon morning peak period and evening peak period intersection turning movement counts obtained in January 2020 during typical weekday conditions while local schools were in session. The morning peak period was counted between 7:00 AM and 9:00 AM and the evening peak period was counted between 4:00 PM and 6:00 PM. The actual peak hour within the peak period is the four consecutive 15 minute periods with the highest total volume when all movements are added together. Thus, the weekday evening peak hour at one intersection may be 4:45 PM to 5:45 PM if those four consecutive 15 minute periods have the highest combined volume. Intersection turning movement count worksheets are provided in Appendix C.

Current road closures along Orange Grove Avenue are ongoing during the morning peak period and City staff has indicated that traffic operations will not be restored in the near future. Therefore, adequate turning movement volume counts for the intersections of Orange Grove Avenue at El Centro Street and Orange Grove Avenue at Monterey Road could not be collected for the morning peak period. Based on review of adjacent study intersections and comparison to historical data, circulation patterns at the intersections along Meridian Avenue do not appear to be appreciably affected by the road closure on Orange Avenue. In consultation with City of South Pasadena Public Works Department staff, the AM peak hour volumes for the two affected intersections were analyzed using the PM peak hour volumes as a proxy. PM peak hour volumes are generally greater than AM peak hour volumes; therefore, this was determined to be a suitable approach in the absence of obtaining actual morning peak period counts in a timely manner. It is noted that the City of South Pasadena may request AM peak hour data and subsequent analysis at the intersection of Orange Grove Avenue and El Centro Street.

Figure 9 and Figure 10 show the AM and PM peak hour intersection turning movement volumes for Existing conditions.

EXISTING ROADWAY SEGMENT LEVEL OF SERVICE

Table 1 shows the study roadway segment Level of Service for Existing conditions. As shown in Table 1, the study roadway segment currently operates at Level of Service A for Existing conditions.

EXISTING INTERSECTION LEVEL OF SERVICE

Table 2 shows the intersection Levels of Service during the AM and PM peak hours for Existing conditions. Detailed Level of Service calculation worksheets are provided in Appendix D.

As shown in Table 2, the study intersections currently operate at Levels of Service D or better during the peak hours for Existing conditions, except for the following study intersection that currently operates at Level of Service F during the peak hours:

- Orange Grove Avenue at Monterey Road – #2 (AM & PM peak hours – LOS F)

Since the intersection of Orange Grove Avenue at Monterey Road is two-way stop controlled, the reported Level of Service F is based on the movement with the worst (highest) delay value, or in this case the southbound lane. The uncontrolled through movements along Monterey Road are free-flow and operate at Level of Service A.

There is a pedestrian crosswalk located approximately 145 north from the southbound limit line at the intersection of Orange Grove Avenue and Monterey Road. There is a rail crossing approximately 170 north from the southbound limit line at the intersection of Orange Grove Avenue and Monterey Road.

The 95th-percentile queue length for the southbound lane is approximately 100 feet during the AM and PM peak hours based on the Highway Capacity Manual back-of-queue methodology as reported on the Level of Service worksheets (see Appendix D). The 95th-percentile queue length represents the maximum queue length expected (to a 95 percent confidence level) and is a standard measure used in transportation engineering practice to determine turning lane storage and intersection spacing requirements. Therefore, the southbound vehicle queue at the intersection of Orange Grove Avenue and Monterey Road is not currently expected to interfere with the existing pedestrian crosswalk or rail crossing north of the intersection.

Table 1
Existing Roadway Segment Level of Service

Roadway	Segment	South Pasadena Roadway Standards		Existing	
		Roadway Type	LOS C Capacity ¹	ADT	LOS ¹
El Centro Street	Orange Grove Ave to Meridian Ave	2 Lanes (Undivided)	10,000	4,500	A

Notes:

LOS = Level of Service; ADT = Average Daily Traffic Volume

(1) Based on LOS capacities defined in the City of South Pasadena General Plan.

Table 2
Existing Intersection Level of Service

ID	Study Intersection	Traffic Control ¹	AM Peak Hour		PM Peak Hour	
			ICU ² or [Delay] ³	LOS ⁴	ICU ² or [Delay] ³	LOS ⁴
1.	Orange Grove Ave at El Centro St	AWS	[9.1]	A	[9.1]	A
2.	Orange Grove Ave at Monterey Rd	CSS	[106.6]	F	[106.6]	F
4.	Meridian Ave at El Centro St	AWS	[13.4]	B	[10.8]	B
5.	Meridian Ave at Monterey Rd	TS	0.822	D	0.839	D

Notes:

(1) AWS = All Way Stop; CSS = Cross Street Stop; TS = Traffic Signal

(2) ICU = Intersection Capacity Utilization

(3) Delay is shown in [seconds/vehicle]. Delay is reported for un-signalized study intersections. For intersections with all way stop control, overall average intersection delay and LOS are shown. For intersections with cross street stop control, LOS is based on average delay of the worst individual lane (or movements sharing a lane).

(4) LOS = Level of Service

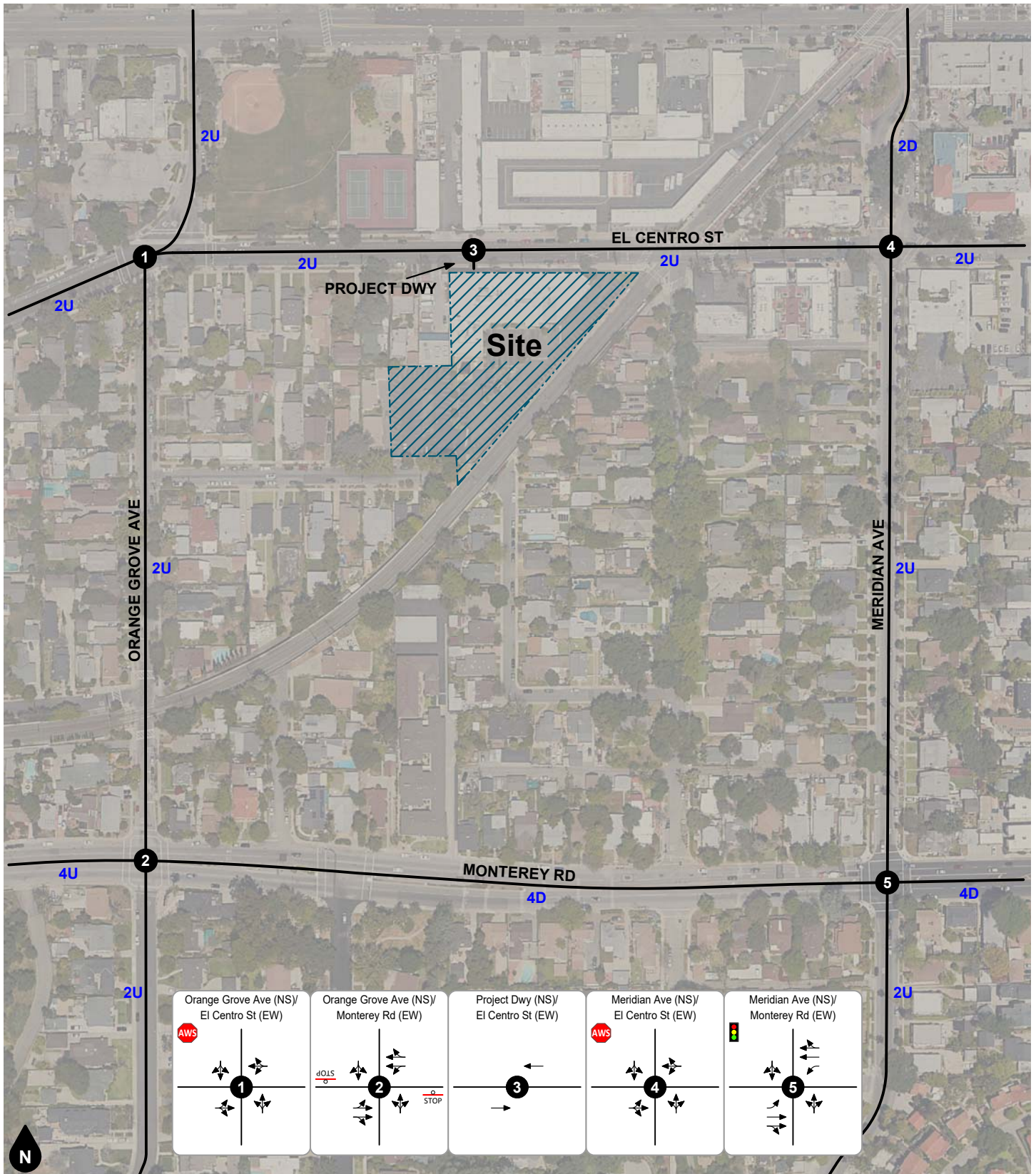
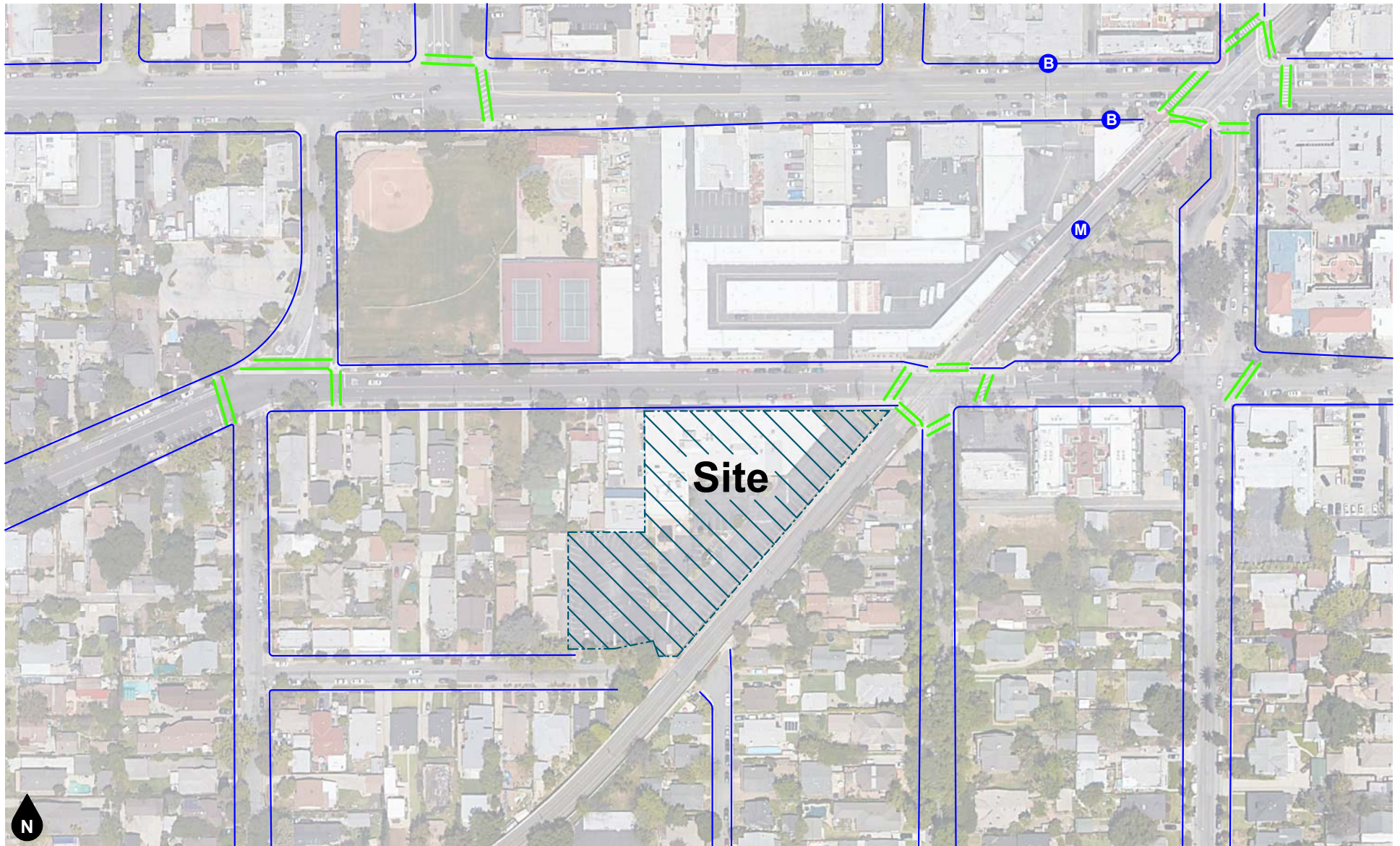


Figure 3
Existing Lane Geometry and Intersection Traffic Controls



Legend

- Sidewalk
- Cross Walk
- B Bus Stop
- M Metro Stop

Figure 4
Existing Pedestrian Facilities

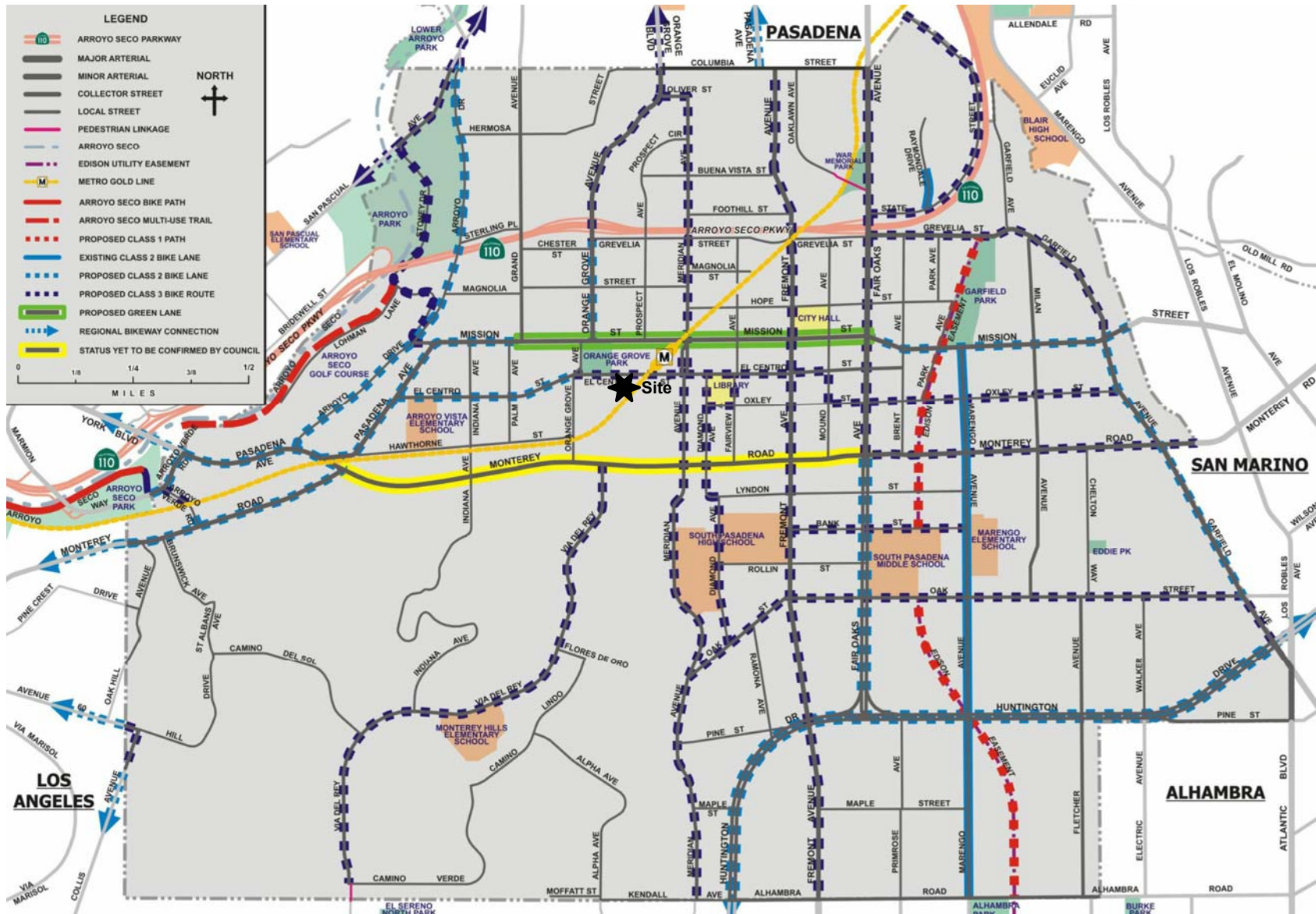
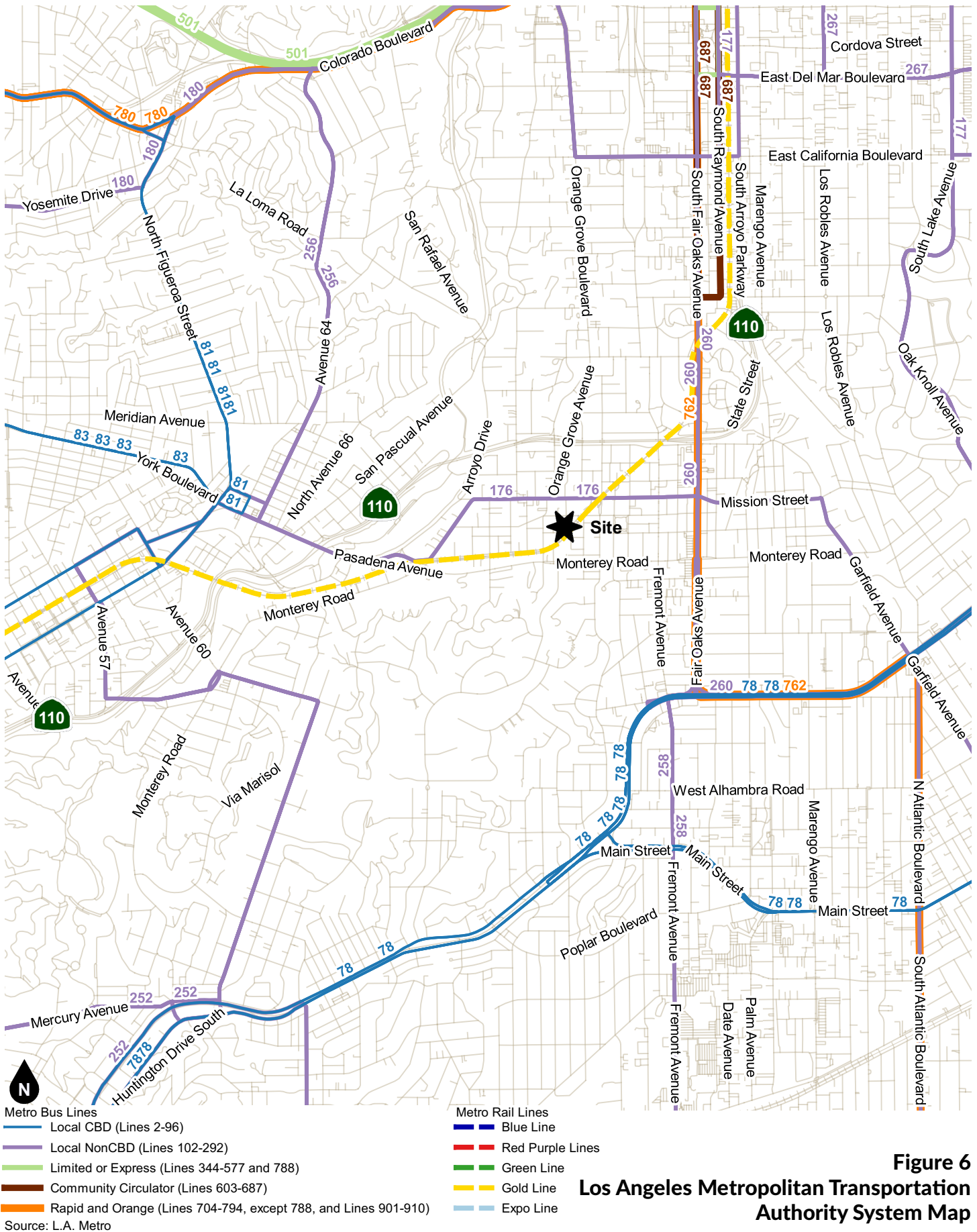


Figure 5
City of South Pasadena Existing and Proposed Bikeway Facilities Map



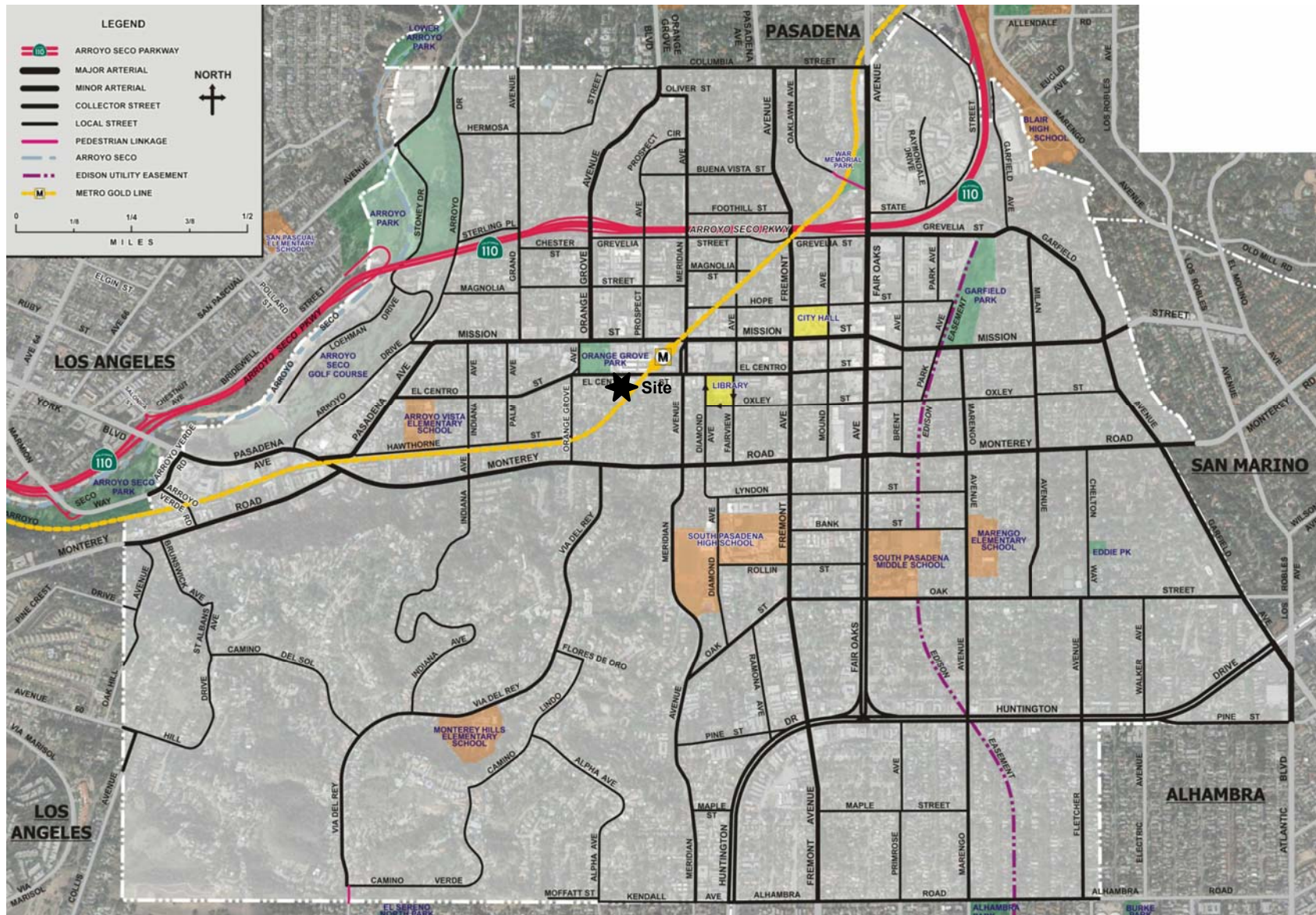


Figure 7
City of South Pasadena Roadway Network

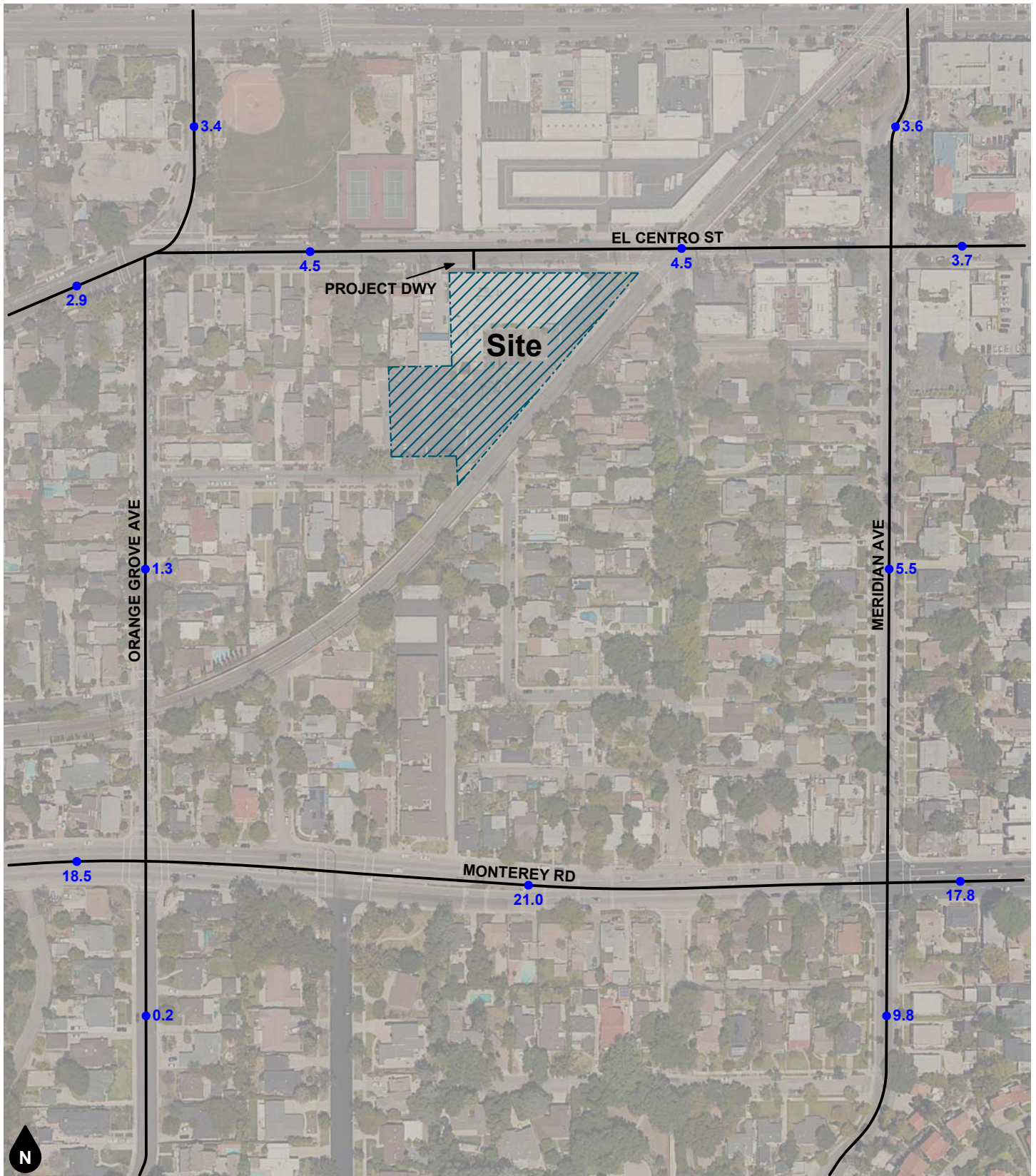
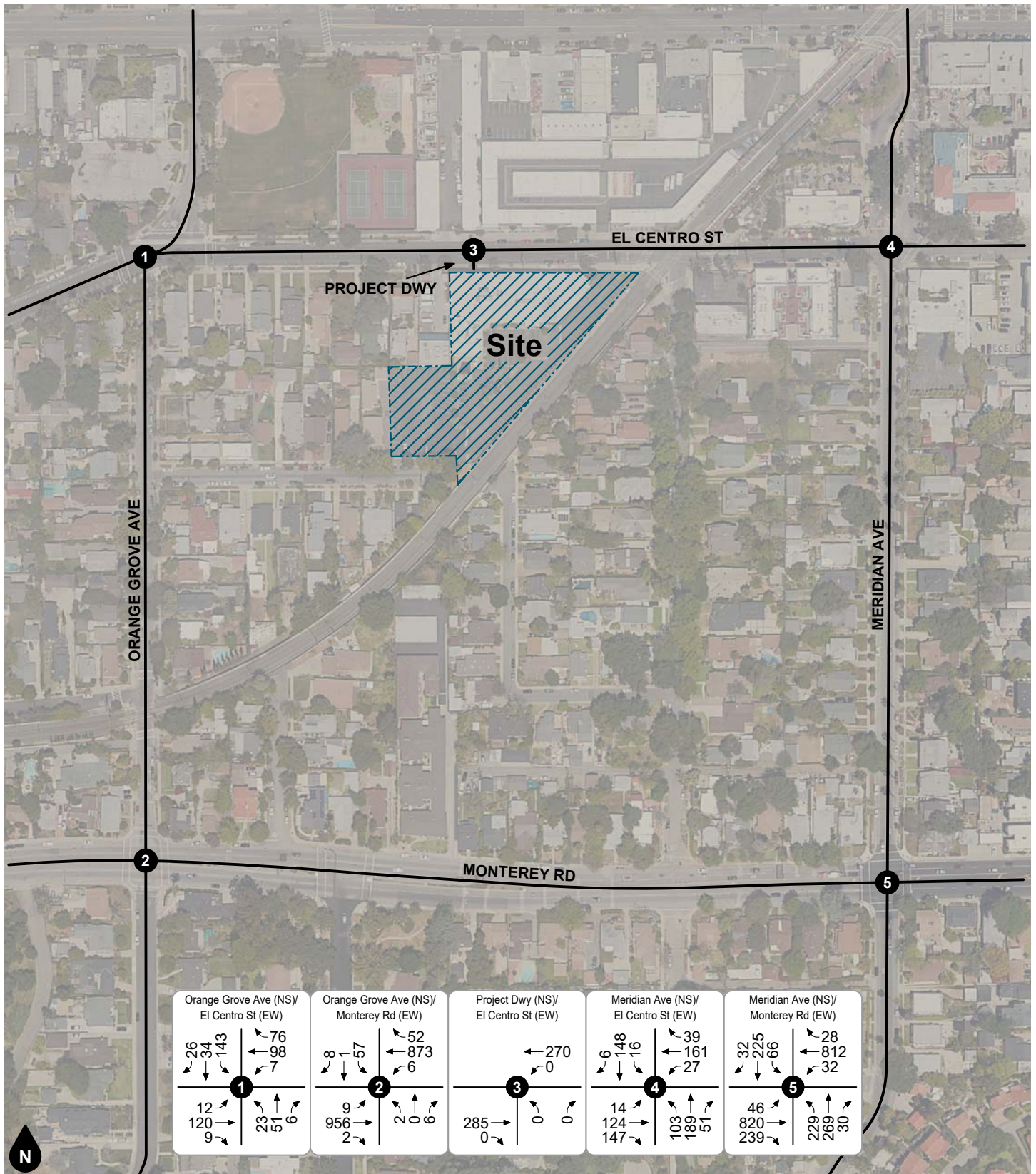


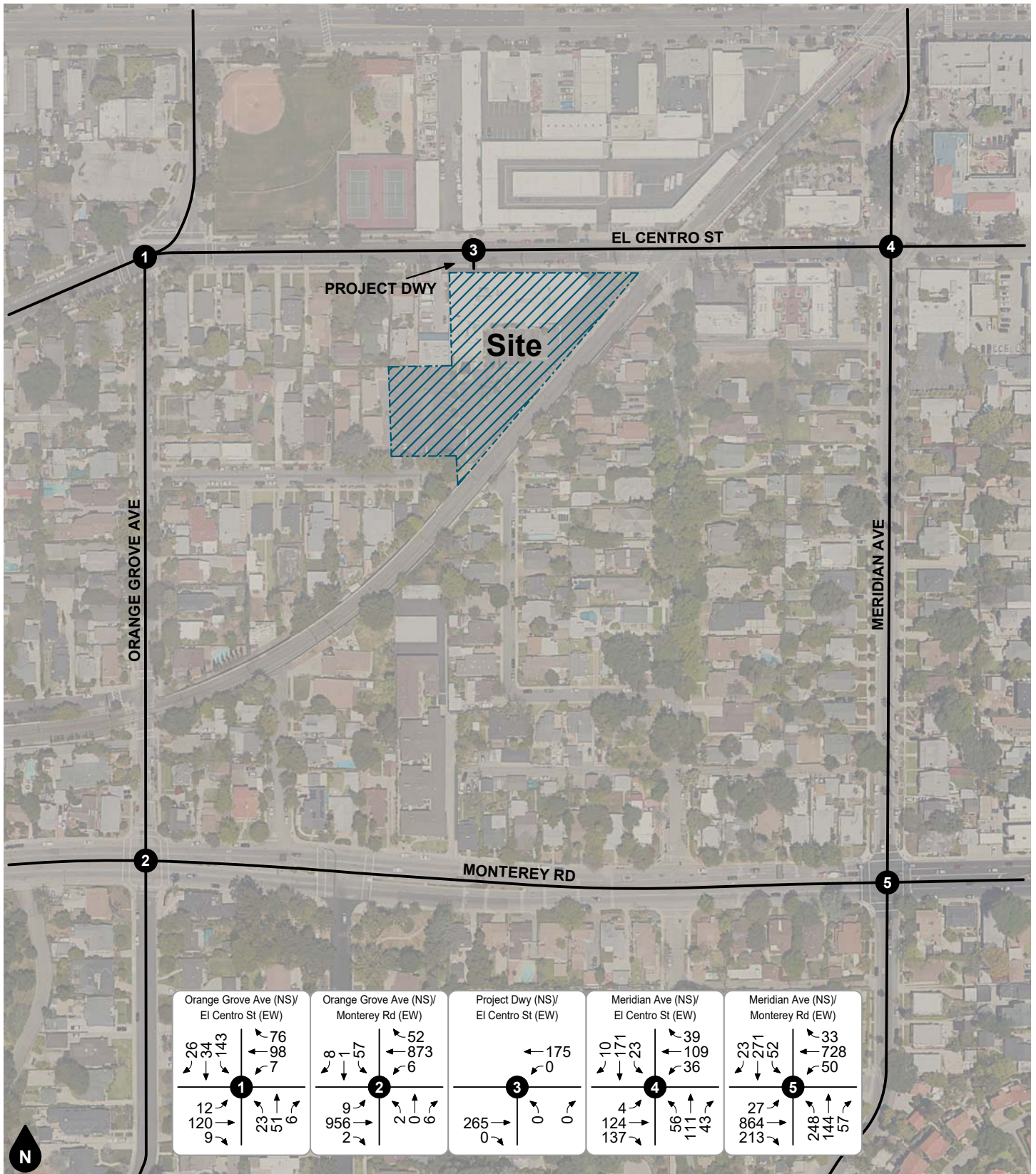
Figure 8
Existing Average Daily Traffic Volumes



Legend

Study Intersection

Figure 9
Existing AM Peak Hour Intersection Turning Movement Volumes



Legend

Study Intersection

Figure 10
Existing PM Peak Hour Intersection Turning Movement Volumes

4. PROJECT FEATURES AND TRIP FORECASTS

This section describes how project trip generation, trip distribution, and trip assignment forecasts were developed. The forecast project volumes are illustrated on figures contained in this section.

PROJECT DESIGN FEATURES

This analysis assumes the proposed project shall construct the following improvements as Project Design Features necessary to provide project site access:

Project Driveway (NS) at El Centro Street (EW) - #3

- Construct the project driveway to provide one inbound lane and one outbound lane with northbound stop-control.
- The existing eastbound lane on El Centro Street will allow shared through/right turn movements.
- The existing westbound lane on El Centro Street will allow shared through/left turn movements.
- The new northbound lane at the Project Driveway will allow shared left/right turn movements.

PROJECT TRIP GENERATION

Table 3 shows the project trip generation based upon trip generation rates obtained from the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017). The project trip generation forecast is determined by multiplying the trip generation rates by the land use quantity. Trip generation rates for ITE Land Use Code 820 (Shopping Center), ITE Land Use Code 932 (High-Turnover Restaurant), and ITE Land Use Code 220 (Multifamily Residential (Low-Rise)) were used for the commercial retail, restaurant, and residential components of the proposed project, respectively.

As shown in Table 3, the proposed project is forecast to generate a total of approximately 757 daily vehicle trips, including 49 trips during the AM peak hour and 42 trips during the PM peak hour.

OTHER FACTORS AFFECTING TRIP GENERATION

The initial project-generated trip estimates shown in Table 3 include adjustments for internal capture and transit mode share.

Internal Capture

The baseline trip generation estimates derived from the ITE trip generation rates represent the trip forecast for a standalone use. As a residential trip generated by the project is likely to interact with the commercial retail or restaurant land uses located within the project, a double counting of those trips occurs. To provide a reasonable estimate of the trips that will be generated externally, the project trip generation forecast has been adjusted in accordance with procedures developed by the National Cooperative Highway Research Program 684 Internal Capture Estimation Tool as incorporated into the ITE Trip Generation Handbook (3rd Edition). The resulting calculations indicate that approximately 10 percent of the project-generated trips during the AM peak hour and 36 percent of the project-generated trips during the PM peak hour will remain internal to the site. Detailed internal capture worksheets are provided in the scoping agreement in Appendix B.

Transit Mode Share

The project is an infill development located within 1/4 mile of the Metro Gold Line Light Rail South Pasadena Station. Appendix C of the ITE Trip Generation Handbook (3rd Edition) provides mode share data for infill developments indicating that non-motor vehicle travel comprises 18-32 percent of trips for residential infill developments in Pasadena, with the higher transit share for those located within 1/4 mile or immediately

adjacent to the development. To provide a conservative analysis, a transit/walk mode share adjustment of 10 percent was applied to the proposed project trip generation forecast.

PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

Figure 11 and Figure 12 show the forecast directional distribution patterns for the project generated trips. The project trip distribution patterns were determined in consultation with City of South Pasadena staff and are based on review of existing volume data, surrounding land uses, and the local and regional roadway facilities in the project vicinity.

Based on the identified project trip generation and distributions, project average daily traffic volumes have been calculated and shown on Figure 13. The project-generated AM and PM peak hour intersection turning movement volumes are shown on Figure 14 and Figure 15.

Table 3
Project Trip Generation

Baseline Trip Generation Rates									
Land Use	Source ¹	Unit ²	AM Peak Hour			PM Peak Hour			Daily
			% In	% Out	Rate	% In	% Out	Rate	
Commercial Retail	ITE 820	TSF	62%	38%	0.94	48%	52%	3.81	37.75
Restaurant	ITE 932	TSF	55%	45%	9.94	62%	38%	9.77	112.18
Multi-Family Residential (Low-Rise)	ITE 220	DU	23%	77%	0.46	63%	37%	0.56	7.32

Trips Generated									
Land Use	Quantity	Unit ²	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Commercial Retail	3.050	TSF	2	1	3	6	6	12	115
Internal Capture ³			0	0	0	-4	-4	-8	-8
Transit/Walk Trips ⁴			0	0	0	0	0	0	-11
Subtotal External Vehicle Trips			2	1	3	2	2	4	96
Restaurant	3.050	TSF	17	14	31	18	11	29	342
Internal Capture ³			-3	0	-3	-5	-5	-10	-13
Transit/Walk Trips ⁴			-1	-1	-2	-1	-1	-2	-33
Subtotal External Vehicle Trips			13	13	26	12	5	17	296
Multi-Family Residential	57	DU	6	20	26	20	12	32	417
Internal Capture ³			0	-3	-3	-4	-4	-8	-11
Transit/Walk Trips ⁴			-1	-2	-3	-2	-1	-3	-41
Subtotal External Vehicle Trips			5	15	20	14	7	21	365
Total External Vehicle Trips Generated			20	29	49	28	14	42	757

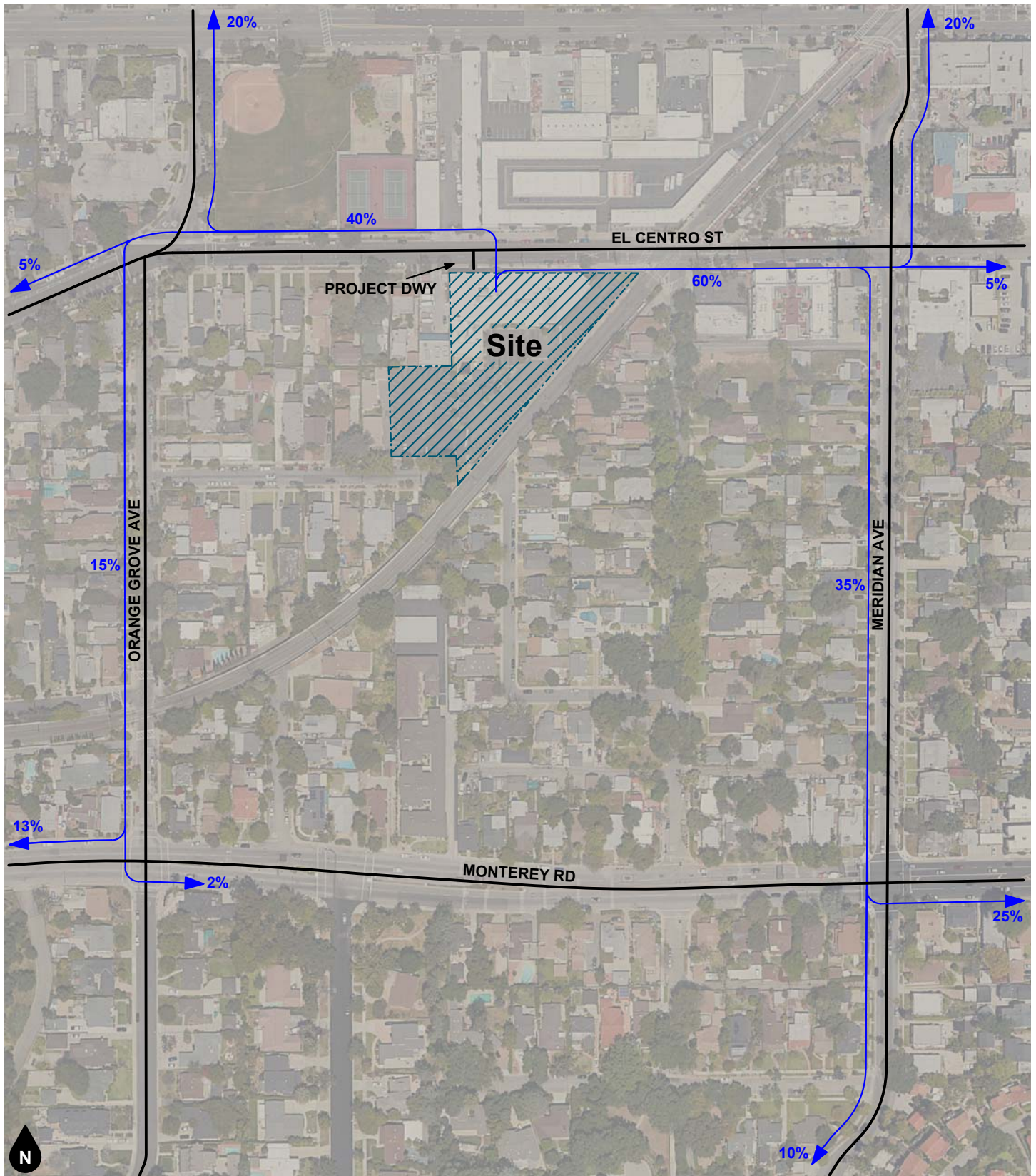
Notes:

(1) ITE = Institute of Transportation Engineers Trip Generation Manual (10th Edition, 2017); ### = Land Use Code

(2) TSF = Thousand Square Feet; DU = Dwelling Units

(3) Internal capture calculated using NCHRP 8-51 procedures as prescribed in the ITE Trip Generation Handbook (3rd Edition); see attached worksheets. The total adjustment equates to 10% AM and 36% PM.

(4) The project site is an infill development located within 1/4 mile of Metro Gold Line Light Rail South Pasadena Station. Transit/walk adjustment of 10% has been applied based on mode share data provided in Appendix C of the ITE Trip Generation Handbook.



Legend

← 10% Percent From/To Project

Figure 11
Project Trip Distribution - Commercial Retail

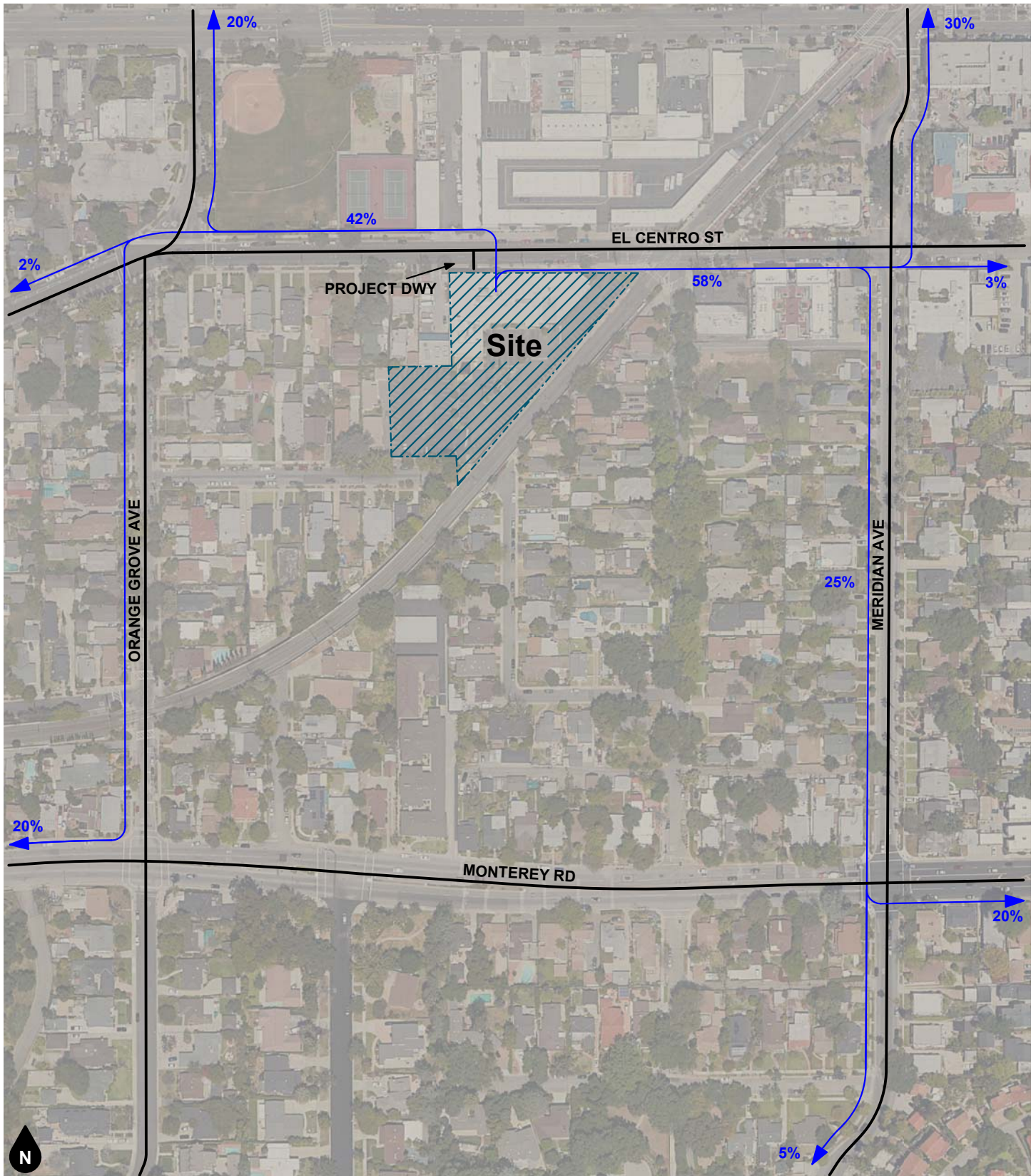
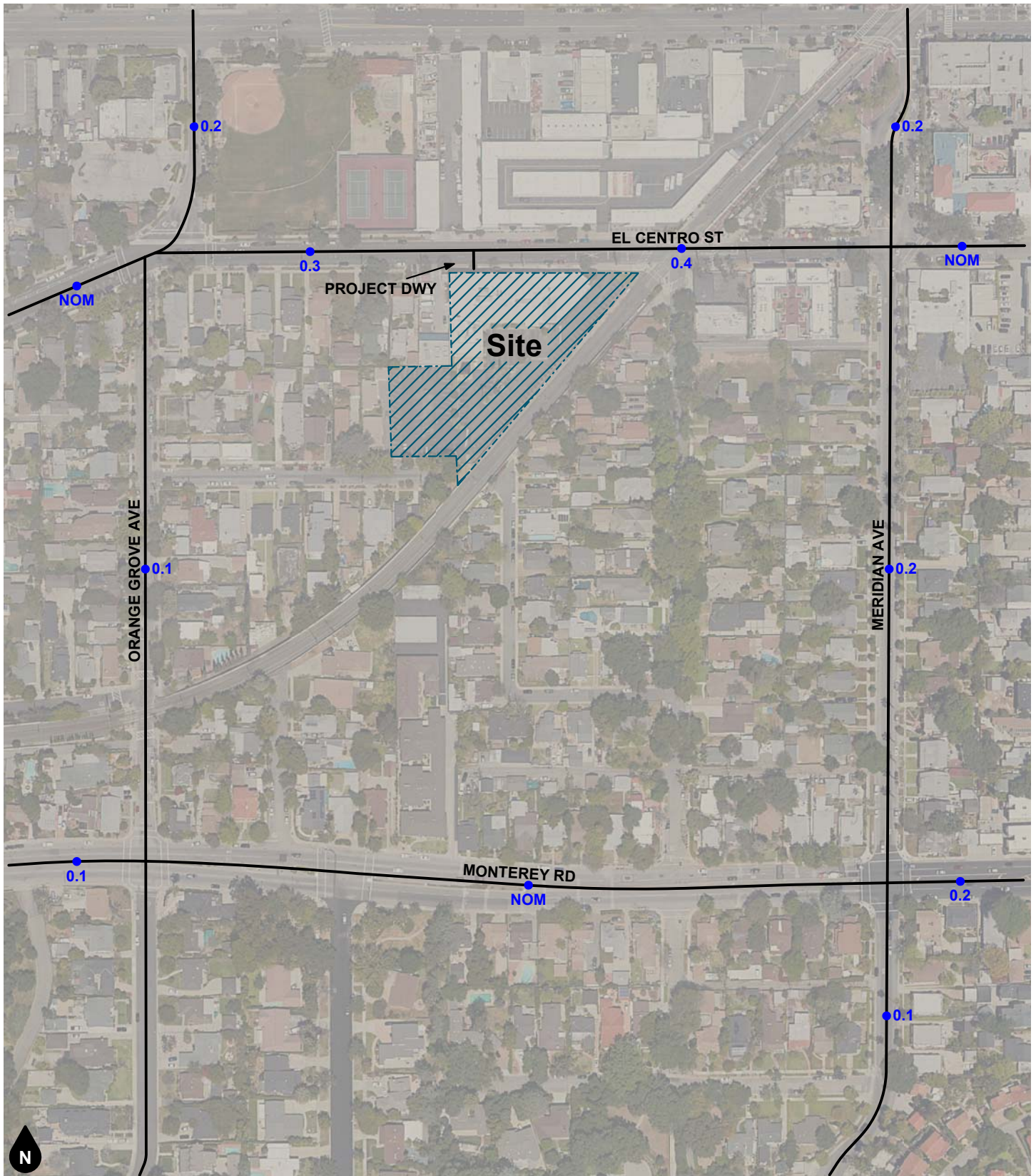


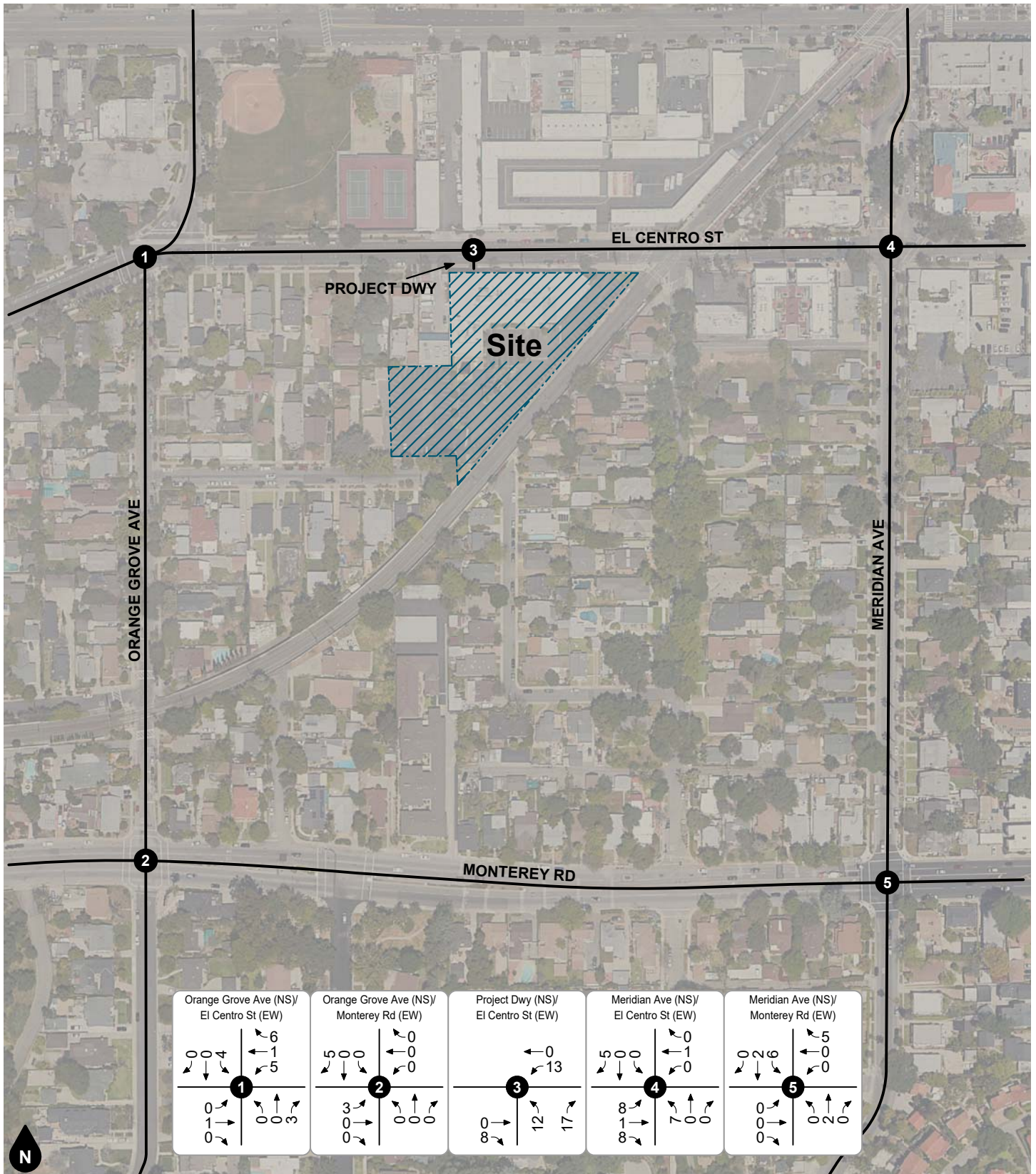
Figure 12
Project Trip Distribution - Residential



Legend

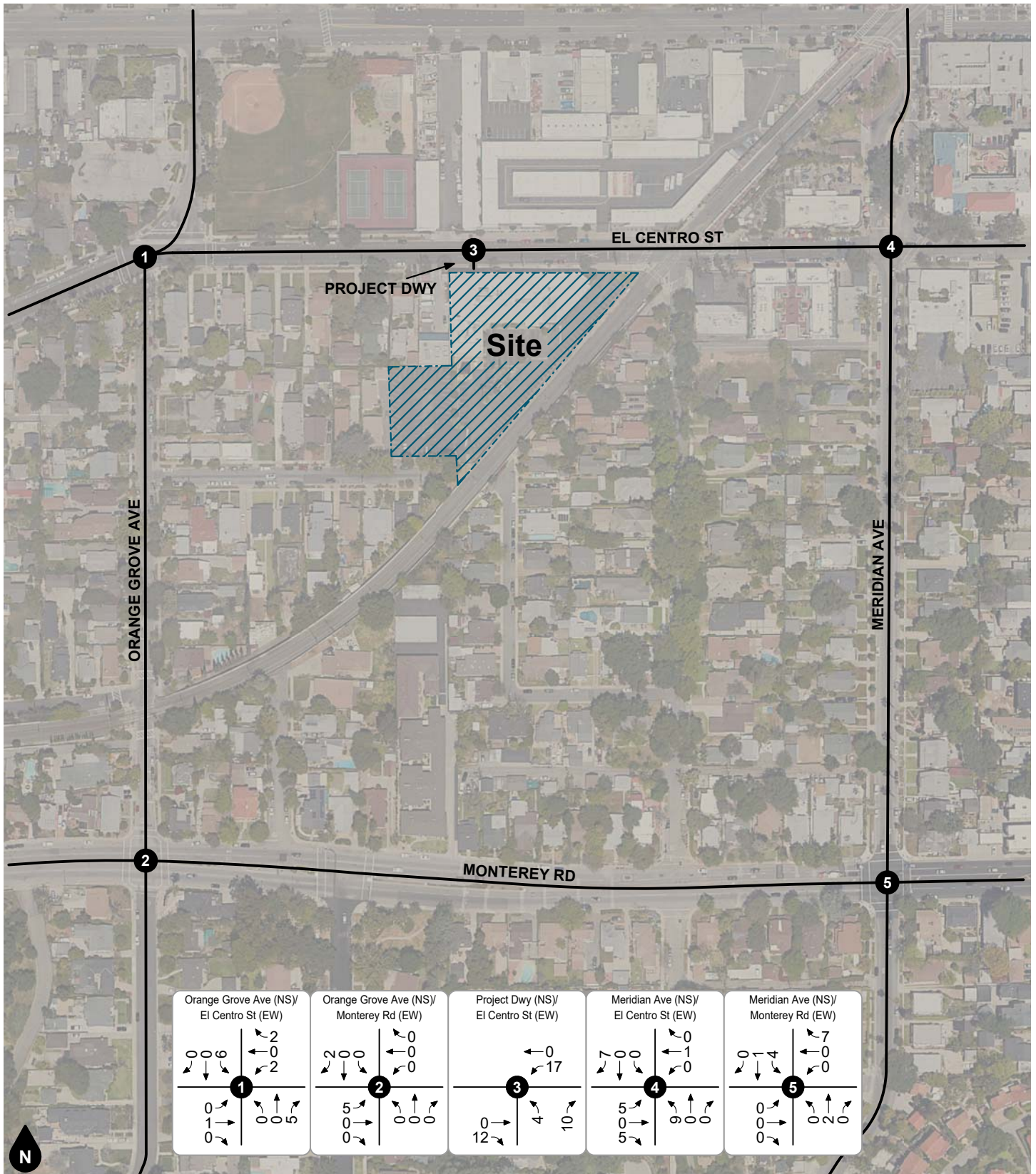
- ## Vehicles Per Day (1,000's)
- NOM Nominal; Less Than 50 Vehicles Per Day

Figure 13
Project Average Daily Traffic Volumes



Legend
Study Intersection

Figure 14
Project AM Peak Hour Intersection Turning Movement Volumes



Legend
Study Intersection

Figure 15
Project PM Peak Hour Intersection Turning Movement Volumes

5. FUTURE VOLUME FORECASTS

This section describes how future volume forecasts for each analysis scenario were developed. Forecast study area volumes are illustrated on figures contained in this section.

CUMULATIVE TRIPS

Other Development

To account for trips generated by future development, trips generated by pending or approved other development projects in the City of South Pasadena were added to the study area. Table 4 shows the trip generation summary for other development projects. Figure 16 shows the other development location map.

Figure 17 shows the forecast average daily traffic volumes for the other development. Figure 18 and Figure 19 show the forecast AM and PM peak hour intersection turning movement volumes for trips generated by other developments.

Ambient Growth

Existing volumes were increased by a growth rate of one percent (1%) per year over a two-year period for Opening Year (2022) conditions. This equates to a total growth factor of approximately 1.02 for Opening Year conditions and accounts for regional growth not specifically identified in the other development list. The ambient growth rate was conservatively applied to all movements at the study intersections.

ANALYSIS SCENARIO VOLUME FORECASTS

Existing Plus Project

Existing Plus Project volume forecasts were derived by adding the project-generated trips to Existing volumes. Existing Plus Project average daily traffic volumes are shown on Figure 20. Existing Plus Project AM and PM peak hour intersection turning movement volumes are shown on Figure 21 and Figure 22.

Opening Year (2022) Without Project

To develop Opening Year (2022) Without Project volume forecasts, Existing volumes were combined with trips generated by other developments and ambient growth. Opening Year (2022) Without Project average daily traffic volumes are shown on Figure 23. Opening Year (2022) Without Project AM and PM peak hour intersection turning movement volumes are shown Figure 24 and Figure 25.

Opening Year (2022) With Project

Opening Year (2022) With Project volume forecasts were developed by adding project-generated trips to the Opening Year (2022) Without Project forecast. Opening Year (2022) With Project average daily traffic volumes are shown on Figure 26. Opening Year (2022) With Project AM and PM peak hour intersection turning movement volumes are shown on Figure 27 and Figure 28.

Table 4
Other Development Trip Generation

ID	Project Description	Quantity ¹	AM Peak			PM Peak			Daily
			In	Out	Total	In	Out	Total	
SP1	<u>1101-1115 Mission Bell Mixed-Use Development</u>								
	Apartments	36 DU	--	--	--	--	--	--	--
	Specialty Retail	2,325 TSF	--	--	--	--	--	--	--
	High-Turnover Restaurant	2,142 TSF	--	--	--	--	--	--	--
	Café-Style Restaurant	0,797 TSF	--	--	--	--	--	--	--
	Existing Retail & Restaurant Uses to be Displaced	-9,480 TSF							
	<i>Subtotal - Mission Bell Mixed-Use</i> ²		30	35	65	30	22	52	504
SP2	<u>Mission Street Project</u>								
	Multi-Family Housing	38 DU	19	2	21	10	18	28	304
	General Office	3,585 TSF	5	1	6	1	4	5	39
	<i>Subtotal - Mission Street</i> ³		24	3	27	11	22	33	343
SP3	<u>South Pasadena Downtown Revitalization Project</u>								
	Condominiums	210 DU	3	17	20	16	8	24	264
	Senior Housing	9,000 TSF	0	0	0	1	0	1	42
	Bowling Alley	208 DU	11	8	19	7	14	21	200
	General Office	5,029 TSF	12	2	14	2	11	13	98
	Specialty Retail	600 DU	0	0	0	17	22	39	633
	Quality Restaurant	13,872 TSF	0	0	0	24	12	36	728
	High-Turnover Restaurant	172 DU	18	17	35	11	7	18	366
	<i>Subtotal - Downtown Revitalization</i> ³		44	44	88	78	74	152	2,331
SP4	625 Fair Oak Ave Senior Housing Mixed-Use ⁴	86 DU	7	14	21	15	10	25	367
TOTAL OTHER DEVELOPMENT TRIPS GENERATED			105	96	201	134	128	262	3,545

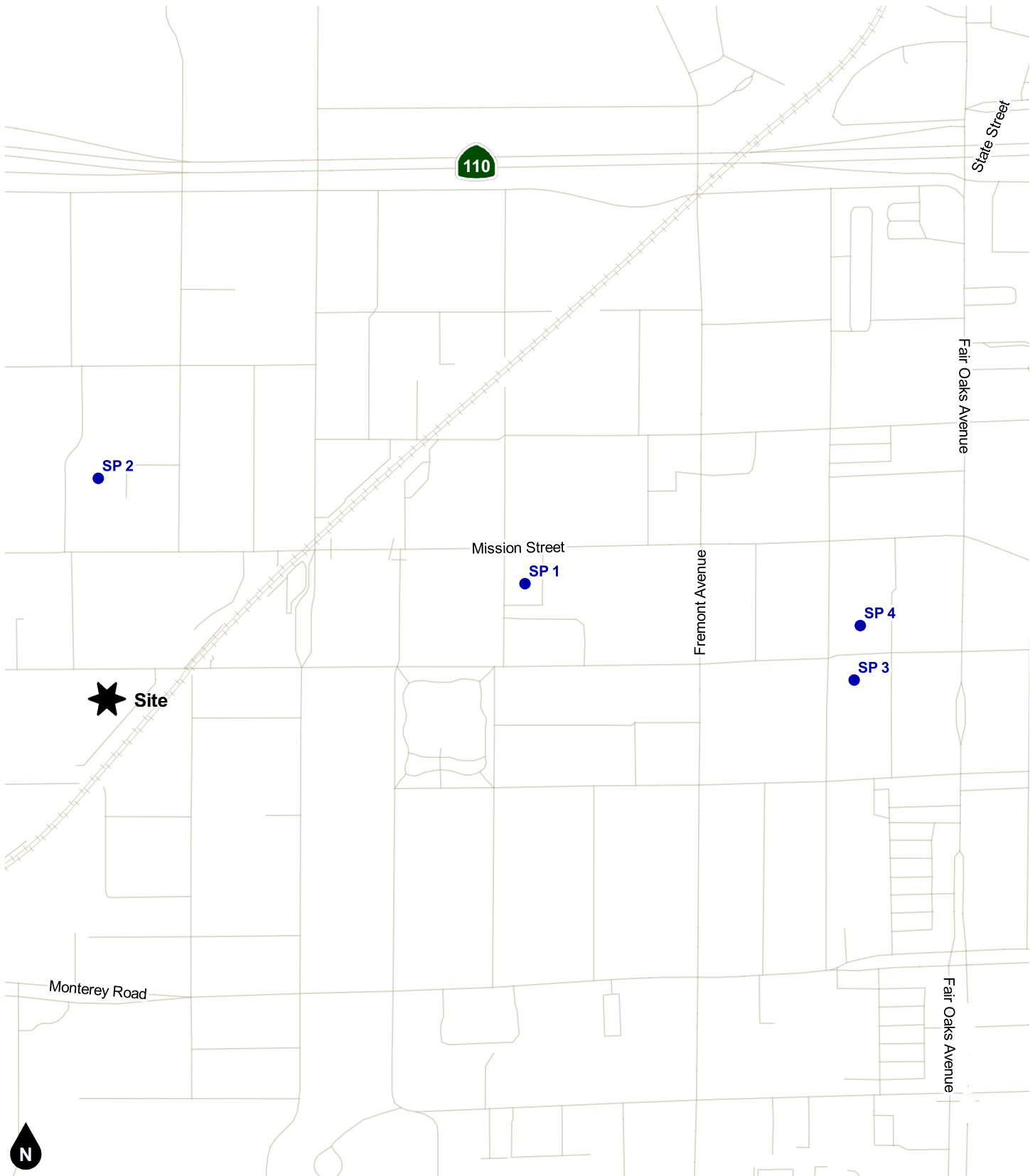
Notes:

(1) TSF = Thousand Square Feet; DU = Dwelling Units

(2) Source: Traffic Study for the Mission View Mixed-Use Development Project, Table 8, page 34 (Gibson Transportation Consultants, Inc., January 2017).

(3) Source: Traffic Study for the Mission View Mixed-Use Development Project, Table 5, page 26 (Gibson Transportation Consultants, Inc., January 2017).

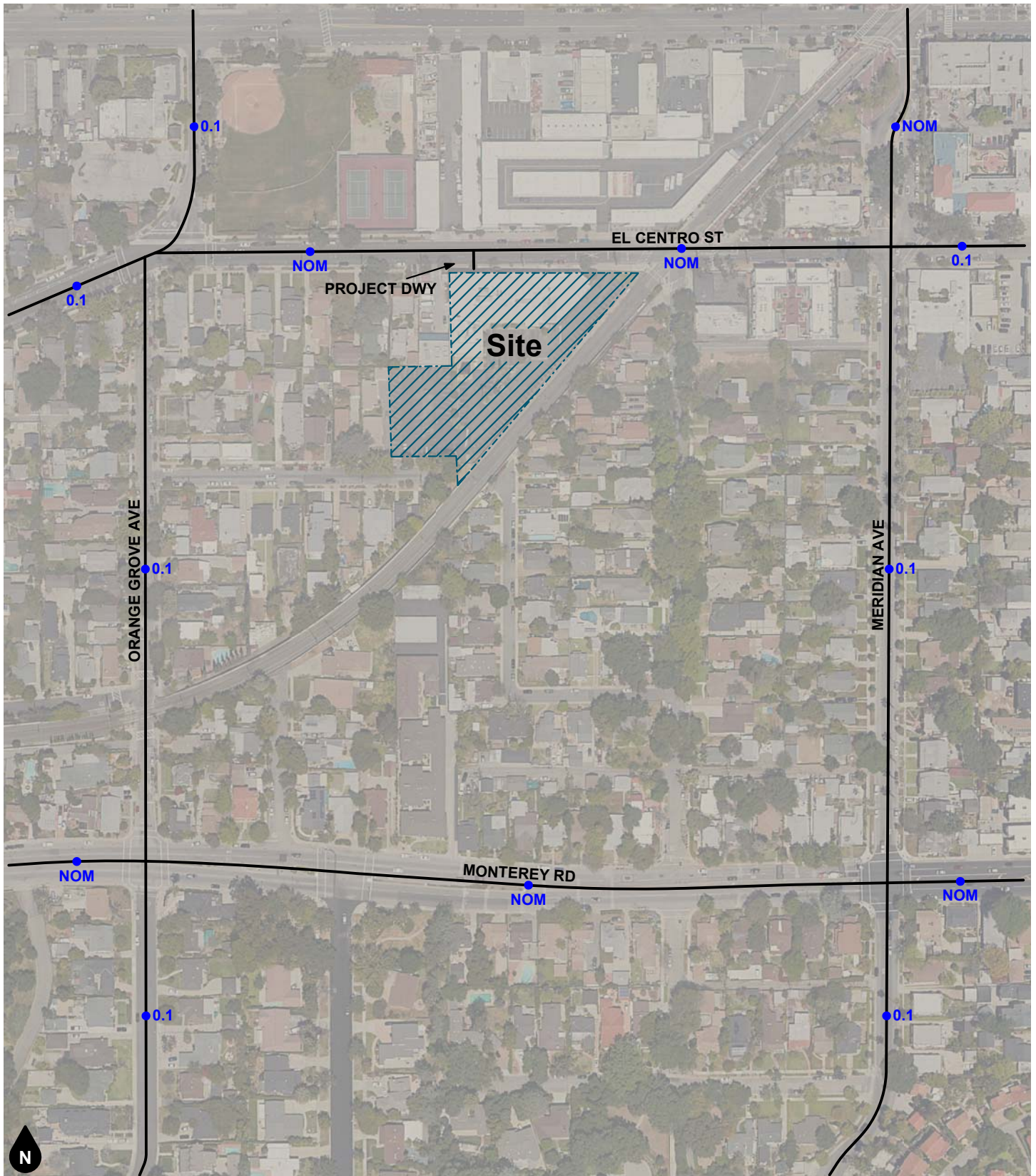
(4) Source: ITE Trip Generation Manual (10th Edition, 2017), Land Use Code 251.



Legend

- # Other Development ID in:
- City of South Pasadena (SP)

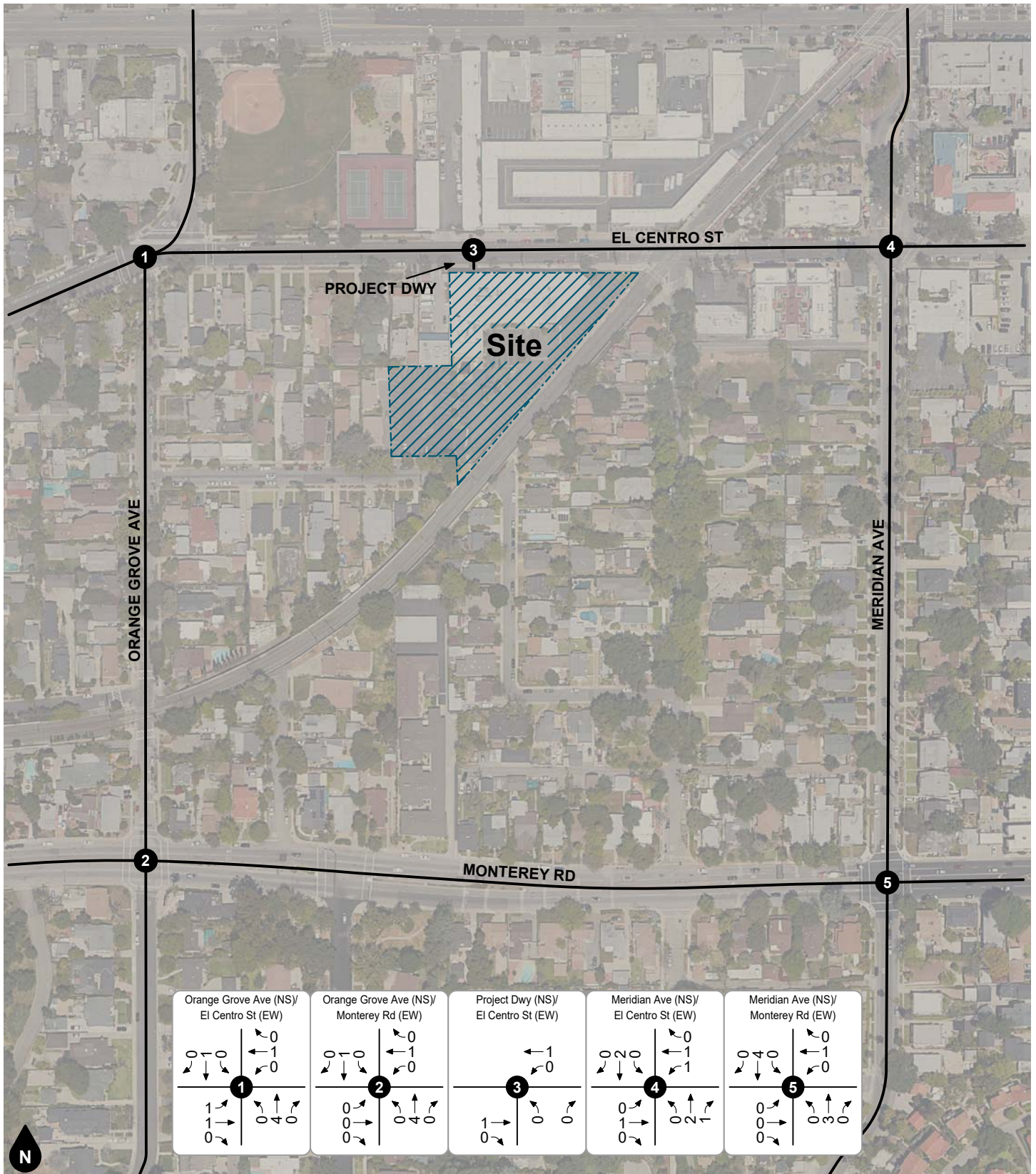
Figure 16
Other Development Location Map



Legend

- ## Vehicles Per Day (1,000's)
- NOM Nominal; Less Than 50 Vehicles Per Day

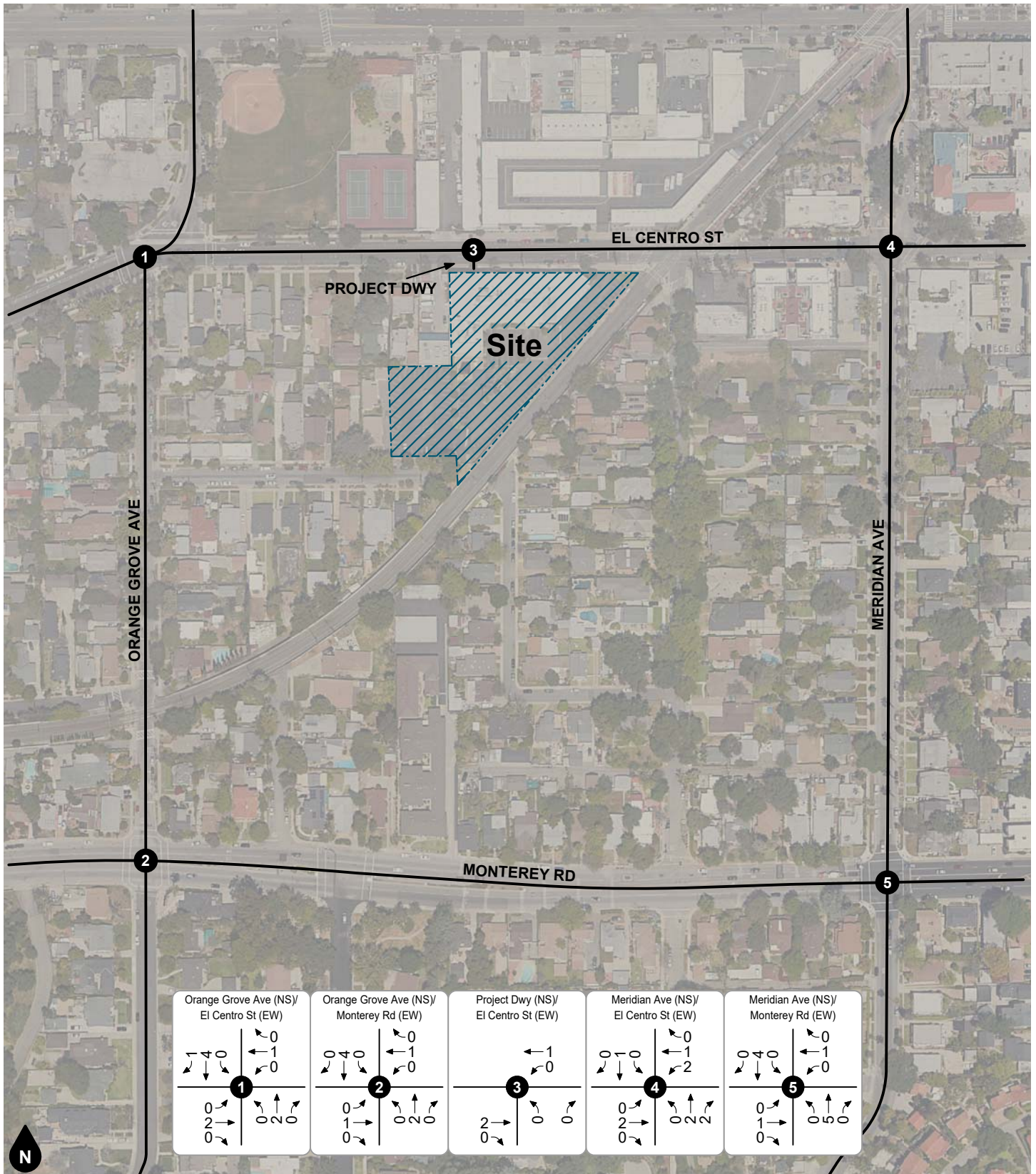
Figure 17
Other Development Average Daily Traffic Volumes



Legend

Study Intersection

Figure 18
Other Development
AM Peak Hour Intersection Turning Movement Volumes



Legend

Study Intersection

Figure 19
Other Development
PM Peak Hour Intersection Turning Movement Volumes

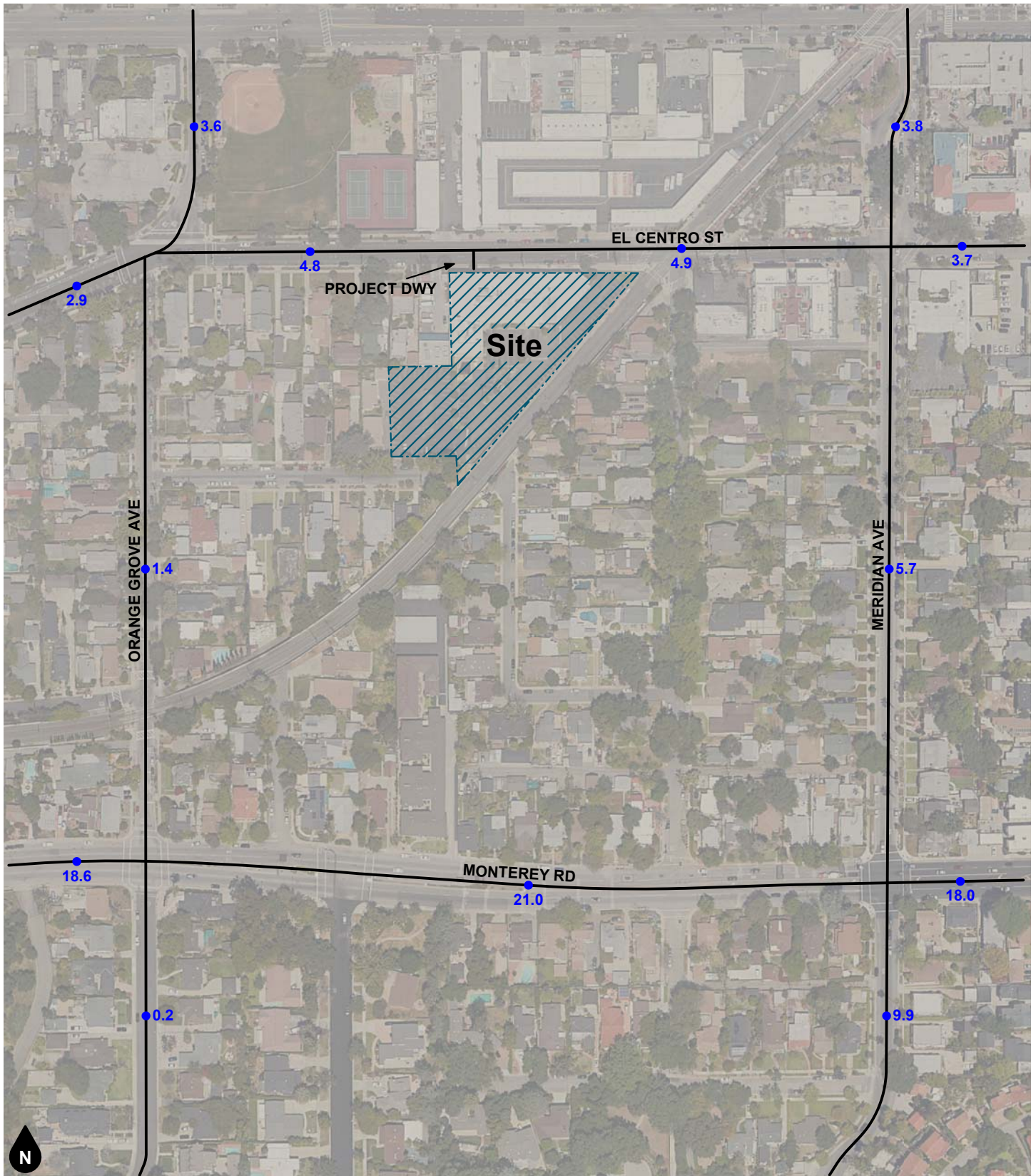
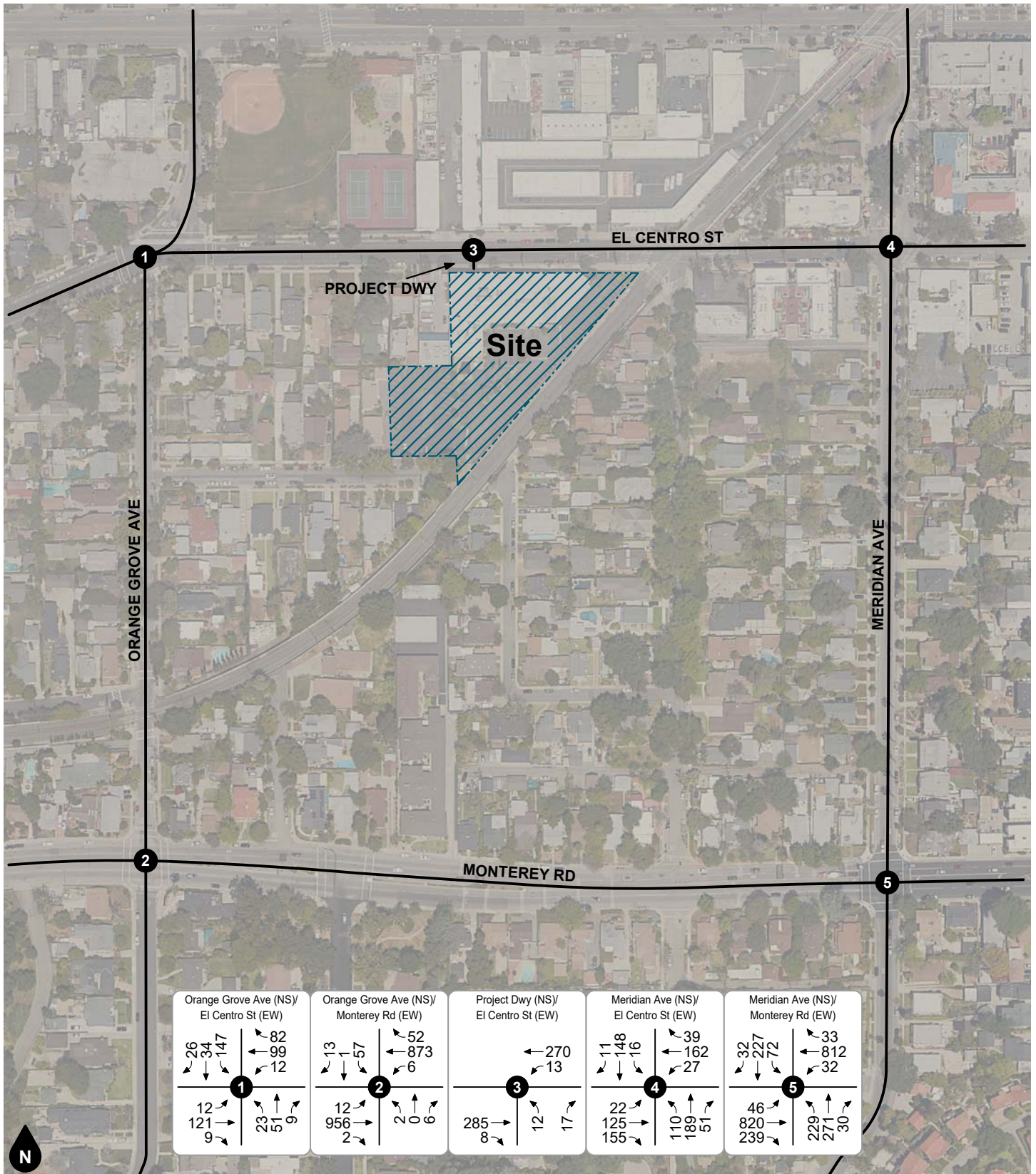


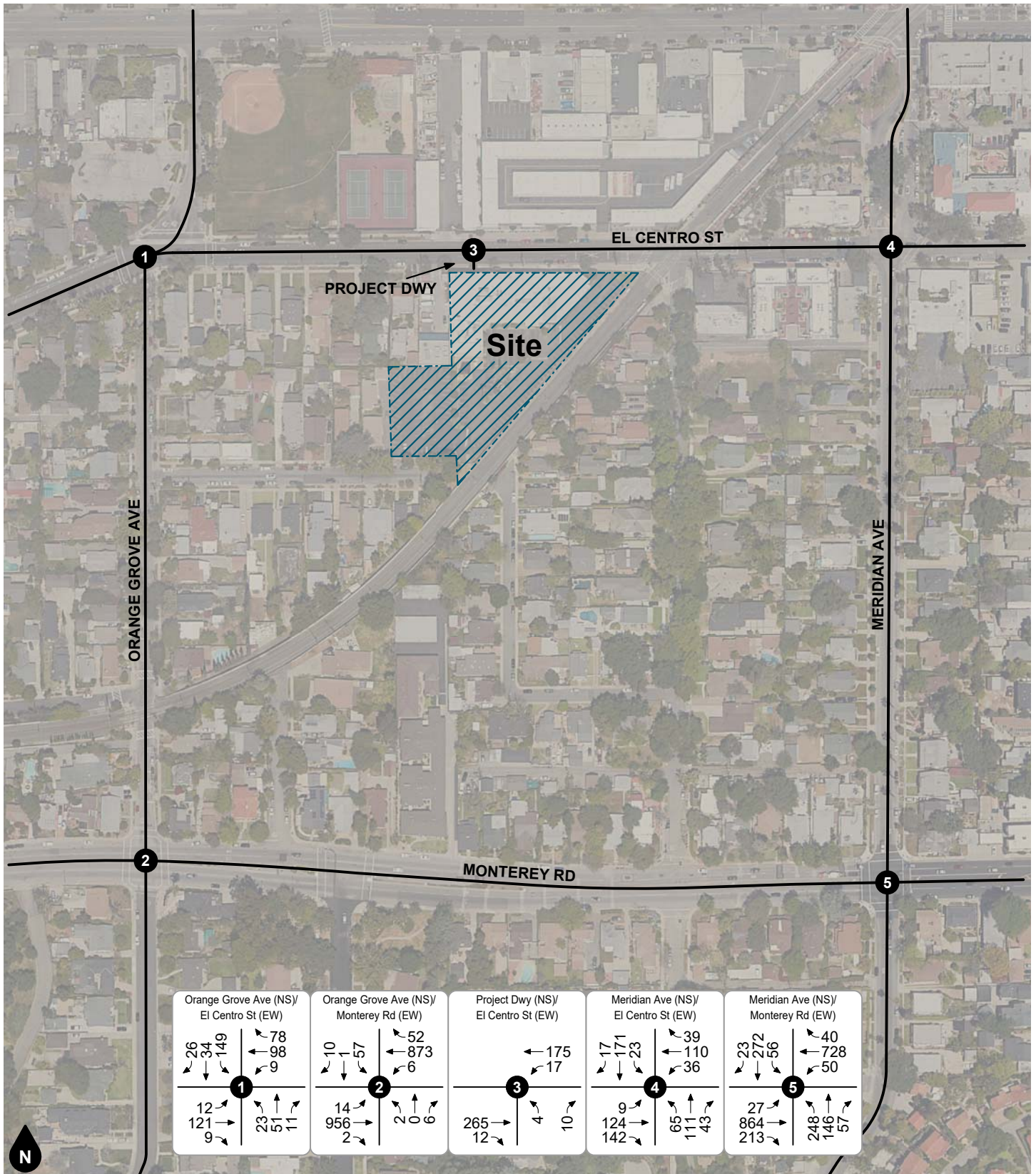
Figure 20
Existing Plus Project Average Daily Traffic Volumes



Legend

Study Intersection

Figure 21
Existing Plus Project
AM Peak Hour Intersection Turning Movement Volumes



Legend

Study Intersection

Figure 22
Existing Plus Project
PM Peak Hour Intersection Turning Movement Volumes

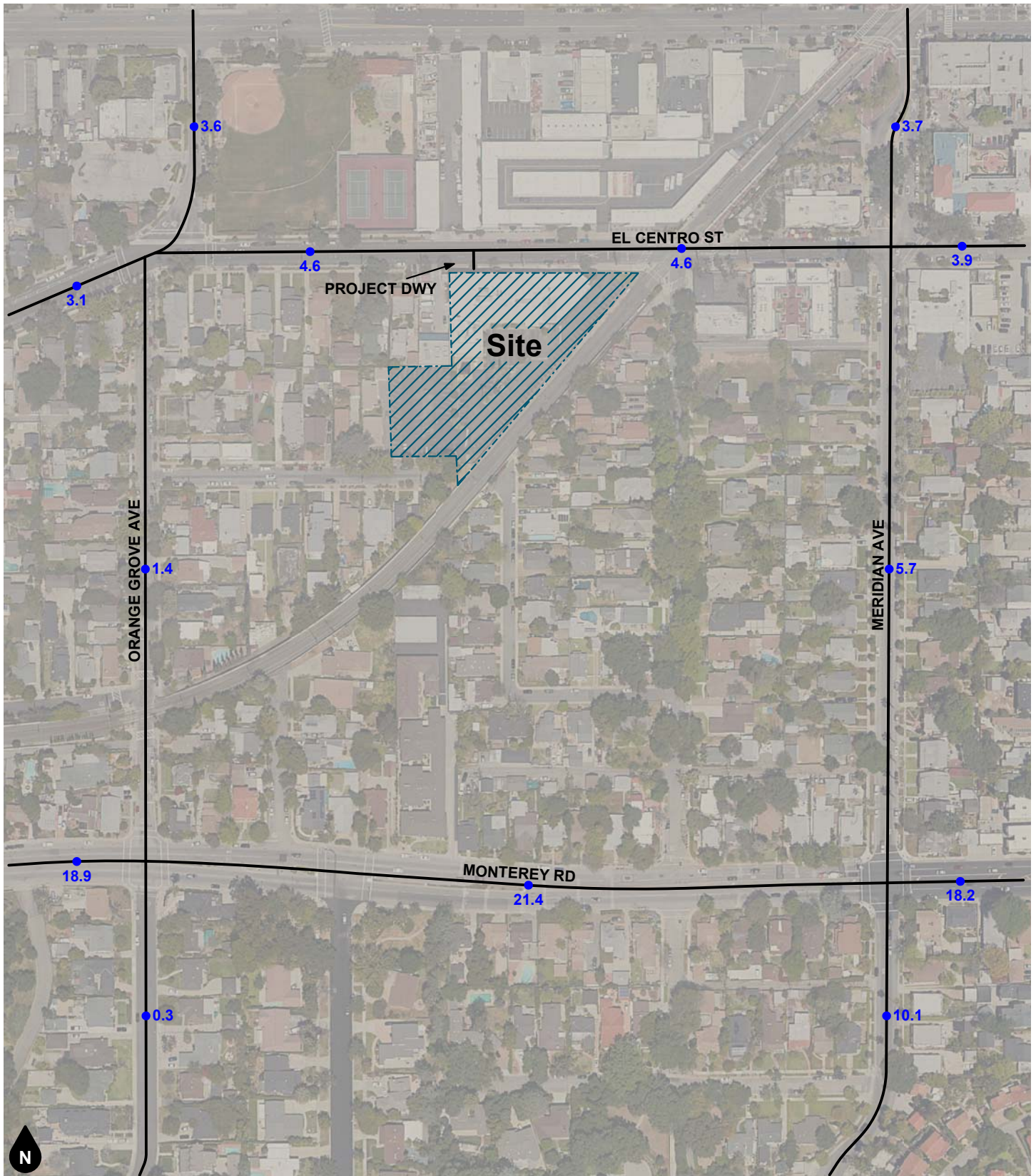
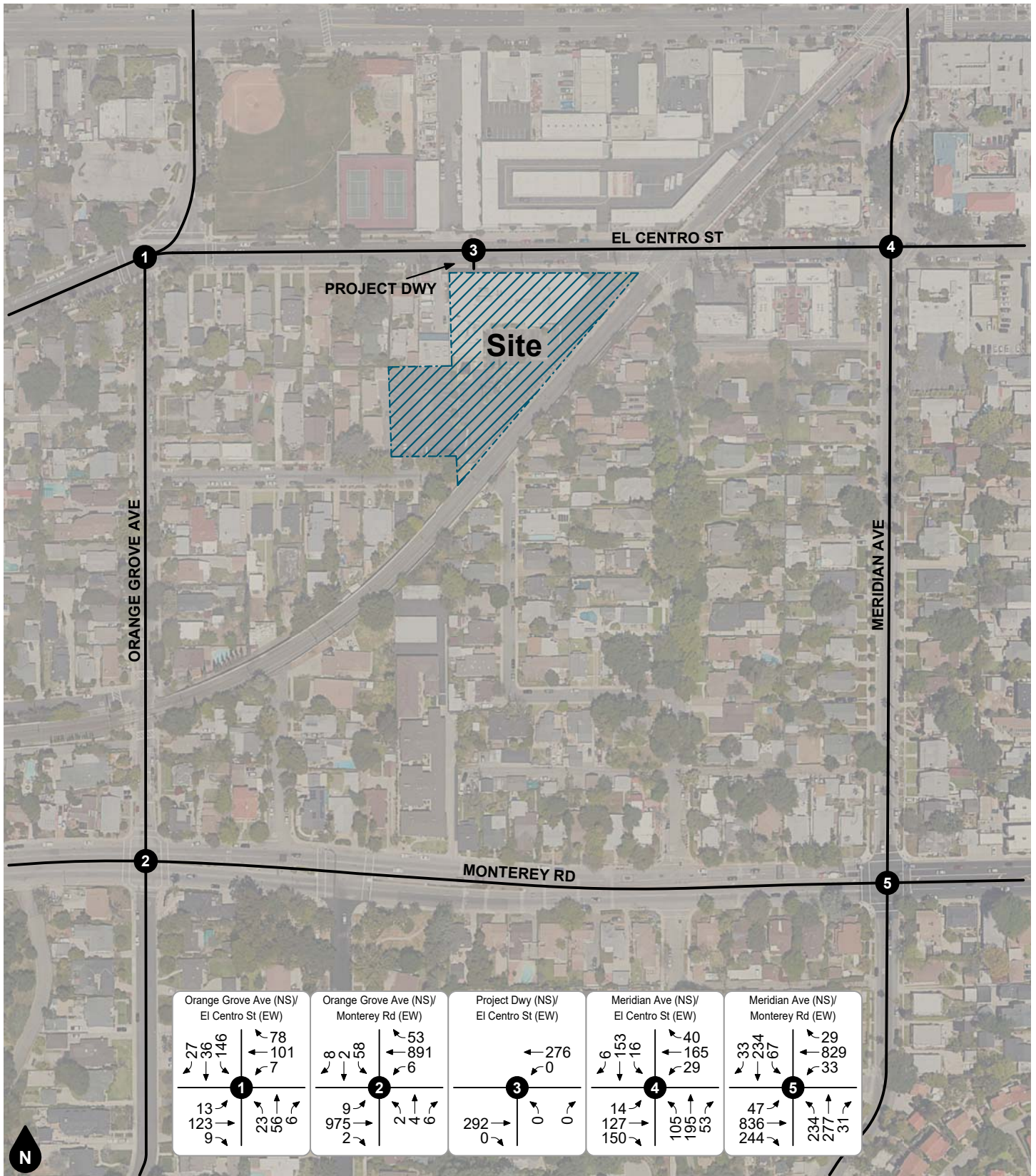


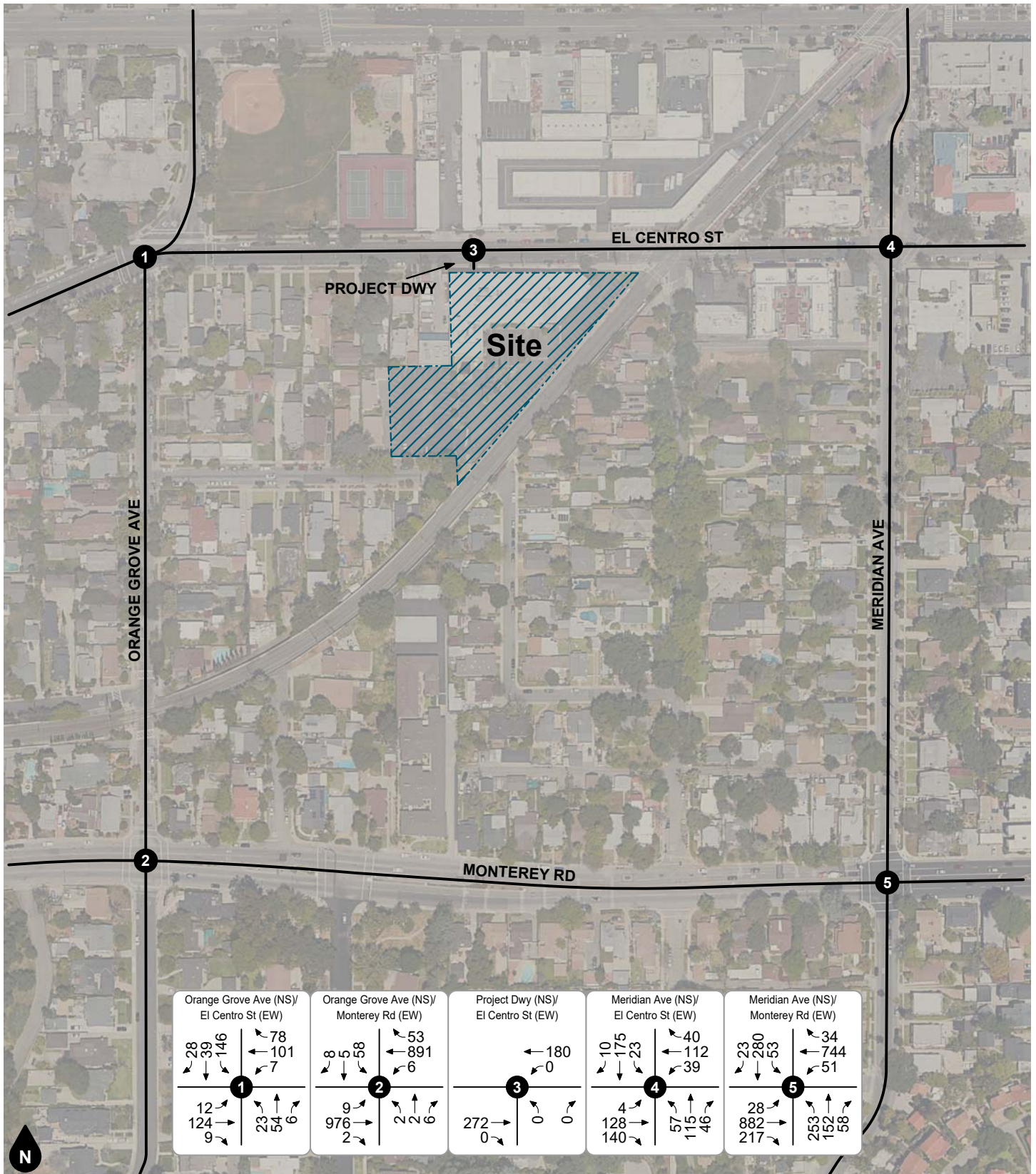
Figure 23
Opening Year (2022) Without Project Average Daily Traffic Volumes



Legend

Study Intersection

Figure 24
Opening Year (2022) Without Project
AM Peak Hour Intersection Turning Movement Volumes



Legend

Study Intersection

Figure 25
Opening Year (2022) Without Project
PM Peak Hour Intersection Turning Movement Volumes

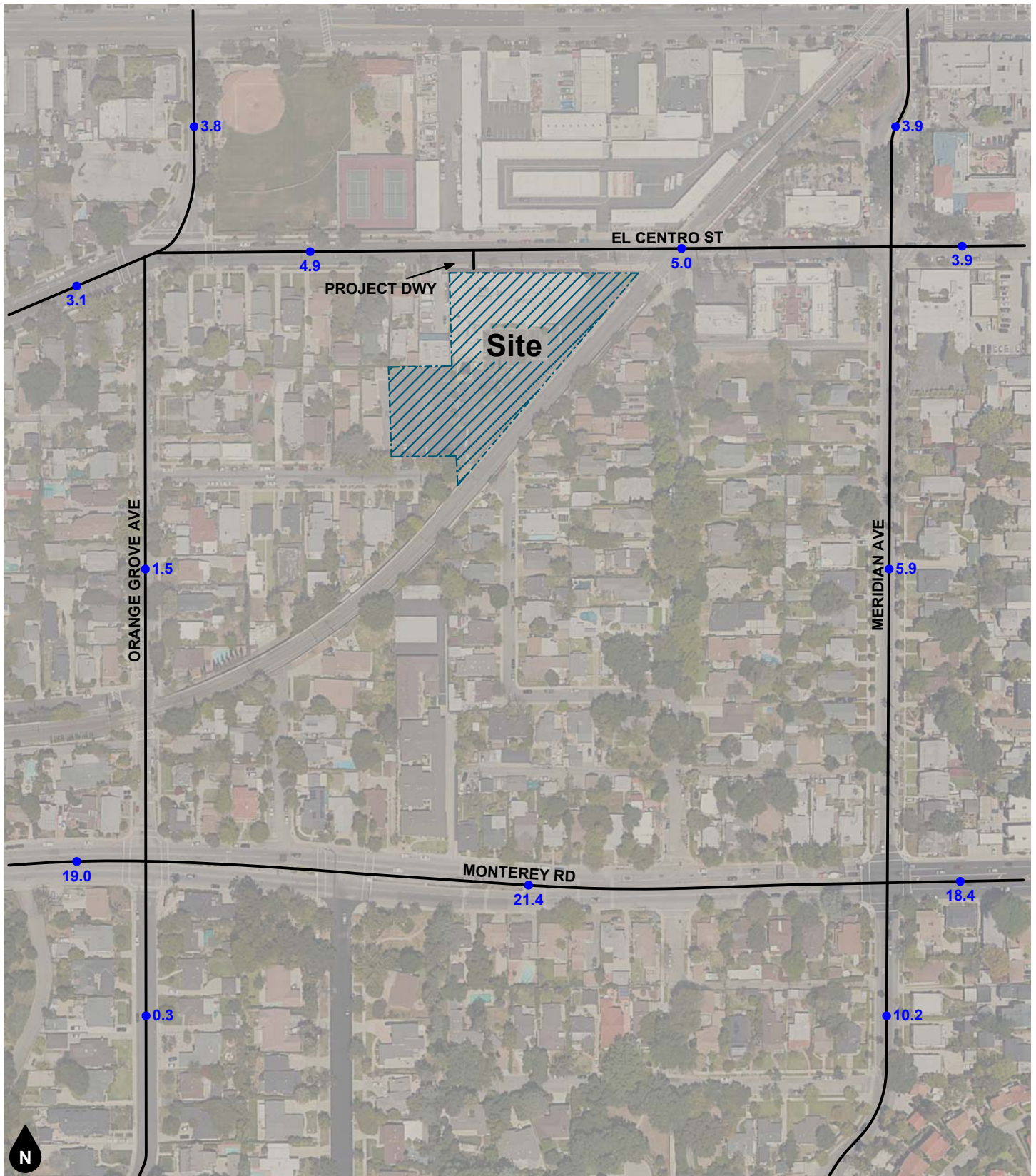
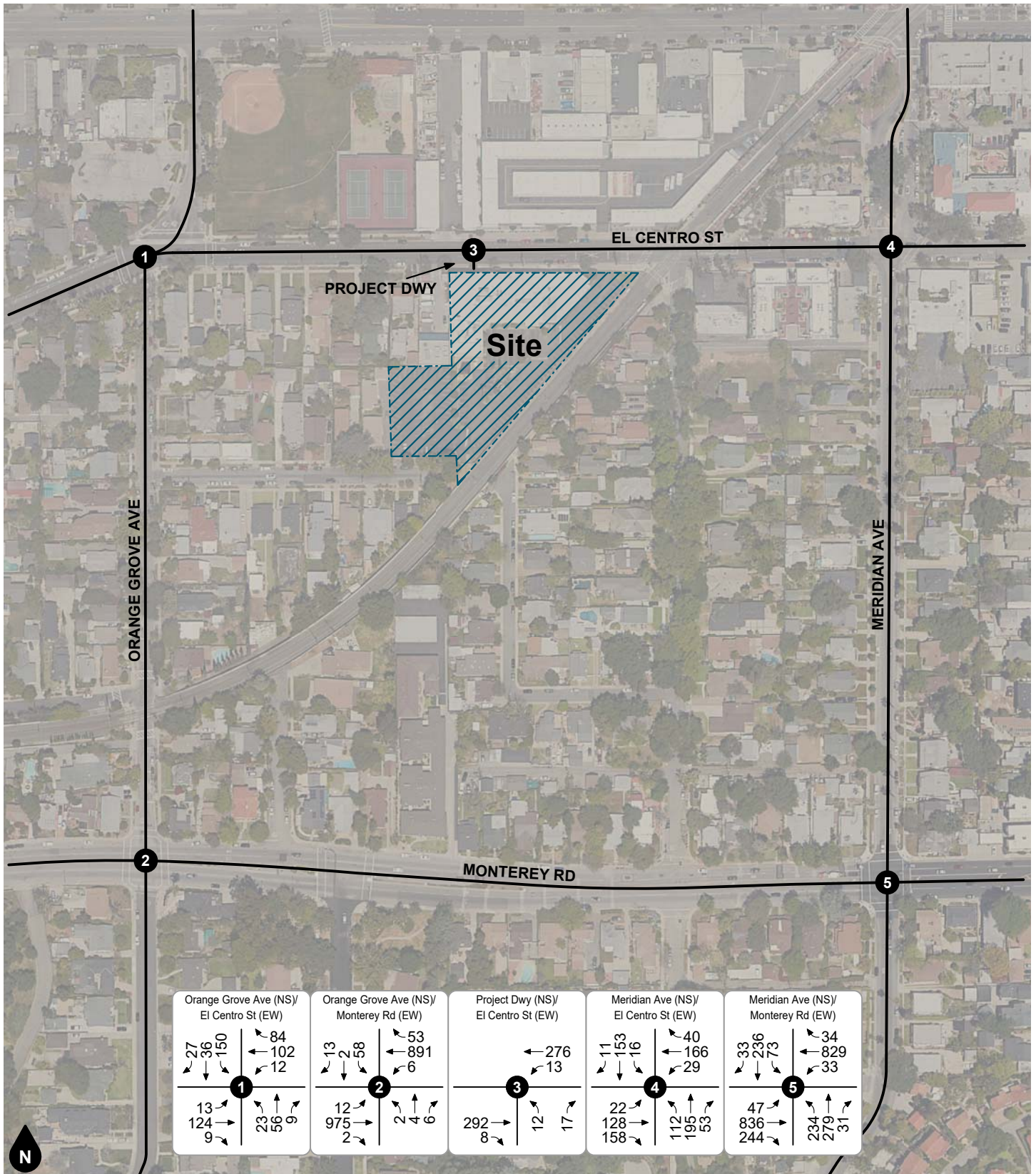


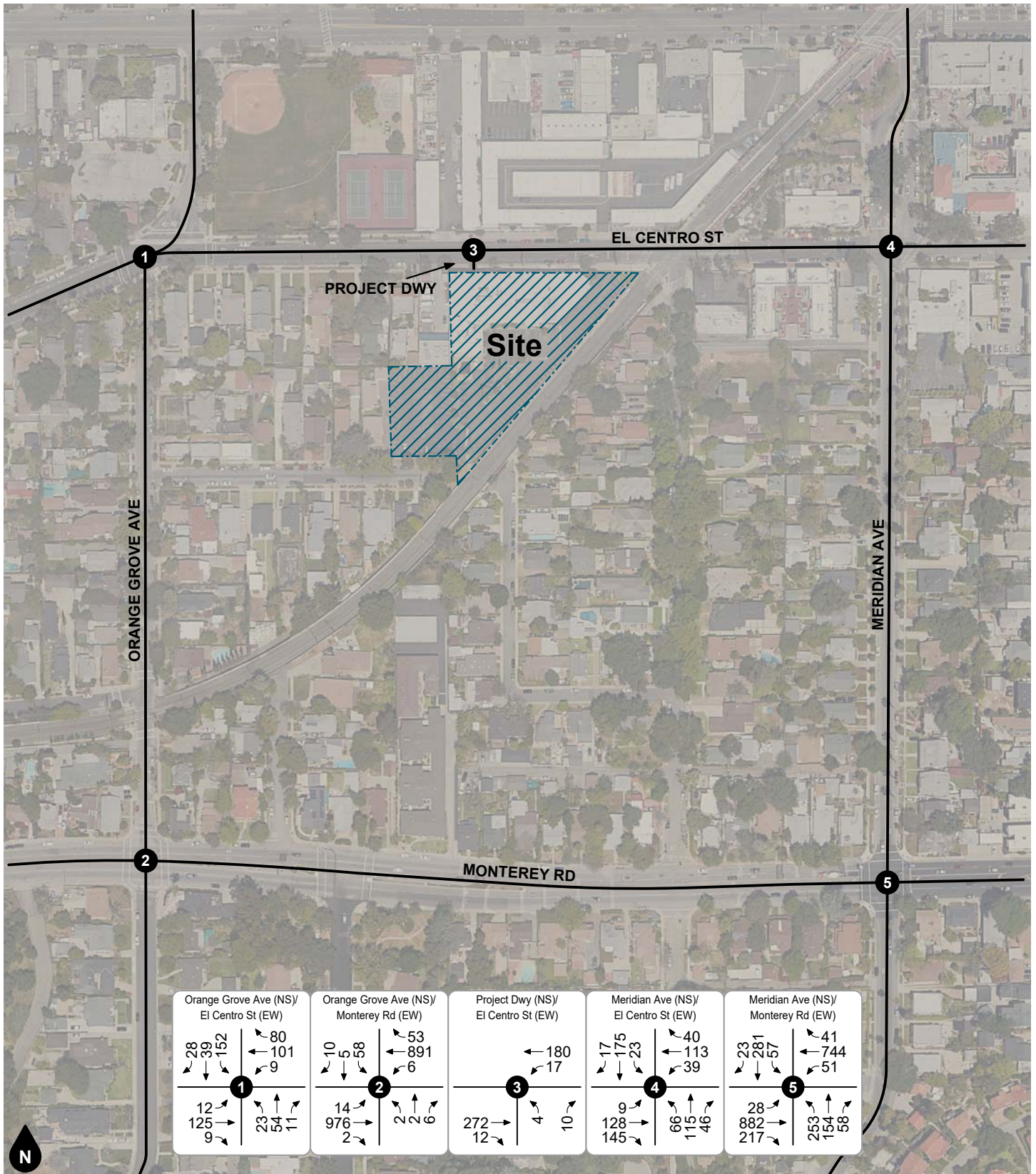
Figure 26
Opening Year (2022) With Project Average Daily Traffic Volumes



Legend

Study Intersection

Figure 27
Opening Year (2022) With Project
AM Peak Hour Intersection Turning Movement Volumes



Legend

Study Intersection

Figure 28
Opening Year (2022) With Project
PM Peak Hour Intersection Turning Movement Volumes

6. LEVEL OF SERVICE IMPACT ANALYSIS

Detailed intersection Level of Service calculation worksheets for each of the following analysis scenarios are provided in Appendix D.

EXISTING PLUS PROJECT

Roadway Segment Capacity Analysis

Table 5 shows the study roadway segment Level of Service for Existing Plus Project conditions. As shown Table 5, the study roadway segment is forecast to operate at Level of Service A for Existing Plus Project conditions.

Intersection Levels of Service

Table 6 shows the AM and PM peak hour Levels of Service for Existing Plus Project conditions. As shown in Table 6, the study intersections are forecast to operate at Levels of Service D or better during the peak hours for Existing Plus Project conditions, except for the following study intersection that is forecast to operate at Level of Service F during the peak hours:

- Orange Grove Avenue at Monterey Road – #2 (AM & PM peak hours – LOS F)

Since the intersection of Orange Grove Avenue at Monterey Road is two-way stop controlled, the reported Level of Service F is based on the movement with the worst (highest) delay value, or in this case the southbound lane. The uncontrolled through movements along Monterey Road are free-flow and are forecast to continue operating at Level of Service A.

Significant Impact Evaluation

Table 7 evaluates the project impact at the study intersections for Existing Plus Project conditions. As shown in Table 7, the proposed project is forecast to result in no significant traffic impacts at the study intersections for Existing Plus Project conditions based on the City-established thresholds of significance.

For unsignalized intersections operating at deficient Level of Service E or F, such as the intersection of Orange Grove Avenue and Monterey Road, the project impact is considered significant if the addition of project-generated trips changes the delay of a baseline (i.e., without project) LOS E or F by ≥ 2.0 seconds and the unsignalized intersection satisfies a Caltrans traffic signal warrant. The intersection of Orange Grove Avenue at Monterey Road is not forecast to satisfy the Caltrans peak hour or daily volume warrants for Existing Plus Project conditions; therefore, the project impact is less than significant based on the City-established thresholds.

The need for installation of a traffic control signal is governed by Federal standards adopted by the State in the California Manual on Uniform Traffic Control Devices (California Department of Transportation, 2014 Update) ["California MUTCD"]. The unsignalized study intersection of Orange Grove Avenue and Monterey Road was evaluated against the peak hour (Warrant 3) and daily volume warrant criteria in the California MUTCD. Traffic signal warrant analysis worksheets are provided in Appendix E.

Furthermore, the 95th-percentile queue length for the southbound lane is forecast to equal approximately 107 feet during the AM and PM peak hours for Existing Plus Project conditions based on the Highway Capacity Manual back-of-queue methodology (see Appendix D). Therefore, the southbound vehicle queue at the intersection of Orange Grove Avenue and Monterey Road is not forecast to interfere with the existing pedestrian crosswalk or rail crossing north of the intersection for Existing Plus Project conditions.

OPENING YEAR (2022) WITHOUT PROJECT

Roadway Segment Capacity Analysis

Table 8 shows the study roadway segment Level of Service analysis for Opening Year (2022) Without Project conditions. As shown Table 8, the study roadway segment is forecast to operate at Level of Service A for Opening Year (2022) Without Project conditions.

Intersection Levels of Service

Table 9 shows the intersection Levels of Service for Opening Year (2022) Without Project conditions. As shown in Table 9, the study intersections are forecast to operate at Levels of Service D or better during the peak hours for Opening Year (2022) Without Project conditions, except for the following study intersection that is forecast to operate at Level of Service F during the peak hours:

- Orange Grove Avenue at Monterey Road – #2 (AM & PM peak hours – LOS F)

Since the intersection of Orange Grove Avenue at Monterey Road is two-way stop controlled, the reported Level of Service F is based on the movement with the worst (highest) delay value, or in this case the southbound lane. The uncontrolled through movements along Monterey Road are free-flow and are forecast to continue operating at Level of Service A.

OPENING YEAR (2022) WITH PROJECT

Roadway Segment Capacity Analysis

Table 10 shows the study roadway segment Level of Service analysis for Opening Year (2022) With Project conditions. As shown Table 10, the study roadway segment is forecast to operate at Level of Service A for Opening Year (2022) With Project conditions.

Intersection Levels of Service

Table 11 shows the intersection Levels of Service for Opening Year (2022) With Project conditions. As shown in Table 11, the study intersections are forecast to operate at Levels of Service D or better during the peak hours for Opening Year (2022) With Project conditions, except for the following study intersection that is forecast to operate at Level of Service F during the peak hours:

- Orange Grove Avenue at Monterey Road – #2 (AM & PM peak hours – LOS F)

Since the intersection of Orange Grove Avenue at Monterey Road is two-way stop controlled, the reported Level of Service F is based on the movement with the worst (highest) delay value, or in this case the southbound lane. The uncontrolled through movements along Monterey Road are free-flow and are forecast to continue operating at Level of Service A.

Significant Impact Evaluation

Table 12 evaluates the project impact at the study intersections for Opening Year (2022) Without Project conditions. As shown in Table 12, the proposed project is forecast to result in no significant traffic impacts at the study intersections for Opening Year (2022) conditions.

For unsignalized intersections operating at deficient Level of Service E or F, such as the intersection of Orange Grove Avenue and Monterey Road, the project impact is considered significant if the addition of project-generated trips changes the delay of a baseline (i.e., without project) LOS E or F by ≥ 2.0 seconds and the

unsignalized intersection satisfies a Caltrans traffic signal warrant. The intersection of Orange Grove Avenue at Monterey Road is not forecast to satisfy the Caltrans peak hour or daily volume warrants for Opening Year (2022) With Project conditions; therefore, the project impact is less than significant based on the City-established thresholds.

Furthermore, the 95th-percentile queue length for the southbound lane is forecast to equal approximately 140 feet during the AM peak hour and 152 feet during the PM peak hour for Opening Year (2022) With Project conditions based on the Highway Capacity Manual back-of-queue methodology (see Appendix D). Therefore, the southbound vehicle queue is forecast to partially extend into the pedestrian crosswalk located north of the intersection approximately five percent of the time, or three minutes, during the PM peak hour. This is a relatively nominal impact and is not expected to appreciably impact pedestrian circulation.

Table 5
Existing Plus Project Roadway Segment Level of Service

Roadway	Segment	South Pasadena Roadway Standards		Existing Plus Project	
		Roadway Type	LOS C Capacity ¹	ADT	LOS ¹
El Centro Street	Orange Grove Ave to Meridian Ave	2 Lanes (Undivided)	10,000	4,900	A

Notes:

LOS = Level of Service; ADT = Average Daily Traffic Volume

(1) Based on LOS capacities defined in the City of South Pasadena General Plan.

Table 6
Existing Plus Project Intersection Level of Service

ID	Study Intersection	Traffic Control ¹	AM Peak Hour		PM Peak Hour	
			ICU ² or [Delay] ³	LOS ⁴	ICU ² or [Delay] ³	LOS ⁴
1.	Orange Grove Ave at El Centro St	AWS	[9.3]	A	[9.2]	A
2.	Orange Grove Ave at Monterey Rd	CSS	[108.7]	F	[111.4]	F
3.	Project Driveway at El Centro St	CSS	[12.9]	B	[11.8]	B
4.	Meridian Ave at El Centro St	AWS	[14.1]	B	[11.1]	B
5.	Meridian Ave at Monterey Rd	TS	0.827	D	0.842	D

Notes:

(1) AWS = All Way Stop; CSS = Cross Street Stop; TS = Traffic Signal

(2) ICU = Intersection Capacity Utilization.

(3) Delay is shown in [seconds/vehicle]. Delay is reported for un-signalized study intersections. For intersections with all way stop control, overall average intersection delay and LOS are shown. For intersections with cross street stop control, LOS is based on average delay of the worst individual lane (or movements sharing a lane).

(4) LOS = Level of Service

Table 7
Existing Plus Project Significant Impact Evaluation

ID	Study Intersection	AM Peak Hour						PM Peak Hour					
		Without Project		With Project		Project Impact	Significant Impact? ⁴	Without Project		With Project		Project Impact	Significant Impact? ⁴
		ICU ¹ or [Delay] ²	LOS ³	ICU ¹ or [Delay] ²	LOS ³			ICU ¹ or [Delay] ²	LOS ³	ICU ¹ or [Delay] ²	LOS ³		
1.	Orange Grove Ave at El Centro St	[9.1]	A	[9.3]	A	+0.2	No	[9.1]	A	[9.2]	A	+0.1	No
2.	Orange Grove Ave at Monterey Rd	[106.6]	F	[108.7]	F	+2.1	No	[106.6]	F	[111.4]	F	+4.8	No
3.	Project Driveway at El Centro St	-	-	[12.9]	B	-	No	-	-	[11.8]	B	-	No
4.	Meridian Ave at El Centro St	[13.4]	B	[14.1]	B	+0.7	No	[10.8]	B	[11.1]	B	+0.3	No
5.	Meridian Ave at Monterey Rd	0.822	D	0.827	D	+0.005	No	0.839	D	0.842	D	+0.003	No

Notes:

(1) ICU = Intersection Capacity Utilization

(2) Delay is shown in [seconds/vehicle]

(3) LOS = Level of Service

(4) For unsignalized intersections operating at deficient Level of Service E or F, the project impact is considered significant if the addition of project-generated trips changes the delay of a baseline (i.e., without project) LOS E or F by ≥2.0 seconds and the unsignalized intersection satisfies a Caltrans traffic signal warrant. The intersection of Orange Grove Avenue at Monterey Road is not forecast to satisfy the Caltrans peak hour volume warrant; therefore, the project impact is less than significant based on City-established thresholds.

Table 8
Opening Year (2022) Without Project Roadway Segment Level of Service

Roadway	Segment	South Pasadena Roadway Standards		Opening Year Without Project	
		Roadway Type	LOS C Capacity ¹	ADT	LOS ¹
El Centro Street	Orange Grove Ave to Meridian Ave	2 Lanes (Undivided)	10,000	4,600	A

Notes:

LOS = Level of Service; ADT = Average Daily Traffic Volume

(1) Based on LOS capacities defined in the City of South Pasadena General Plan.

Table 9
Opening Year (2022) Without Project Intersection Level of Service

ID	Study Intersection	Traffic Control ¹	AM Peak Hour		PM Peak Hour	
			ICU ² or [Delay] ³	LOS ⁴	ICU ² or [Delay] ³	LOS ⁴
1.	Orange Grove Ave at El Centro St	AWS	[9.3]	A	[9.3]	A
2.	Orange Grove Ave at Monterey Rd	CSS	[137.1]	F	[146.3]	F
4.	Meridian Ave at El Centro St	AWS	[14.1]	B	[11.1]	B
5.	Meridian Ave at Monterey Rd	TS	0.839	D	0.856	D

Notes:

(1) AWS = All Way Stop; CSS = Cross Street Stop; TS = Traffic Signal

(2) ICU = Intersection Capacity Utilization.

(3) Delay is shown in [seconds/vehicle]. Delay is reported for un-signalized study intersections. For intersections with all way stop control, overall average intersection delay and LOS are shown. For intersections with cross street stop control, LOS is based on average delay of the worst individual lane (or movements sharing a lane).

(4) LOS = Level of Service

Table 10
Opening Year (2022) With Project Roadway Segment Level of Service

Roadway	Segment	South Pasadena Roadway Standards		Opening Year With Project	
		Roadway Type	LOS C Capacity ¹	ADT	LOS ¹
El Centro Street	Orange Grove Ave to Meridian Ave	2 Lanes (Undivided)	10,000	5,000	A

Notes:

LOS = Level of Service; ADT = Average Daily Traffic Volume

(1) Based on LOS capacities defined in the City of South Pasadena General Plan.

Table 11
Opening Year (2022) With Project Intersection Level of Service

ID	Study Intersection	Traffic Control ¹	AM Peak Hour		PM Peak Hour	
			ICU ² or [Delay] ³	LOS ⁴	ICU ² or [Delay] ³	LOS ⁴
1.	Orange Grove Ave at El Centro St	AWS	[9.4]	A	[9.4]	A
2.	Orange Grove Ave at Monterey Rd	CSS	[141.0]	F	[155.5]	F
3.	Project Driveway at El Centro St	CSS	[13.1]	B	[11.9]	B
4.	Meridian Ave at El Centro St	AWS	[14.8]	B	[11.4]	B
5.	Meridian Ave at Monterey Rd	TS	0.844	D	0.859	D

Notes:

(1) AWS = All Way Stop; CSS = Cross Street Stop; TS = Traffic Signal

(2) ICU = Intersection Capacity Utilization.

(3) Delay is shown in [seconds/vehicle]. Delay is reported for un-signalized study intersections. For intersections with all way stop control, overall average intersection delay and LOS are shown. For intersections with cross street stop control, LOS is based on average delay of the worst individual lane (or movements sharing a lane).

(4) LOS = Level of Service

Table 12
Opening Year (2022) With Project Significant Impact Evaluation

ID	Study Intersection	AM Peak Hour						PM Peak Hour					
		Without Project		With Project		Project Impact	Significant Impact? ⁴	Without Project		With Project		Project Impact	Significant Impact? ⁴
		ICU ¹ or [Delay] ²	LOS ³	ICU ¹ or [Delay] ²	LOS ³			ICU ¹ or [Delay] ²	LOS ³	ICU ¹ or [Delay] ²	LOS ³		
1.	Orange Grove Ave at El Centro St	[9.3]	A	[9.4]	A	+0.1	No	[9.3]	A	[9.4]	A	+0.1	No
2.	Orange Grove Ave at Monterey Rd	[137.1]	F	[141.0]	F	+3.9	No	[146.3]	F	[155.5]	F	+9.2	No
3.	Project Driveway at El Centro St	-	-	[13.1]	B	-	No	-	-	[11.9]	B	-	No
4.	Meridian Ave at El Centro St	[14.1]	B	[14.8]	B	+0.7	No	[11.1]	B	[11.4]	B	+0.3	No
5.	Meridian Ave at Monterey Rd	0.839	D	0.844	D	+0.005	No	0.856	D	0.859	D	+0.003	No

Notes:

(1) ICU = Intersection Capacity Utilization

(2) Delay is shown in [seconds/vehicle]

(3) LOS = Level of Service

(4) For unsignalized intersections operating at deficient Level of Service E or F, the project impact is considered significant if the addition of project-generated trips changes the delay of a baseline (i.e., without project) LOS E or F by ≥2.0 seconds and the unsignalized intersection satisfies a Caltrans traffic signal warrant. The intersection of Orange Grove Avenue at Monterey Road is not forecast to satisfy the Caltrans peak hour volume warrant; therefore, the project impact is less than significant based on City-established thresholds.

7. CONGESTION MANAGEMENT PROGRAM

CMP ANALYSIS REQUIREMENTS

The Los Angeles County 2010 Congestion Management Program (CMP), Appendix D - Guidelines for CMP Transportation Impact Analysis states that:

“In general, a CMP TIA [Transportation Impact Analysis] is required for all projects required to prepare an Environmental Impact Report (EIR) based on local determination. A TIA is not required if the lead agency for the EIR finds that traffic is not a significant issue, and does not require local or regional traffic impact analysis in the EIR.”

Furthermore, the Los Angeles County CMP states that the study area for CMP TIA must include the following:

- All CMP arterial monitoring intersections, including freeway on- and off-ramp intersections, where a proposed project is expected to add 50 or more trips during either the weekday AM or PM peak hours (of adjacent street traffic).
- If CMP arterial segments are being analyzed rather than intersections (see Section D.3), the study area must include all segments where the proposed project will add 50 or more peak hour trips (total of both directions).
- Mainline freeway monitoring locations where a project is expected to add 150 or more trips, in either direction, during either the weekday AM or PM peak hours.
- Caltrans must also be consulted through the Notice of Preparation (NOP) process to identify other specific locations to be analyzed on the state highway system.

If the TIA identifies no facilities for study based on the above criteria, no further traffic analysis is required. However, projects must still consider transit impacts.

Based on the project trip forecast shown in Table 3, the proposed project generates fewer than 50 peak hour trips and therefore would add 50 or more weekday peak hour trips to a CMP-monitored intersection or 150 or more weekday peak hour trips to a mainline freeway monitoring location. Therefore, a Congestion Management Program impact analysis is not required for this project.

CMP TRANSIT IMPACT REVIEW

The Los Angeles County 2010 Congestion Management Program requires documentation of existing transit services in the project vicinity and estimation of the number of trips assigned to transit.

Fixed-route transit services within a one-quarter mile radius of the project site include:

- Metro Bus Line 176 providing east-west service along Mission Street from its western terminus in Highland Park to its eastern terminus in Montebello, including a stop at the site-adjacent South Pasadena Station.

Express bus routes and rail service within a two-mile radius of the project site include:

- Metro Rapid Line 762 providing north-south bus service along Fair Oaks Avenue from its north terminus in Pasadena to its southern terminus in Artesia.

- Metro Gold Line providing north-south rail service from its northern terminus in Azusa to its southern terminus in East Los Angeles, including a stop at Union Station in downtown Los Angeles.
- The Los Angeles County CMP Section D.8.4 provides the following guidelines for estimating project trips assigned to transit:

- 1) Multiply the total trips generated by 1.4 to convert vehicle trips to person trips.
- 2) For each time period, multiply the result by one of the following factors:

3.5% of Total Person Trips Generated for most cases, except:
10% primarily Residential within 1/4 mile of a CMP transit center
15% primarily Commercial within 1/4 mile of a CMP transit center
7% primarily Residential within 1/4 mile of a CMP multi-modal transportation center
9% primarily Commercial within 1/4 mile of a CMP multi-modal transportation center
5% primarily Residential within 1/4 mile of a CMP transit corridor
7% primarily Commercial within 1/4 mile of a CMP transit corridor
0% if no fixed route transit services operate within one mile of the project

Accordingly, the proposed project-generated transit trips are calculated as follows:

- Daily: 757 vehicle trips x 1.4 person-trip factor x 10% ≈ 106 transit trips
- AM Peak Hour: 49 vehicle trips x 1.4 person-trip factor x 10% ≈ 7 transit trips
- PM Peak Hour: 42 vehicle trips x 1.4 person-trip factor x 10% ≈ 6 transit trips

The proposed project is forecast to generate approximately 106 daily transit trips, including 7 transit trips during the AM peak hour and 6 transit trips during the PM peak hour. Based on the relatively low project-generated transit trip estimate, the proposed project is expected to have a marginal impact on transit service capacity.

8. VEHICLE MILES TRAVELLED ASSESSMENT

BACKGROUND

California Senate Bill 743 (SB 743) directs the State Office of Planning and Research (OPR) to amend the California Environmental Quality Act (CEQA) Guidelines for evaluating transportation impacts to provide alternatives to Level of Service that “promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses.” In December 2018, the California Natural Resources Agency certified and adopted the updated CEQA Guidelines package. The amended CEQA Guidelines, specifically Section 15064.3, recommend the use of Vehicle Miles Travelled (VMT) as the primary metric for the evaluation of transportation impacts associated with land use and transportation projects. Currently, agencies may opt-in to applying the updated CEQA guidelines for VMT analysis and implementation is required State-wide by July 1, 2020.

The updated CEQA Guidelines allow for lead agency discretion in establishing methodologies and thresholds provided there is substantial evidence to demonstrate that the established procedures promote the intended goals of the legislation. Where quantitative models or methods are unavailable, Section 15064.3 allows agencies to assess VMT qualitatively using factors such as availability of transit and proximity to other destinations. The [Technical Advisory on Evaluating Transportation Impacts in CEQA](#) (State of California, December 2018) [“Technical Advisory”] provides technical considerations regarding methodologies and thresholds with a focus on office, residential, and retail developments as these projects tend to have the greatest influence on VMT. Many jurisdictions are currently in the process of developing updated procedures for VMT analysis, however, few have fully implemented the new metric.

VMT ASSESSMENT

The City of South Pasadena has not established VMT analysis guidelines at this time. The project-related VMT impact has been assessed qualitatively based on available guidance provided in the State’s Technical Advisory.

Presumption of Less Than Significant Impact Near Transit Stations

As noted in the Technical Advisory, CEQA Guideline Section 15064.3, subdivision (b)(1) states that lead agencies generally should presume that certain projects proposed within one-half mile of an existing major transit stop² or an existing stop along a high quality transit corridor will have a less than significant impact on VMT. This presumption would not apply, however, if project-specific information indicates that the project may still generate significant levels of VMT. Exclusions to the presumption of less than significance include projects that:

- Have a Floor Area Ratio (FAR) of less than 0.75.
- Include more parking for use by residents, customers, or employees of the project than required by the jurisdiction (if the jurisdiction requires the project to supply parking).
- Are inconsistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Metropolitan Planning Organization).

² A major transit stop is defined as containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the AM and PM peak commute periods.

- Replace affordable residential units with a smaller number of moderate- or high-income residential units.

The project site is located within one-half mile of the Metro Gold Line South Pasadena Station. Therefore, the proposed project VMT impact may be presumed less than significant unless any of the above exclusions might apply.

Table 13 shows summarizes the VMT screening assessment for the project based on proximity to a transit station. As shown in Table 13, The proposed project is presumed to have a less than significant VMT impact based on State guidance for projects located near transit stations.

Table 13
VT Screening Assessment for Projects Near Transit Stations

Screening Criteria	Project Assessment	Presumption of Less Than Significant Impact
Is the project located within 1/2-mile of an existing major transit stop? ¹	Yes - Metro Gold Line South Pasadena Station is located opposite El Centro Street from the project site.	Yes
Project-specific information that may exclude presumption of less than significance:		
Does the project have a Floor Area Ratio (FAR) less than 0.75?	No - project FAR is greater than 0.75.	Yes
Does the project provide more parking than required per City Code?	No - The proposed project does not exceed the number of vehicular parking spaces required by City of South Pasadena Municipal Code (112 spaces provided for residential uses; 124 required). Commercial parking is negligible since the commercial components of the project are less than 10,000 square feet and considered to be local-serving retail with less than significant VMT impact based on Technical Advisory guidance.	Yes
Is the project inconsistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Metropolitan Planning Organization)?	No - The proposed project is consistent with the Mission Street Specific Plan residential density and does not propose a Zone Change.	Yes
Does the project replace affordable housing units with fewer moderate- or high-income residential units?	No - the project site is currently developed with office.	Yes

Notes:

(1) A major transit stop is defined as containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the AM and PM peak commute periods.

9. CONCLUSIONS

PROJECT DESIGN FEATURES

This analysis assumes the proposed project shall construct the following improvements as Project Design Features necessary to provide project site access:

Project Driveway (NS) at El Centro Street (EW) - #3

- Construct the project driveway to provide one inbound lane and one outbound lane with northbound stop-control.
- The existing eastbound lane on El Centro Street will allow shared through/right turn movements.
- The existing westbound lane on El Centro Street will allow shared through/left turn movements.
- The new northbound lane at the Project Driveway will allow shared left/right turn movements.

MITIGATION MEASURES

No mitigation measures were identified since the proposed project is forecast to result in no significant traffic impacts at the study intersections for the scenarios analyzed and the project is presumed to have a less than significant VMT impact based on proximity to an existing transit station.

APPENDICES

Appendix A Glossary
Appendix B Memorandum of Understanding
Appendix C Volume Count Worksheets
Appendix D Level of Service Worksheets
Appendix E Traffic Signal Warrant Worksheets

APPENDIX A

GLOSSARY

GLOSSARY OF TERMS

ACRONYMS

AC	Acres
ADT	Average Daily Traffic
Caltrans	California Department of Transportation
DU	Dwelling Unit
ICU	Intersection Capacity Utilization
LOS	Level of Service
TSF	Thousand Square Feet
V/C	Volume/Capacity
VMT	Vehicle Miles Traveled

TERMS

AVERAGE DAILY TRAFFIC: The average 24-hour volume for a stated period divided by the number of days in that period. For example, Annual Average Daily Traffic is the total volume during a year divided by 365 days.

BANDWIDTH: The number of seconds of green time available for through traffic in a signal progression.

BOTTLENECK: A point of constriction along a roadway that limits the amount of traffic that can proceed downstream from its location.

CAPACITY: The maximum number of vehicles that can be reasonably expected to pass over a given section of a lane or a roadway in a given time period.

CHANNELIZATION: The separation or regulation of conflicting traffic movements into definite paths of travel by the use of pavement markings, raised islands, or other suitable means to facilitate the safe and orderly movements of both vehicles and pedestrians.

CLEARANCE INTERVAL: Nearly same as yellow time. If there is an all red interval after the end of a yellow, then that is also added into the clearance interval.

CONTROL DELAY: The component of delay, typically expressed in seconds per vehicle, resulting from the type of traffic control at an intersection. Control delay is measured by comparison with the uncontrolled condition; it includes delay incurred by slowing down, stopping/waiting, and speeding up.

CORDON: An imaginary line around an area across which vehicles, persons, or other items are counted (in and out).

CORNER SIGHT DISTANCE: The minimum sight distance required by the driver of a vehicle to cross or enter the lanes of the major roadway without requiring approaching traffic travelling at a given speed to radically alter their speed or trajectory. Corner sight distance is measured from the driver's eye at 42 inches above the pavement to an object height of 36 inches above the pavement in the center of the nearest approach lane.

CYCLE LENGTH: The time period in seconds required for a traffic signal to complete one full cycle of indications.

CUL-DE-SAC: A local street open at one end only and with special provisions for turning around.

DAILY CAPACITY: A theoretical value representing the daily traffic volume that will typically result in a peak hour volume equal to the capacity of the roadway.

DELAY: The time consumed while traffic is impeded in its movement by some element over which it has no control, usually expressed in seconds per vehicle.

DEMAND RESPONSIVE SIGNAL: Same as traffic-actuated signal.

DENSITY: The number of vehicles occupying in a unit length of the through traffic lanes of a roadway at any given instant. Usually expressed in vehicles per mile.

DETECTOR: A device that responds to a physical stimulus and transmits a resulting impulse to the signal controller.

DESIGN SPEED: A speed selected for purposes of design. Features of a highway, such as curvature, superelevation, and sight distance (upon which the safe operation of vehicles is dependent) are correlated to design speed.

DIRECTIONAL SPLIT: The percent of traffic in the peak direction at any point in time.

DIVERSION: The rerouting of peak hour traffic to avoid congestion.

FORCED FLOW: Opposite of free flow.

FREE FLOW: Volumes are well below capacity. Vehicles can maneuver freely and travel is unimpeded by other traffic.

GAP: Time or distance between successive vehicles in a traffic stream, rear bumper to front bumper.

HEADWAY: Time or distance spacing between successive vehicles in a traffic stream, front bumper to front bumper.

INTERCONNECTED SIGNAL SYSTEM: A number of intersections that are connected to achieve signal progression.

LEVEL OF SERVICE: A qualitative measure of a number of factors, which include speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operating costs.

LOOP DETECTOR: A vehicle detector consisting of a loop of wire embedded in the roadway, energized by alternating current and producing an output circuit closure when passed over by a vehicle.

MINIMUM ACCEPTABLE GAP: Smallest time headway between successive vehicles in a traffic stream into which another vehicle is willing and able to cross or merge.

MULTI-MODAL: More than one mode; such as automobile, bus transit, rail rapid transit, and bicycle transportation modes.

OFFSET: The time interval in seconds between the beginning of green at one intersection and the beginning of green at an adjacent intersection.

PLATOON: A closely grouped component of traffic that is composed of several vehicles moving, or standing ready to move, with clear spaces ahead and behind.

PASSENGER CAR EQUIVALENT (PCE): A metric used to assess the impact of larger vehicles, such as trucks, recreational vehicles, and buses, by converting the traffic volume of larger vehicles to an equivalent number of passenger cars.

PEAK HOUR: The 60 consecutive minutes with the highest number of vehicles.

PRETIMED SIGNAL: A type of traffic signal that directs traffic to stop and go on a predetermined time schedule without regard to traffic conditions. Also, fixed time signal.

PROGRESSION: A term used to describe the progressive movement of traffic through several signalized intersections.

QUEUE: The number of vehicles waiting at a service area such as a traffic signal, stop sign, or access gate.

QUEUE LENGTH: The length of vehicle queue, typically expressed in feet, waiting at a service area such as a traffic signal, stop sign, or access gate.

SCREEN-LINE: An imaginary line or physical feature across which all trips are counted, normally to verify the validity of mathematical traffic models.

SHARED/RECIPROCAL PARKING AGREEMENT: A written binding document executed between property owners to provide a designated number of off-street parking stalls within a designated area to be available for specified businesses or land uses.

SIGHT DISTANCE: The continuous length of roadway visible to a driver or roadway user.

SIGNAL CYCLE: The time period in seconds required for one complete sequence of signal indications.

SIGNAL PHASE: The part of the signal cycle allocated to one or more traffic movements.

STACKING DISTANCE: The length of area available behind a service area, such as a traffic signal or gate, for vehicle queueing to occur.

STARTING DELAY: The delay experienced in initiating the movement of queued traffic from a stop to an average running speed through an intersection.

STOPPING SIGHT DISTANCE: The minimum distance required by the driver of a vehicle on the major roadway travelling at a given speed to bring the vehicle to a stop after an object on the road becomes visible. Stopping sight distance is measured from the driver's eye at 42 inches above the pavement to an object height of 6 inches above the pavement.

TRAFFIC-ACTUATED SIGNAL: A type of traffic signal that directs traffic to stop and go in accordance with the demands of traffic, as registered by the actuation of detectors.

TRIP: The movement of a person or vehicle from one location (origin) to another (destination). For example, from home to store to home is two trips, not one.

TRIP-END: One end of a trip at either the origin or destination (i.e., each trip has two trip-ends). A trip-end occurs when a person, object, or message is transferred to or from a vehicle.

TRIP GENERATION RATE: The quantity of trips produced and/or attracted by a specific land use stated in terms of units such as per dwelling, per acre, and per 1,000 square feet of floor space.

TRUCK: A vehicle having dual tires on one or more axles, or having more than two axles.

TURNING RADIUS: The circular arc formed by the smallest turning path radius of the front outside tire of a vehicle, such as that performed by a U-turn maneuver. This is based on the length and width of the wheel base as well as the steering mechanism of the vehicle.

UNBALANCED FLOW: Heavier traffic flow in one direction than the other. On a daily basis, most facilities have balanced flow. During the peak hours, flow is seldom balanced in an urban area.

VEHICLE MILES OF TRAVEL: A measure of the amount of usage of a section of highway, obtained by multiplying the average daily traffic by length of facility in miles.

APPENDIX B

MEMORANDUM OF UNDERSTANDING



MEMORANDUM OF UNDERSTANDING

TO: Kristine Courdy | CITY OF SOUTH PASADENA

FROM: Bryan Crawford, Giancarlo Ganddini | GANDDINI GROUP, INC.

DATE: December 3, 2019

SUBJECT: Seven Patios Mixed Use Residential/Commercial Retail Project Traffic Study Scope
19-0204

The purpose of this scoping document is to outline the proposed traffic analysis parameters and assumptions for review/concurrence by City of South Pasadena staff.

PROJECT DESCRIPTION

Figure 1 shows the project location map. The 70,116 square-foot project site is located along the south side of El Centro Street, immediately west of the Metro Gold Line right-of-way and north of Orange Grove Place in the City of South Pasadena. The project site is more specifically located at 845 El Centro Street/832 Orange Grove Place, with a common reference of 899 El Centro Street. Local access to the project area is provided via Mission Street to the north, Fremont Avenue to the east and Monterey Road to the south. Regional access is available via the 110 Freeway, accessible from both the north and west of the subject site. The project site is currently developed with a two-story office building and surface-level parking.

The proposed project consist of re-developing the project site with a mixed-use residential/commercial retail development consisting of 57 multi-family dwelling units and 6,100 square foot of commercial space. For purposes of the traffic analysis, half of the commercial space (3,050 square feet) is presumed to consist of café/food use and half is presumed to consist of retail use. The proposed site plan is shown on Figure 2.

Parking for the non-residential (65 spaces) and the residential (112 spaces) uses would be provided within two levels accessed from El Centro Street. Residential parking for Zone 1 would be gated and located within Basement Plan 1. Residential parking for Zone 2 would be gated and located within Basement Plan 2 under the cottage bungalows. The remainder of the parking spaces, including five ADA spaces within Basement Plan 2, would be available for visitors accessing the non-residential uses. Six bicycle parking spaces would also be provided.

PROJECT TRIP GENERATION AND DISTRIBUTION

Table 1 shows the project trip generation based upon rates obtained from the Institute of Transportation Engineers (ITE) [Trip Generation Manual](#) (10th Edition, 2017). Internal capture and transit/walk trip reductions are based on data and procedures prescribed in the ITE [Trip Generation Handbook](#) (3rd Edition, 2017). Internal capture worksheets are attached.

As shown in Table 1, the proposed project is forecast to generate a total of approximately 757 daily vehicle trips, including 49 vehicle trips during the AM peak hour and 42 vehicle trips during the PM peak hour.

Figures 3 and 4 show the forecast directional distribution patterns for the residential and commercial retail uses of the proposed project. The project trip distribution patterns are based on review of similar studies, surrounding land uses, and the local and regional roadway facilities in the project vicinity.

STUDY AREA

The County of Los Angeles Congestion Management Program utilizes a trip contribution criteria of 50 peak hour trips for identifying study intersections. While the proposed project is not forecast to generate 50 or more trips during either the AM or PM peak hours, the following locations in the project vicinity have a greater likelihood to be significantly impacted compared to others based on forecast project travel patterns and are proposed for analysis:

Study Intersections

1. Orange Grove Avenue (NS) at El Centro Street (EW)
2. Orange Grove Avenue (NS) at Monterey Road (EW)
3. Project Driveway (NS) at El Centro Street (EW)
4. Meridian Avenue (NS) at El Centro Street (EW)
5. Meridian Avenue (NS) at Monterey Road (EW)

Roadway Segments

1. El Centro Street: Orange Grove Avenue to Meridian Avenue

TRAFFIC COUNTS

New intersection turning movement counts will be collected at the study intersections during the AM peak commute period (7:00 AM – 9:00 AM) and PM peak commute period (4:00 PM – 6:00 PM), in addition to a 24-hour roadway segment volume count, on one typical weekday (Tuesday, Wednesday, or Thursday) while local schools are in session. The intersection volume counts will include bicycle and pedestrian crossings by leg.

ANALYSIS SCENARIOS

The traffic study shall evaluate the following analysis scenarios for typical weekday AM and PM peak hour conditions:

- Existing
- Existing Plus Project
- Opening Year (2022) Without Project
- Opening Year (2022) With Project

ANALYSIS METHODOLOGY

Intersections

The signalized study intersections shall be analyzed using the Intersection Capacity Utilization (ICU) methodology in accordance with the parameters and impact thresholds prescribed by the City of South Pasadena. Specifically, the ICU analysis shall utilize a lane capacity of 1,600 vehicles per hour per lane with

the following capacity adjustments: 20 percent penalty for dual left-turn lanes, 10 percent loss time per cycle, and 50 percent right turns on red.

The unsignalized study intersections shall be analyzed using the intersection delay methodology and recommended default factors prescribed in the Transportation Research Board Highway Capacity Manual (6th Edition).

Intersection analysis shall be performed using the Vistro software.

Roadway Segments

The study roadway segment shall be evaluated based on Average Daily Traffic (ADT) Volume/Capacity (V/C) ratios with Level of Service as defined below:

Roadway Type	Maximum ADT by Level of Service				
	A	B	C	D	E
6 Lanes (Divided)	33,900	39,400	45,000	20,600	56,300
4 Lanes (Divided)	22,500	26,300	30,000	33,800	37,500
4 Lanes (Undivided)	15,000	17,500	20,000	22,500	25,000
2 Lanes (Divided)	10,000	11,700	13,000	15,000	16,600
2 Lanes (Undivided)	7,500	8,800	10,000	11,300	12,500
Local Road	3,000	3,500	4,000	4,500	12,500

Source: City of South Pasadena General Plan.

THRESHOLDS OF SIGNIFICANCE

Intersections

Based on the Los Angeles County CMP, the City of South Pasadena has established the following traffic thresholds of significance to determine whether a project traffic impact at a signalized study intersection is considered significant and thus requires mitigation:

- A significant project-related impact would occur at a signalized study intersection if the addition of project-generated trips reduces the peak-hour level of service of the study intersection from acceptable operation (LOS A, B, C, or D) to deficient operation (LOS E or F).
- A significant project-related impact would occur at a signalized study intersection already operating at a deficient level of service (LOS E or F) pre-project if the addition of project-generated trips increases traffic demand at the intersection by 2 percent of capacity ($V/C \geq 0.02$).

To determine whether the addition of project-generated trips at an unsignalized study intersection results in a significant impact, the City of South Pasadena has established the following thresholds of significance:

- A significant project-related impact would occur at an unsignalized study intersection if the addition of project-generated trips reduces the peak-hour level of service of the study intersection from acceptable operation (LOS A, B, C, or D) to deficient operation (LOS E or F) and the unsignalized intersection satisfies a Caltrans traffic signal warrant.

- A significant project-related impact would occur at an unsignalized study intersection if the addition of project-generated trips changes the delay of a baseline (i.e., without project) LOS E or F by ≥ 2.0 seconds and the unsignalized intersection satisfies a Caltrans traffic signal warrant.

Roadway Segments

To determine whether the addition of project-generated trips at a study roadway segment results in a significant impact, the City of South Pasadena has established the following thresholds of significance:

- A significant project-related impact would occur at a study roadway segment if the addition of project-generated trips reduces the roadway from acceptable operation (LOS A, B, or C) to deficient operation (LOS D, E, or F).

A significant project-related impact would occur at a study roadway segment already operating at a deficient level of service (LOS D, E, or F) pre-project if the addition of project-generated trips increases the traffic demand at the roadway by 2 percent of capacity ($V/C \geq 0.02$).

FORECASTING METHODOLOGY

Ambient Growth

To account for ambient growth, existing roadway volumes shall be increased by a growth rate of one percent (1%) per year over a two-year period for Opening Year (2022) conditions.

Other Development

Trip forecasts for other development projects within the project study area shall be calculated based on the Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition, 2017 and will be assigned to the study intersections as appropriate. The other development list shall consist of those identified in the *Traffic Study for the Mission View Mixed-Use Development Project* (Gibson Transportation Consultants, Inc., January 2017), plus the Mission Bell Mixed Use (36 DU, 7,394 SF commercial retail) and the Senior Apartment Complex (86 DU) projects.

CONGESTION MANAGEMENT PROGRAM

Assess impact analysis requirements in accordance with the County of Los Angeles Congestion Management Program. Based on preliminary estimates, the proposed project is not forecast to satisfy the criteria requiring CMP analysis; however, the report shall include an assessment of the project trip generation, including transit trip generation, in comparison to CMP criteria.

NON-AUTOMOBILE ASSESSMENT

Provide a qualitative assessment of the project impact on non-automobile circulation. Identify proposed non-vehicular circulation components of the proposed project and identify opportunity areas for potential bicycle, pedestrian, or transit improvements adjacent to the project site, as necessary.

CONCLUSION

We appreciate the opportunity to provide this scoping document for your review. Should you have any questions or comments regarding the proposed scope, please contact us at (714) 795-3100.

Table 1
Project Trip Generation

Baseline Trip Generation Rates									
Land Use	Source ¹	Unit ²	AM Peak Hour			PM Peak Hour			Daily
			% In	% Out	Total	% In	% Out	Total	
Commercial Retail	ITE 820	TSF	62%	38%	0.94	48%	52%	3.81	37.75
Restaurant	ITE 932	TSF	55%	45%	9.94	62%	38%	9.77	112.18
Multi-Family Residential (Low-Rise)	ITE 220	DU	23%	77%	0.46	63%	37%	0.56	7.32

Trips Generated									
Land Use	Quantity	Unit ²	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Commercial Retail	3.050	TSF	2	1	3	6	6	12	115
Internal Capture ³			0	0	0	-4	-4	-8	-8
Transit/Walk Trips ⁴			0	0	0	0	0	0	-11
Subtotal External Vehicle Trips			2	1	3	2	2	4	96
Restaurant	3.050	TSF	17	14	31	18	11	29	342
Internal Capture ³			-3	0	-3	-5	-5	-10	-13
Transit/Walk Trips ⁴			-1	-1	-2	-1	-1	-2	-33
Subtotal External Vehicle Trips			13	13	26	12	5	17	296
Multi-Family Residential	57	DU	6	20	26	20	12	32	417
Internal Capture ³			0	-3	-3	-4	-4	-8	-11
Transit/Walk Trips ⁴			-1	-2	-3	-2	-1	-3	-41
Subtotal External Vehicle Trips			5	15	20	14	7	21	365
Total External Vehicle Trips Generated			20	29	49	28	14	42	757

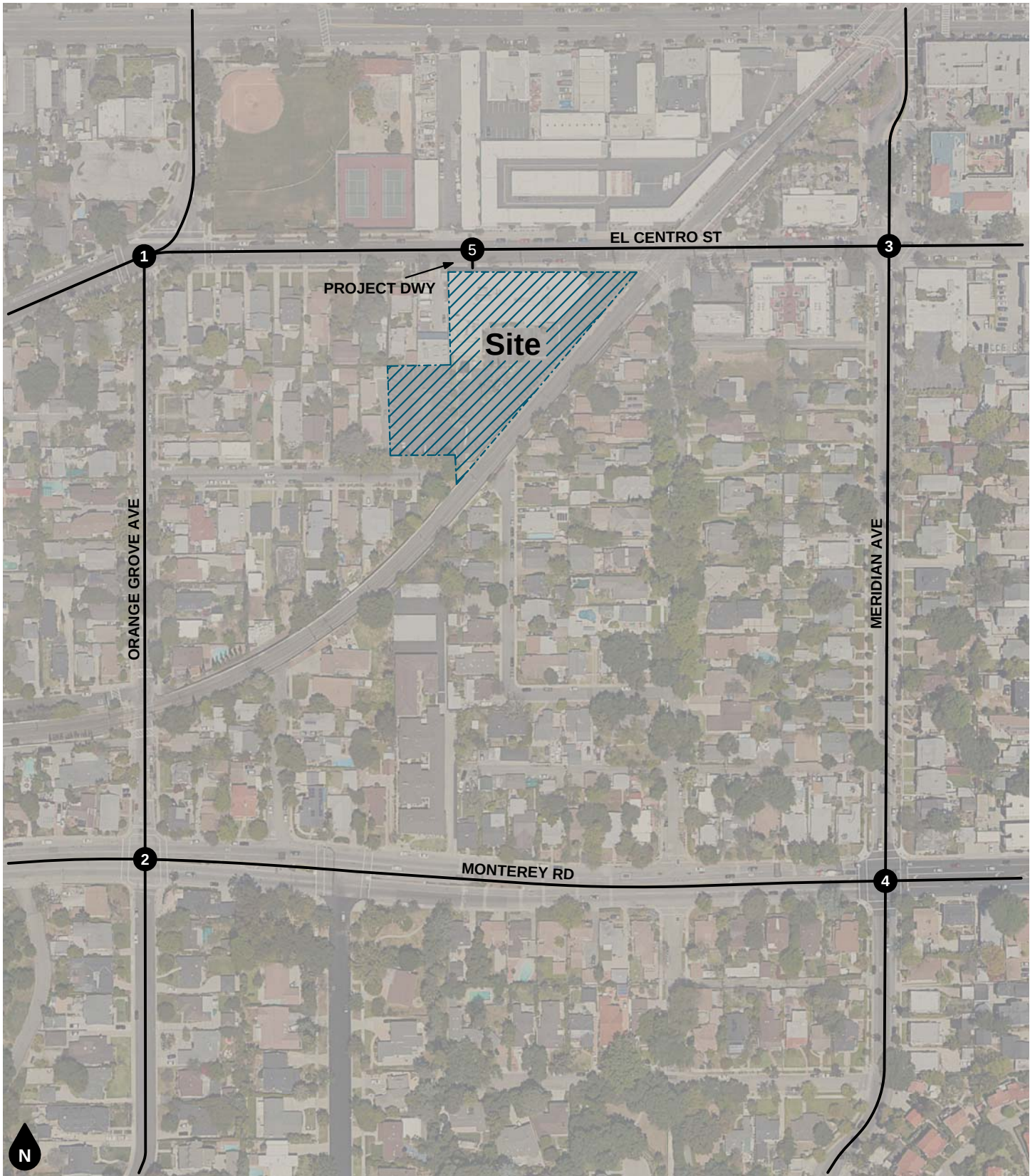
Notes:

(1) ITE = Institute of Transportation Engineers Trip Generation Manual (10th Edition, 2017); ### = Land Use Code

(2) TSF = Thousand Square Feet; DU = Dwelling Units

(3) Internal capture calculated using NCHRP 8-51 procedures as prescribed in the ITE Trip Generation Handbook (3rd Edition); see attached. The total adjustment equates to 10% AM and 36% PM.

(4) The project site is an infill development located within 1/4 mile of Metro Gold Line Light Rail South Pasadena Station. Transit/walk adjustment of 10% has been applied based on mode share data provided in Appendix C of the ITE Trip Generation Handbook.



Legend

Study Intersection

Figure 1
Project Location Map

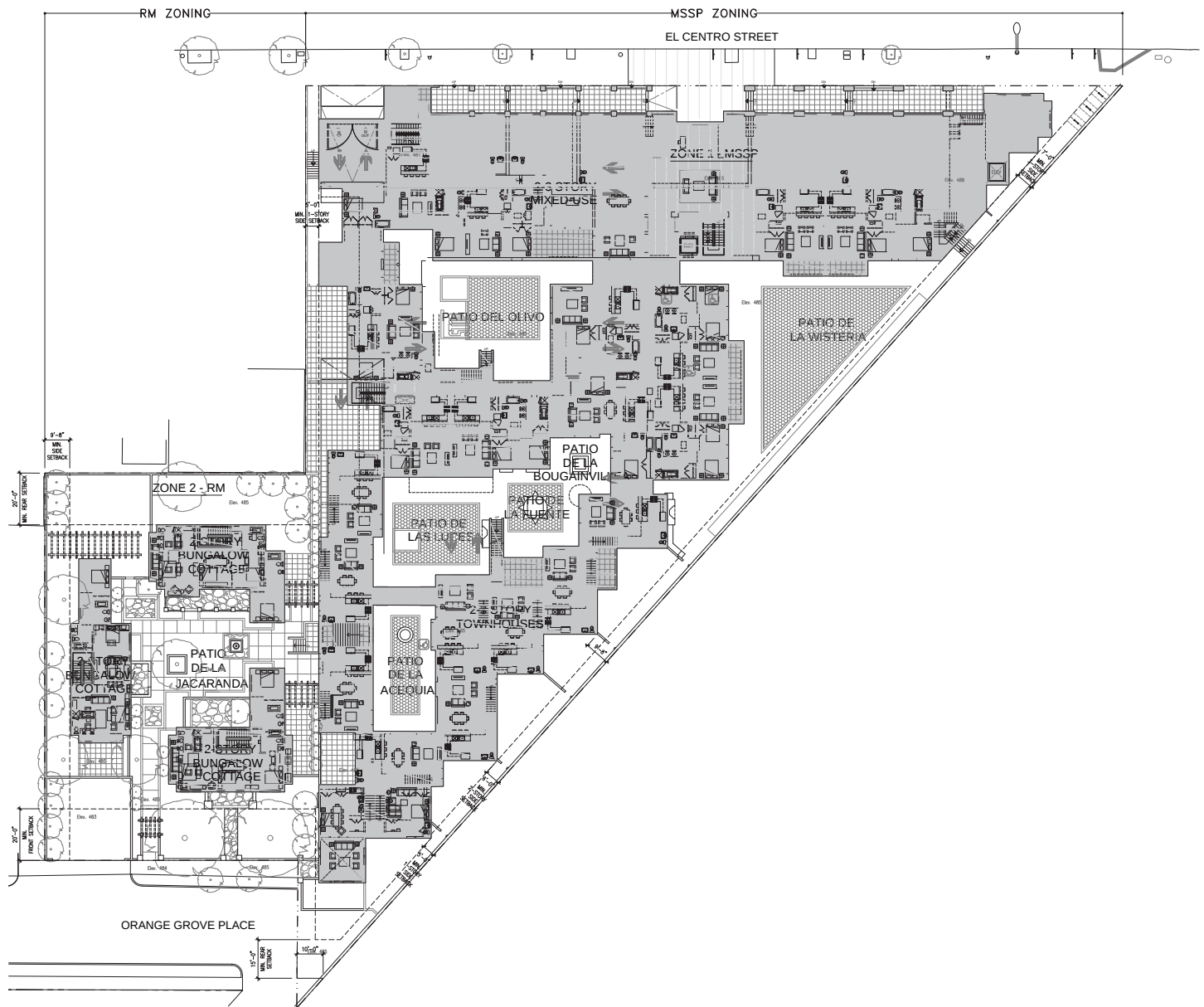
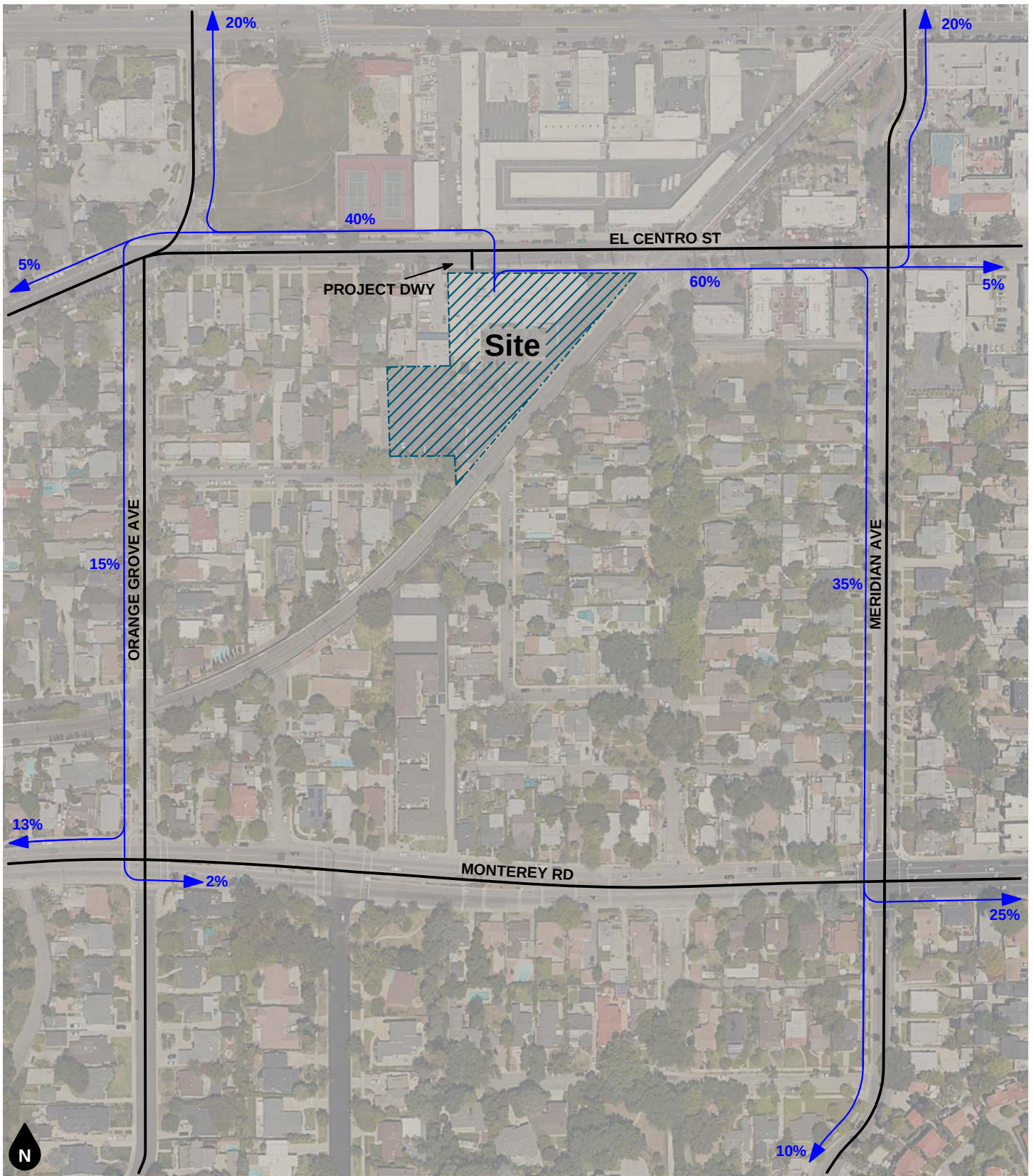
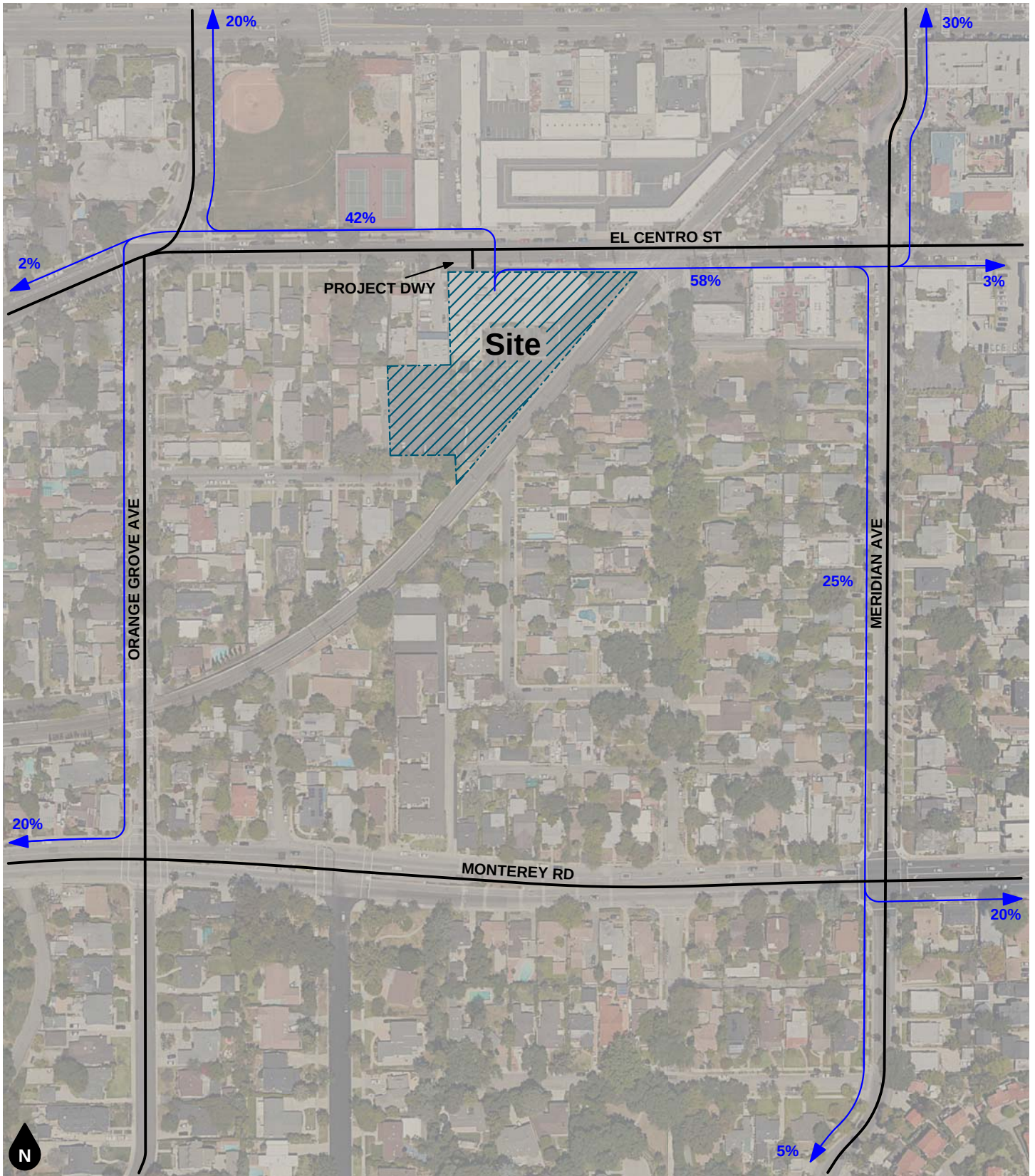


Figure 2
Site Plan



Legend
 ← 10% Percent From/To Project

Figure 3
Project Trip Distribution - Commercial Retail



Legend
 ← 10% Percent From/To Project

Figure 4
Project Trip Distribution - Residential

NCHRP 8-51 Internal Trip Capture Estimation Tool					
Project Name:	Seven Patios Mixed Use			Organization:	GANDDINI GROUP
Project Location:	899 El Centro St			Performed By:	
Scenario Description:	Proposed Project			Date:	
Analysis Year:				Checked By:	
Analysis Period:	AM Street Peak Hour			Date:	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail	820	3,050	SF	3	2	1
Restaurant	932	3,050	SF	31	17	14
Cinema/Entertainment				0		
Residential	220	57	DU	26	6	20
Hotel				0		
All Other Land Uses ²				0		
Total				60	25	35

Table 2-A: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail	1.00		10%	1.00		10%
Restaurant	1.00		10%	1.00		10%
Cinema/Entertainment						
Residential	1.00		10%	1.00		10%
Hotel						
All Other Land Uses ²						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	3	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	60	25	35
Internal Capture Percentage	10%	12%	9%
External Vehicle-Trips ³	49	20	29
External Transit-Trips ⁴	0	0	0
External Non-Motorized Trips ⁴	5	2	3

Table 6-A: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	0%	0%
Restaurant	18%	0%
Cinema/Entertainment	N/A	N/A
Residential	0%	15%
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

³Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

⁴Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	Seven Patios Mixed Use
Analysis Period:	AM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	2	2	1.00	1	1
Restaurant	1.00	17	17	1.00	14	14
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	6	6	1.00	20	20
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	0	0
Restaurant	4	2		0	1	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	4	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1	4	0	0	0
Retail	0		9	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	3	0		0
Hotel	0	0	1	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	0	2	2	2	0	0
Restaurant	3	14	17	13	0	1
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	6	6	5	0	1
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	0	1	1	1	0	0
Restaurant	0	14	14	13	0	1
Cinema/Entertainment	0	0	0	0	0	0
Residential	3	17	20	15	0	2
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

²Person-Trips

³Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool					
Project Name:	Seven Patios Mixed Use	Organization:	GANDDINI GROUP		
Project Location:	899 El Centro St	Performed By:			
Scenario Description:	Proposed Project	Date:			
Analysis Year:		Checked By:			
Analysis Period:	PM Street Peak Hour	Date:			

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail	820	3,050	SF	12	6	6
Restaurant	932	3,050	SF	29	18	11
Cinema/Entertainment				0		
Residential	220	57	DU	32	20	12
Hotel				0		
All Other Land Uses ²				0		
Total				73	44	29

Table 2-P: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail	1.00		10%	1.00		10%
Restaurant	1.00		10%	1.00		10%
Cinema/Entertainment						
Residential	1.00		10%	1.00		10%
Hotel						
All Other Land Uses ²						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		2	0	2	0
Restaurant	0	3		0	2	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	1	3	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	73	44	29
Internal Capture Percentage	36%	30%	45%
External Vehicle-Trips ³	42	28	14
External Transit-Trips ⁴	0	0	0
External Non-Motorized Trips ⁴	5	3	2

Table 6-P: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	67%	67%
Restaurant	28%	45%
Cinema/Entertainment	N/A	N/A
Residential	20%	33%
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

³Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

⁴Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	Seven Patios Mixed Use
Analysis Period:	PM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	6	6	1.00	6	6
Restaurant	1.00	18	18	1.00	11	11
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	20	20	1.00	12	12
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		2	0	2	0
Restaurant	0	5		1	2	1
Cinema/Entertainment	0	0	0		0	0
Residential	0	5	3	0		0
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	1	0
Retail	0		5	0	9	0
Restaurant	0	3		0	3	0
Cinema/Entertainment	0	0	1		1	0
Residential	0	1	3	0		0
Hotel	0	0	1	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	4	2	6	2	0	0
Restaurant	5	13	18	12	0	1
Cinema/Entertainment	0	0	0	0	0	0
Residential	4	16	20	14	0	2
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	0	0	0	0	0	0
Retail	4	2	6	2	0	0
Restaurant	5	6	11	5	0	1
Cinema/Entertainment	0	0	0	0	0	0
Residential	4	8	12	7	0	1
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

²Person-Trips

³Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

APPENDIX C

VOLUME COUNT WORKSHEETS

ADT1 El Centro east of Orange Groove.**Prepared by AimTD LLC tel. 714 253 7888**

AM Period	NB		SB		EB		WB		PM Period		NB		SB		EB		WB				
0:00	0		0		1		0		12:00		0		0		30		31				
0:15	0		0		0		0		12:15		0		0		33		19				
0:30	0		0		0		0		12:30		0		0		36		31				
0:45	0	0	0	0	2	3	1	1	4	12:45	0	0	0	0	42	141	29	110	251		
1:00	0		0		0		2		13:00		0		0		39		33				
1:15	0		0		0		0		13:15		0		0		36		27				
1:30	0		0		1		0		13:30		0		0		32		25				
1:45	0	0	0	0	0	1	0	2	3	13:45	0	0	0	0	35	142	37	122	264		
2:00	0		0		0		1		14:00		0		0		38		38				
2:15	0		0		1		0		14:15		0		0		39		31				
2:30	0		0		0		1		14:30		0		0		63		44				
2:45	0	0	0	0	1	2	0	2	4	14:45	0	0	0	0	66	206	39	152	358		
3:00	0		0		1		0		15:00		0		0		50		48				
3:15	0		0		0		0		15:15		0		0		54		44				
3:30	0		0		0		0		15:30		0		0		67		37				
3:45	0	0	0	0	0	1	0	0	1	15:45	0	0	0	0	54	225	40	169	394		
4:00	0		0		1		1		16:00		0		0		49		40				
4:15	0		0		5		1		16:15		0		0		52		48				
4:30	0		0		0		1		16:30		0		0		65		47				
4:45	0	0	0	0	1	7	2	5	12	16:45	0	0	0	0	65	231	48	183	414		
5:00	0		0		1		1		17:00		0		0		67		47				
5:15	0		0		3		2		17:15		0		0		70		39				
5:30	0		0		6		7		17:30		0		0		62		33				
5:45	0	0	0	0	1	11	6	16	27	17:45	0	0	0	0	58	257	46	165	422		
6:00	0		0		4		10		18:00		0		0		60		31				
6:15	0		0		5		6		18:15		0		0		48		38				
6:30	0		0		9		15		18:30		0		0		47		33				
6:45	0	0	0	0	16	34	14	45	79	18:45	0	0	0	0	32	187	26	128	315		
7:00	0		0		13		31		19:00		0		0		19		19				
7:15	0		0		25		35		19:15		0		0		37		13				
7:30	0		0		85		50		19:30		0		0		23		20				
7:45	0	0	0	0	71	194	100	216	410	19:45	0	0	0	0	24	103	18	70	173		
8:00	0		0		80		80		20:00		0		0		22		10				
8:15	0		0		57		48		20:15		0		0		25		13				
8:30	0		0		30		38		20:30		0		0		20		13				
8:45	0	0	0	0	36	203	34	200	403	20:45	0	0	0	0	14	81	10	46	127		
9:00	0		0		31		26		21:00		0		0		14		6				
9:15	0		0		33		40		21:15		0		0		10		6				
9:30	0		0		23		28		21:30		0		0		4		6				
9:45	0	0	0	0	35	122	28	122	244	21:45	0	0	0	0	6	34	2	20	54		
10:00	0		0		33		34		22:00		0		0		7		7				
10:15	0		0		33		23		22:15		0		0		8		6				
10:30	0		0		29		20		22:30		0		0		5		2				
10:45	0	0	0	0	29	124	33	110	234	22:45	0	0	0	0	1	21	4	19	40		
11:00	0		0		20		33		23:00		0		0		3		1				
11:15	0		0		27		37		23:15		0		0		2		0				
11:30	0		0		40		29		23:30		0		0		2		3				
11:45	0	0	0	0	46	133	34	133	266	23:45	0	0	0	0	2	9	0	4	13		
Total Vol.					835		852		1687							1637		1188		2825	

Daily Totals

NB	SB	EB	WB	Combined
		2472	2040	4512

AM**PM**

Split %	49.5%	50.5%	37.4%	57.9%	42.1%	62.6%
Peak Hour	7:30	7:30	7:30	16:30	16:15	16:30
Volume	293	278	571	267	190	448
P.H.F.	0.86	0.70	0.83	0.95	0.99	0.98

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

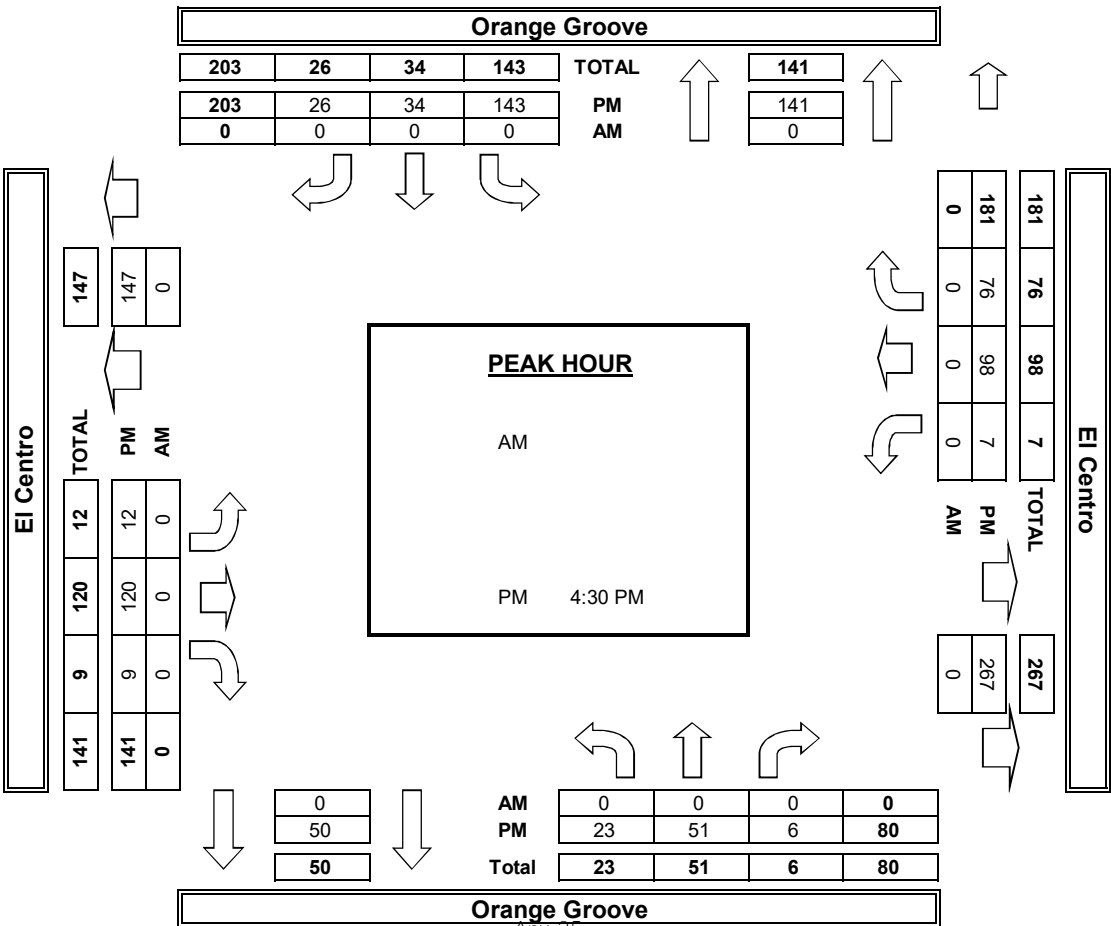
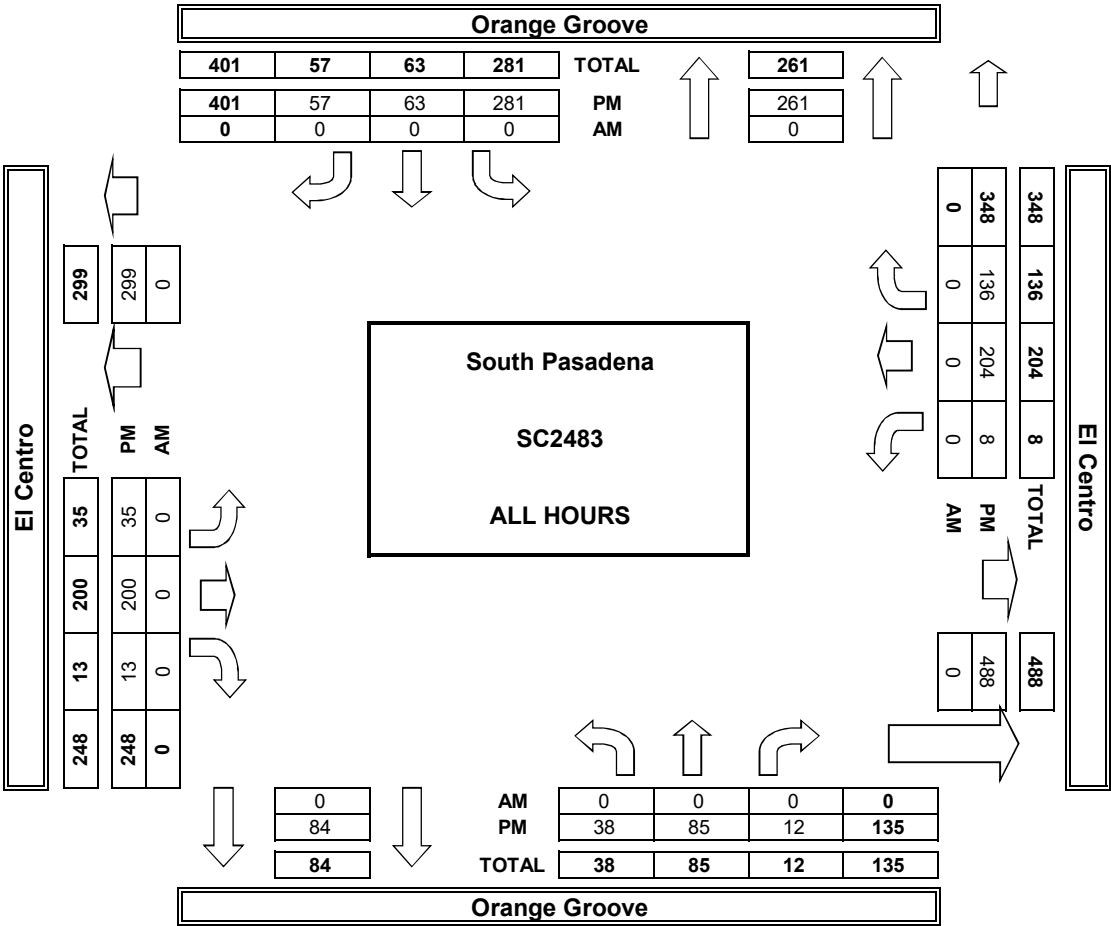
DATE: Wed, Jan 15, 20	LOCATION: NORTH & SOUTH: EAST & WEST:	South Pasadena Orange Groove El Centro	PROJECT #: LOCATION #: CONTROL:	SC2483 4 STOP ALL
---------------------------------	--	--	--	-------------------------

NOTES:

AM	▲ N ◀ W S ▶ E	PM
MD		
OTHER		
OTHER		

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	Orange Groove			Orange Groove			El Centro			El Centro			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	1	0	0	1	0	0	1	0	0	1	0	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
BEGIN PEAK HR	8:45 AM												
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
PEAK HR FACTOR	0.000			0.000			0.000			0.000			0.000
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
4:00 PM	2	4	1	29	4	9	11	19	1	0	30	10	120
4:15 PM	2	5	1	29	1	9	2	22	1	0	34	14	120
4:30 PM	5	8	3	29	4	11	4	33	0	0	28	19	144
4:45 PM	6	13	0	38	7	3	1	27	5	2	24	22	148
5:00 PM	6	14	1	37	12	6	3	29	4	1	27	19	159
5:15 PM	6	16	2	39	11	6	4	31	0	4	19	16	154
5:30 PM	8	16	3	37	9	8	3	24	0	0	14	19	141
5:45 PM	3	9	1	43	15	5	7	15	2	1	28	17	146
VOLUMES	38	85	12	281	63	57	35	200	13	8	204	136	1,132
APPROACH %	28%	63%	9%	70%	16%	14%	14%	81%	5%	2%	59%	39%	
APP/DEPART	135	/	261	401	/	84	248	/	488	348	/	299	0
BEGIN PEAK HR	4:30 PM												
VOLUMES	23	51	6	143	34	26	12	120	9	7	98	76	605
APPROACH %	29%	64%	8%	70%	17%	13%	9%	85%	6%	4%	54%	42%	
PEAK HR FACTOR	0.833			0.906			0.953			0.943			0.951
APP/DEPART	80	/	141	203	/	50	141	/	267	181	/	147	0

AimTD LLC
TURNING MOVEMENT COUNTS



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

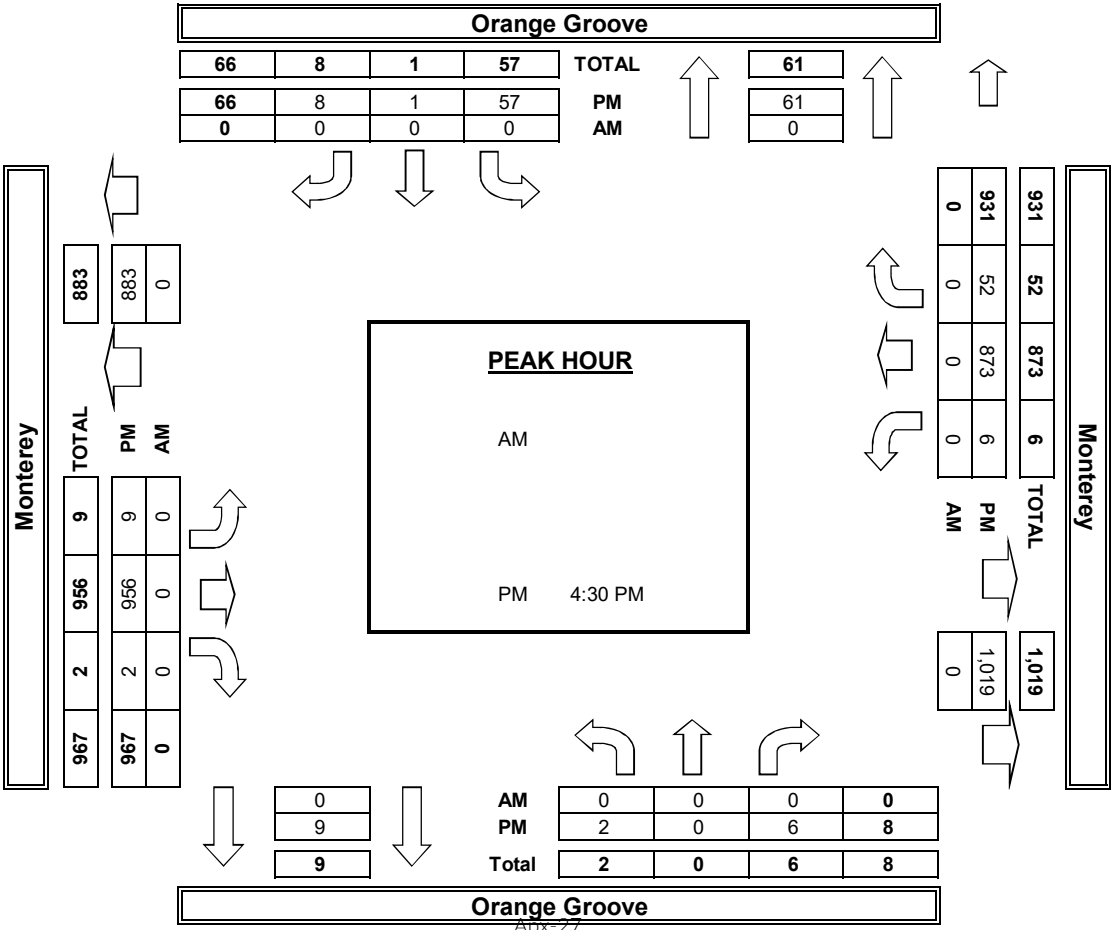
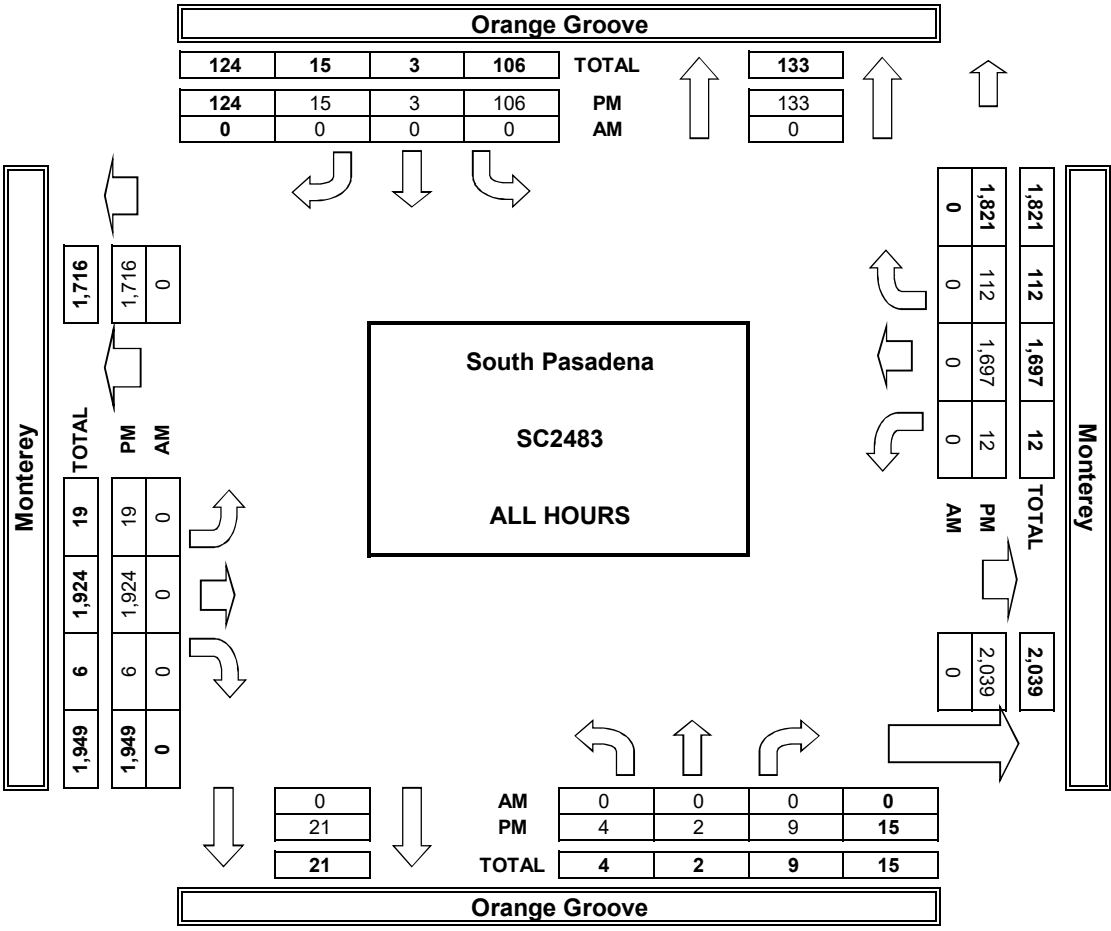
DATE: Thu, Jan 16, 20	LOCATION: NORTH & SOUTH: EAST & WEST:	South Pasadena Orange Groove Monterey	PROJECT #: LOCATION #: CONTROL:	SC2483 3 STOP N/S
---------------------------------	--	---	--	-------------------------

NOTES:	AM		▲	
	PM		N	
	MD	◀ W		E ▶
	OTHER		S	
	OTHER		▼	

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	Orange Groove			Orange Groove			Monterey			Monterey			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	1	0	0	1	0	0	2	0	0	2	0	

PM	4:00 PM	0	1	1	13	0	3	0	256	2	1	223	13	513
	4:15 PM	0	0	1	13	0	1	2	252	0	1	195	17	482
	4:30 PM	0	0	2	17	0	1	5	240	1	1	212	15	494
	4:45 PM	0	0	2	12	0	1	0	202	0	1	222	16	456
	5:00 PM	1	0	2	12	1	4	2	236	0	4	232	11	505
	5:15 PM	1	0	0	16	0	2	2	278	1	0	207	10	517
	5:30 PM	1	0	1	8	0	2	5	236	1	2	205	21	482
	5:45 PM	1	1	0	15	2	1	3	224	1	2	201	9	460
	VOLUMES	4	2	9	106	3	15	19	1,924	6	12	1,697	112	3,909
	APPROACH %	27%	13%	60%	85%	2%	12%	1%	99%	0%	1%	93%	6%	
	APP/DEPART	15	/	133	124	/	21	1,949	/	2,039	1,821	/	1,716	0
	BEGIN PEAK HR	4:30 PM												
	VOLUMES	2	0	6	57	1	8	9	956	2	6	873	52	1,972
	APPROACH %	25%	0%	75%	86%	2%	12%	1%	99%	0%	1%	94%	6%	
PEAK HR FACTOR	0.667			0.917			0.860			0.942			0.954	
APP/DEPART	8	/	61	66	/	9	967	/	1,019	931	/	883	0	

AimTD LLC
TURNING MOVEMENT COUNTS



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

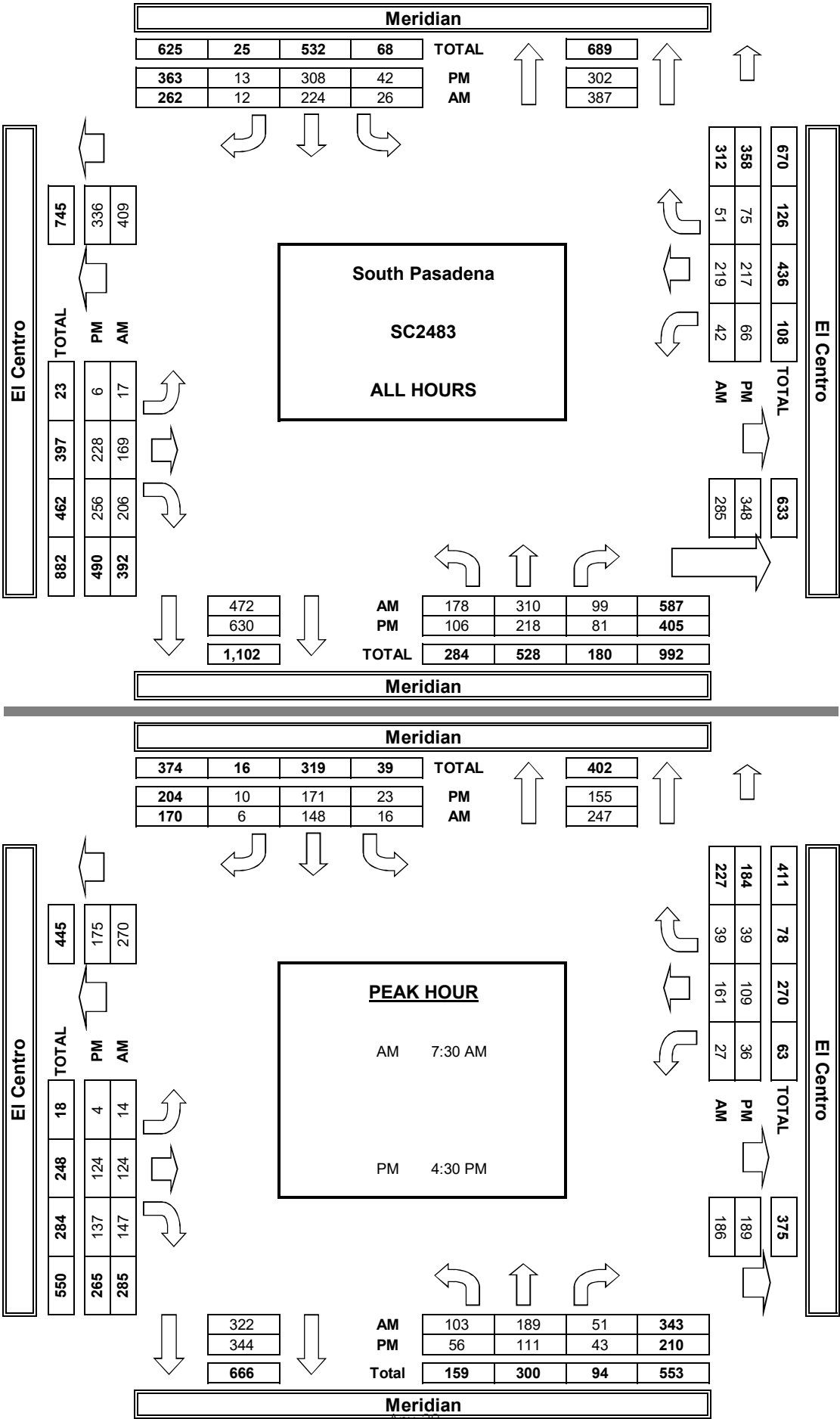
DATE: Wed, Jan 15, 20	LOCATION: NORTH & SOUTH: EAST & WEST:	South Pasadena Meridian El Centro	PROJECT #: LOCATION #: CONTROL:	SC2483 1 STOP ALL
---------------------------------	--	---	--	-------------------------

NOTES:

AM	◀ W E ▶ N S
PM	
MD	
OTHER	
OTHER	

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	Meridian			Meridian			El Centro			El Centro			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	1	0	0	1	0	0	1	0	0	1	0	
7:00 AM	17	27	10	2	10	0	0	8	13	3	13	1	104
7:15 AM	26	28	12	1	15	1	1	8	13	2	14	3	124
7:30 AM	28	50	13	5	30	1	1	19	35	5	20	3	210
7:45 AM	30	39	14	2	47	1	2	37	56	7	54	10	299
8:00 AM	24	56	16	2	39	2	5	32	29	13	69	16	303
8:15 AM	21	44	8	7	32	2	6	36	27	2	18	10	213
8:30 AM	18	38	8	2	24	2	2	13	13	3	17	6	146
8:45 AM	14	28	18	5	27	3	0	16	20	7	14	2	154
VOLUMES	178	310	99	26	224	12	17	169	206	42	219	51	1,553
APPROACH %	30%	53%	17%	10%	85%	5%	4%	43%	53%	13%	70%	16%	
APP/DEPART	587	/	387	262	/	472	392	/	285	312	/	409	0
BEGIN PEAK HR	7:30 AM												
VOLUMES	103	189	51	16	148	6	14	124	147	27	161	39	1,025
APPROACH %	30%	55%	15%	9%	87%	4%	5%	44%	52%	12%	71%	17%	
PEAK HR FACTOR	0.893			0.850			0.750			0.579			0.846
APP/DEPART	343	/	247	170	/	322	285	/	186	227	/	270	0
4:00 PM	9	33	11	6	42	1	2	24	23	5	26	11	193
4:15 PM	15	28	10	1	23	0	0	22	21	11	33	9	173
4:30 PM	12	34	12	8	46	0	1	34	28	9	27	7	218
4:45 PM	21	21	7	5	41	2	1	35	30	9	28	12	212
5:00 PM	11	34	11	8	38	5	1	30	42	11	34	13	238
5:15 PM	12	22	13	2	46	3	1	25	37	7	20	7	195
5:30 PM	17	19	9	5	34	1	0	31	37	5	18	10	186
5:45 PM	9	27	8	7	38	1	0	27	38	9	31	6	201
VOLUMES	106	218	81	42	308	13	6	228	256	66	217	75	1,616
APPROACH %	26%	54%	20%	12%	85%	4%	1%	47%	52%	18%	61%	21%	
APP/DEPART	405	/	302	363	/	630	490	/	348	358	/	336	0
BEGIN PEAK HR	4:30 PM												
VOLUMES	56	111	43	23	171	10	4	124	137	36	109	39	863
APPROACH %	27%	53%	20%	11%	84%	5%	2%	47%	52%	20%	59%	21%	
PEAK HR FACTOR	0.905			0.944			0.908			0.793			0.907
APP/DEPART	210	/	155	204	/	344	265	/	189	184	/	175	0

AimTD LLC
TURNING MOVEMENT COUNTS



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Wed, Jan 15, 20	LOCATION: NORTH & SOUTH: EAST & WEST:	South Pasadena Meridian Monterey	PROJECT #: LOCATION #: CONTROL:	SC2483 2 SIGNAL
---------------------------------	--	--	--	-----------------------

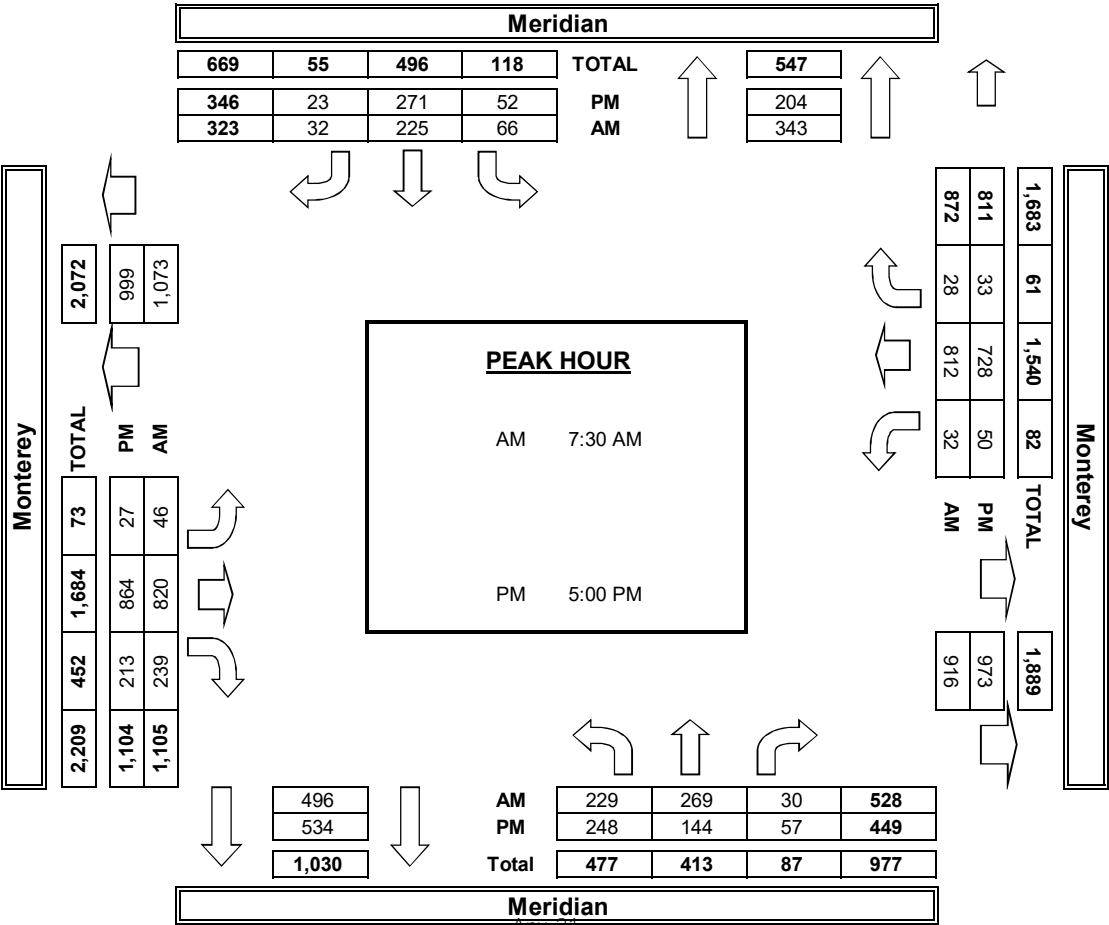
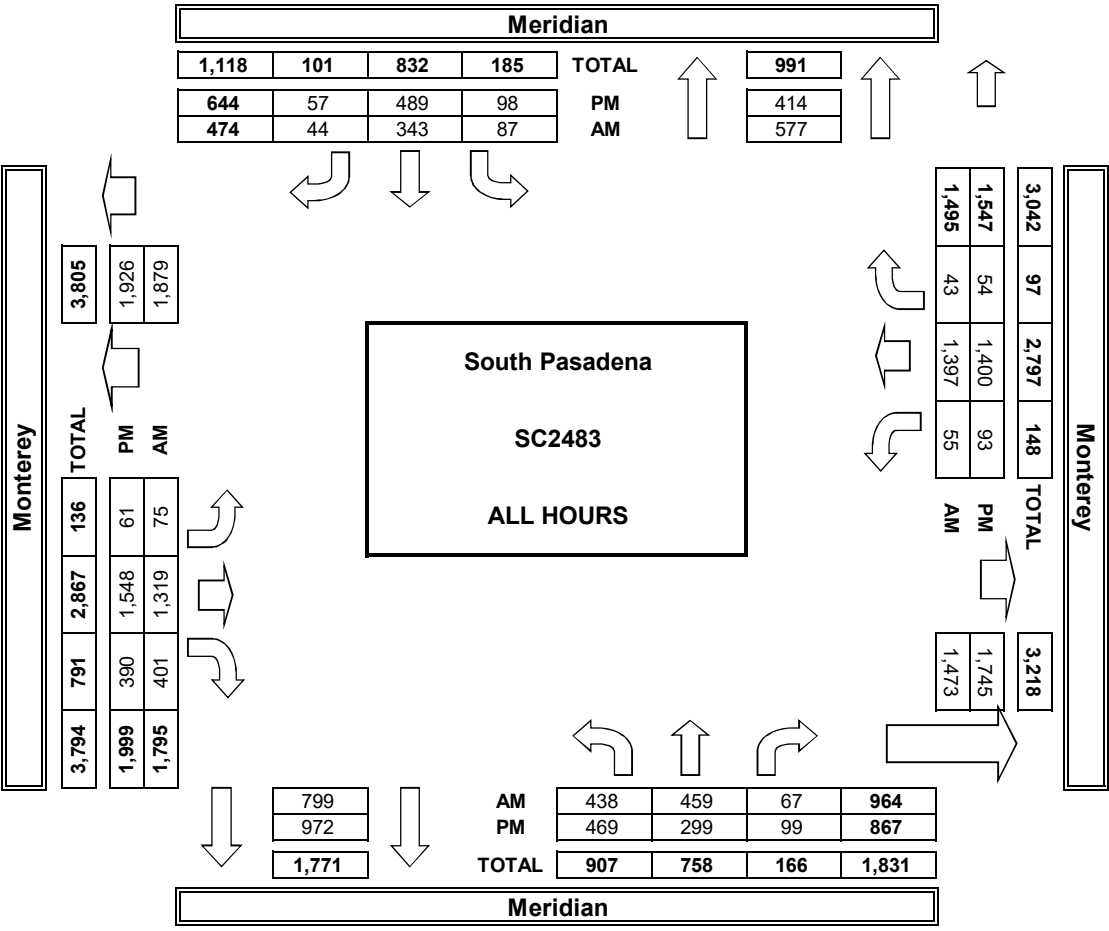
NOTES:

Queue EB AM

AM	▲ N ◀ W E ▶ S ▼
PM	
MD	
OTHER	

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	Meridian			Meridian			Monterey			Monterey			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	1	0	0	1	0	1	2	0	1	2	0	
7:00 AM	44	38	8	4	18	3	9	92	39	4	141	7	407
7:15 AM	72	56	10	6	24	2	5	117	38	6	144	2	482
7:30 AM	62	75	7	16	47	5	10	194	57	1	174	6	654
7:45 AM	65	68	8	34	65	8	12	257	62	14	238	2	833
8:00 AM	60	76	12	9	62	17	9	193	68	11	246	10	773
8:15 AM	42	50	3	7	51	2	15	176	52	6	154	10	568
8:30 AM	45	50	6	5	39	2	6	141	53	6	156	4	513
8:45 AM	48	46	13	6	37	5	9	149	32	7	144	2	498
VOLUMES	438	459	67	87	343	44	75	1,319	401	55	1,397	43	4,728
APPROACH %	45%	48%	7%	18%	72%	9%	4%	73%	22%	4%	93%	3%	
APP/DEPART	964	/	577	474	/	799	1,795	/	1,473	1,495	/	1,879	0
BEGIN PEAK HR	7:30 AM												
VOLUMES	229	269	30	66	225	32	46	820	239	32	812	28	2,828
APPROACH %	43%	51%	6%	20%	70%	10%	4%	74%	22%	4%	93%	3%	
PEAK HR FACTOR	0.892			0.755			0.835			0.816			0.849
APP/DEPART	528	/	343	323	/	496	1,105	/	916	872	/	1,073	0
4:00 PM	65	35	7	12	51	9	12	149	44	13	162	6	565
4:15 PM	57	38	10	12	46	10	4	175	41	11	171	9	584
4:30 PM	59	44	13	9	60	7	9	185	53	11	168	3	621
4:45 PM	40	38	12	13	61	8	9	175	39	8	171	3	577
5:00 PM	62	44	17	17	67	4	8	210	60	15	186	4	694
5:15 PM	66	35	13	14	70	7	9	222	50	14	180	5	685
5:30 PM	66	30	19	14	70	2	8	220	57	10	182	14	692
5:45 PM	54	35	8	7	64	10	2	212	46	11	180	10	639
VOLUMES	469	299	99	98	489	57	61	1,548	390	93	1,400	54	5,057
APPROACH %	54%	34%	11%	15%	76%	9%	3%	77%	20%	6%	90%	3%	
APP/DEPART	867	/	414	644	/	972	1,999	/	1,745	1,547	/	1,926	0
BEGIN PEAK HR	5:00 PM												
VOLUMES	248	144	57	52	271	23	27	864	213	50	728	33	2,710
APPROACH %	55%	32%	13%	15%	78%	7%	2%	78%	19%	6%	90%	4%	
PEAK HR FACTOR	0.913			0.951			0.968			0.984			0.976
APP/DEPART	449	/	204	346	/	534	1,104	/	973	811	/	999	0

AimTD LLC
TURNING MOVEMENT COUNTS



APPENDIX D

LEVEL OF SERVICE WORKSHEETS

EXISTING

Seven Patios Mixed Use Project

Vistro File: C:\...\AME.vistro
Report File: C:\...\AME.pdf

Scenario 1 Existing AM Peak Hour
2/24/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Orange Grove Ave (NS) at El Centro St (EW)	All-way stop	HCM 6th Edition	SB Left	0.274	9.1	A
2	Orange Grove Ave (NS) at Monterey Rd (EW)	Two-way stop	HCM 6th Edition	SB Thru	0.014	106.6	F
4	Meridian Ave (NS) at El Centro St (EW)	All-way stop	HCM 6th Edition	NB Thru	0.543	13.4	B
5	Meridian Ave (NS) at Monterey Rd (EW)	Signalized	ICU 1	EB Thru	0.822	-	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report**Intersection 1: Orange Grove Ave (NS) at El Centro St (EW)**

Control Type:
Analysis Method:
Analysis Period:

All-way stop
HCM 6th Edition
1 hour

Delay (sec / veh):
Level Of Service:
Volume to Capacity (v/c):

9.1
A
0.274

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	23	51	6	143	34	26	12	120	9	7	98	76
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	51	6	143	34	26	12	120	9	7	98	76
Peak Hour Factor	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	13	2	38	9	7	3	32	2	2	26	20
Total Analysis Volume [veh/h]	24	54	6	150	36	27	13	126	9	7	103	80
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	724	742	746	789
Degree of Utilization, x	0.11	0.27	0.19	0.23

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.37	1.13	0.70	0.89
95th-Percentile Queue Length [ft]	9.31	28.14	17.45	22.26
Approach Delay [s/veh]	8.59	9.68	8.95	8.92
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	9.14			
Intersection LOS	A			

Intersection Level Of Service Report**Intersection 2: Orange Grove Ave (NS) at Monterey Rd (EW)**

Control Type:
Analysis Method:
Analysis Period:

Two-way stop
HCM 6th Edition
1 hour

Delay (sec / veh):
Level Of Service:
Volume to Capacity (v/c):

106.6
F
0.014

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+ +			+ +		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	2	0	6	57	1	8	9	956	2	6	873	52
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	0	6	57	1	8	9	956	2	6	873	52
Peak Hour Factor	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	2	15	0	2	2	251	1	2	229	14
Total Analysis Volume [veh/h]	2	0	6	60	1	8	9	1002	2	6	915	55
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.01	0.58	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	44.08	59.32	12.18	91.63	106.62	61.21	9.88	0.00	0.00	10.00	0.00	0.00
Movement LOS	E	F	B	F	F	F	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.10	0.10	0.10	4.00	4.00	4.00	0.04	0.02	0.00	0.02	0.01	0.00
95th-Percentile Queue Length [ft/ln]	2.52	2.52	2.52	99.98	99.98	99.98	0.91	0.46	0.00	0.62	0.31	0.00
d_A, Approach Delay [s/veh]	20.16			88.17			0.09			0.06		
Approach LOS	C			F			A			A		
d_I, Intersection Delay [s/veh]	3.11											
Intersection LOS	F											

Intersection Level Of Service Report**Intersection 4: Meridian Ave (NS) at El Centro St (EW)**

Control Type:
Analysis Method:
Analysis Period:

All-way stop
HCM 6th Edition
1 hour

Delay (sec / veh):
Level Of Service:
Volume to Capacity (v/c):

13.4
B
0.543

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	103	189	51	16	148	6	14	124	147	27	161	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	103	189	51	16	148	6	14	124	147	27	161	39
Peak Hour Factor	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	56	15	5	44	2	4	37	43	8	48	12
Total Analysis Volume [veh/h]	122	223	60	19	175	7	17	147	174	32	190	46
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	632	594	646	612
Degree of Utilization, x	0.54	0.29	0.44	0.37

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	3.48	1.20	2.34	1.76
95th-Percentile Queue Length [ft]	86.88	29.92	58.42	43.88
Approach Delay [s/veh]	15.40	11.49	12.95	12.35
Approach LOS	C	B	B	B
Intersection Delay [s/veh]	13.39			
Intersection LOS	B			

Intersection Level Of Service Report
Intersection 5: Meridian Ave (NS) at Monterey Rd (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.822

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	225.00	100.00	100.00	155.00	100.00	100.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	229	269	30	66	225	32	46	820	239	32	812	28
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	229	269	30	66	225	32	46	820	239	32	812	28
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	57	67	8	17	56	8	12	205	60	8	203	7
Total Analysis Volume [veh/h]	229	269	30	66	225	32	46	820	239	32	812	28
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.14	0.33	0.33	0.04	0.20	0.20	0.03	0.33	0.33	0.02	0.26	0.26
Intersection LOS	D											
Intersection V/C	0.822											

Vistro File: C:\...\PME.vistro
Report File: C:\...\PME.pdf

Scenario 1 Existing PM Peak Hour
2/24/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Orange Grove Ave (NS) at El Centro St (EW)	All-way stop	HCM 6th Edition	SB Left	0.274	9.1	A
2	Orange Grove Ave (NS) at Monterey Rd (EW)	Two-way stop	HCM 6th Edition	SB Thru	0.014	106.6	F
4	Meridian Ave (NS) at El Centro St (EW)	All-way stop	HCM 6th Edition	EB Right	0.372	10.8	B
5	Meridian Ave (NS) at Monterey Rd (EW)	Signalized	ICU 1	EB Thru	0.839	-	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report**Intersection 1: Orange Grove Ave (NS) at El Centro St (EW)**

Control Type:
Analysis Method:
Analysis Period:

All-way stop
HCM 6th Edition
1 hour

Delay (sec / veh):
Level Of Service:
Volume to Capacity (v/c):

9.1
A
0.274

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	23	51	6	143	34	26	12	120	9	7	98	76
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	51	6	143	34	26	12	120	9	7	98	76
Peak Hour Factor	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	13	2	38	9	7	3	32	2	2	26	20
Total Analysis Volume [veh/h]	24	54	6	150	36	27	13	126	9	7	103	80
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	724	742	746	789
Degree of Utilization, x	0.11	0.27	0.19	0.23

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.37	1.13	0.70	0.89
95th-Percentile Queue Length [ft]	9.31	28.14	17.45	22.26
Approach Delay [s/veh]	8.59	9.68	8.95	8.92
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	9.14			
Intersection LOS	A			

Intersection Level Of Service Report**Intersection 2: Orange Grove Ave (NS) at Monterey Rd (EW)**

Control Type:
Analysis Method:
Analysis Period:

Two-way stop
HCM 6th Edition
1 hour

Delay (sec / veh):
Level Of Service:
Volume to Capacity (v/c):

106.6
F
0.014

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+ +			+ +		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	2	0	6	57	1	8	9	956	2	6	873	52
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	0	6	57	1	8	9	956	2	6	873	52
Peak Hour Factor	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	2	15	0	2	2	251	1	2	229	14
Total Analysis Volume [veh/h]	2	0	6	60	1	8	9	1002	2	6	915	55
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.01	0.58	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	44.08	59.32	12.18	91.63	106.62	61.21	9.88	0.00	0.00	10.00	0.00	0.00
Movement LOS	E	F	B	F	F	F	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.10	0.10	0.10	4.00	4.00	4.00	0.04	0.02	0.00	0.02	0.01	0.00
95th-Percentile Queue Length [ft/ln]	2.52	2.52	2.52	99.98	99.98	99.98	0.91	0.46	0.00	0.62	0.31	0.00
d_A, Approach Delay [s/veh]	20.16			88.17			0.09			0.06		
Approach LOS	C			F			A			A		
d_I, Intersection Delay [s/veh]	3.11											
Intersection LOS	F											

Intersection Level Of Service Report**Intersection 4: Meridian Ave (NS) at El Centro St (EW)**

Control Type:
Analysis Method:
Analysis Period:

All-way stop
HCM 6th Edition
1 hour

Delay (sec / veh):
Level Of Service:
Volume to Capacity (v/c):

10.8
B
0.372

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	56	111	43	23	171	10	4	124	137	36	109	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	56	111	43	23	171	10	4	124	137	36	109	39
Peak Hour Factor	0.9070	0.9070	0.9070	0.9070	0.9070	0.9070	0.9070	0.9070	0.9070	0.9070	0.9070	0.9070
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	31	12	6	47	3	1	34	38	10	30	11
Total Analysis Volume [veh/h]	62	122	47	25	189	11	4	137	151	40	120	43
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	669	661	713	669
Degree of Utilization, x	0.31	0.31	0.37	0.28

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.36	1.33	1.76	1.13
95th-Percentile Queue Length [ft]	34.09	33.31	44.03	28.36
Approach Delay [s/veh]	10.83	10.88	11.03	10.43
Approach LOS	B	B	B	B
Intersection Delay [s/veh]	10.82			
Intersection LOS	B			

Intersection Level Of Service Report

Intersection 5: Meridian Ave (NS) at Monterey Rd (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.839

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	225.00	100.00	100.00	155.00	100.00	100.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	248	144	57	52	271	23	27	864	213	50	728	33
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	248	144	57	52	271	23	27	864	213	50	728	33
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	62	36	14	13	68	6	7	216	53	13	182	8
Total Analysis Volume [veh/h]	248	144	57	52	271	23	27	864	213	50	728	33
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.16	0.28	0.28	0.03	0.22	0.22	0.02	0.34	0.34	0.03	0.24	0.24
Intersection LOS	D											
Intersection V/C	0.839											

EXISTING PLUS PROJECT

Seven Patios Mixed Use Project

Vistro File: C:\...\AME.vistro

Report File: C:\...\AMEP.pdf

Scenario 2 Existing Plus Project AM Peak Hour

2/24/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Orange Grove Ave (NS) at El Centro St (EW)	All-way stop	HCM 6th Edition	SB Left	0.282	9.3	A
2	Orange Grove Ave (NS) at Monterey Rd (EW)	Two-way stop	HCM 6th Edition	SB Thru	0.015	108.7	F
3	Project Dwy (NS) at El Centro St (EW)	Two-way stop	HCM 6th Edition	NB Left	0.025	12.9	B
4	Meridian Ave (NS) at El Centro St (EW)	All-way stop	HCM 6th Edition	NB Thru	0.566	14.1	B
5	Meridian Ave (NS) at Monterey Rd (EW)	Signalized	ICU 1	NB Thru	0.827	-	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report**Intersection 1: Orange Grove Ave (NS) at El Centro St (EW)**

Control Type:	All-way stop	Delay (sec / veh):	9.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.282

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	23	51	6	143	34	26	12	120	9	7	98	76
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	3	4	0	0	0	1	0	5	1	6
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	51	9	147	34	26	12	121	9	12	99	82
Peak Hour Factor	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	13	2	39	9	7	3	32	2	3	26	22
Total Analysis Volume [veh/h]	24	54	9	155	36	27	13	127	9	13	104	86
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	721	735	739	785
Degree of Utilization, x	0.12	0.28	0.19	0.25

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.39	1.17	0.71	0.98
95th-Percentile Queue Length [ft]	9.75	29.27	17.78	24.40
Approach Delay [s/veh]	8.65	9.81	9.03	9.09
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	9.25			
Intersection LOS	A			

Intersection Level Of Service Report**Intersection 2: Orange Grove Ave (NS) at Monterey Rd (EW)**

Control Type:
Analysis Method:
Analysis Period:

Two-way stop
HCM 6th Edition
1 hour

Delay (sec / veh):
Level Of Service:
Volume to Capacity (v/c):

108.7
F
0.015

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	2	0	6	57	1	8	9	956	2	6	873	52
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	5	3	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	0	6	57	1	13	12	956	2	6	873	52
Peak Hour Factor	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	2	15	0	3	3	251	1	2	229	14
Total Analysis Volume [veh/h]	2	0	6	60	1	14	13	1002	2	6	915	55
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.01	0.59	0.01	0.02	0.02	0.01	0.00	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	45.02	60.11	12.20	93.49	108.68	62.53	9.90	0.00	0.00	10.00	0.00	0.00
Movement LOS	E	F	B	F	F	F	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.10	0.10	0.10	4.27	4.27	4.27	0.05	0.02	0.00	0.02	0.01	0.00
95th-Percentile Queue Length [ft/ln]	2.57	2.57	2.57	106.65	106.65	106.65	1.22	0.61	0.00	0.62	0.31	0.00
d_A, Approach Delay [s/veh]	20.41			88.03			0.12			0.06		
Approach LOS	C			F			A			A		
d_I, Intersection Delay [s/veh]	3.33											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Project Dwy (NS) at El Centro St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	12.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.025

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	285	0	0	270
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	12	17	0	8	13	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	17	285	8	13	270
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	4	75	2	3	71
Total Analysis Volume [veh/h]	13	18	300	8	14	284
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.02	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	12.94	10.07	0.00	0.00	7.84	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.15	0.15	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft/ln]	3.78	3.78	0.00	0.00	0.77	0.77
d_A, Approach Delay [s/veh]	11.26		0.00		0.36	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.71					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: Meridian Ave (NS) at El Centro St (EW)

Control Type:	All-way stop	Delay (sec / veh):	14.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.566

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	103	189	51	16	148	6	14	124	147	27	161	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	7	0	0	0	0	5	8	1	8	0	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	110	189	51	16	148	11	22	125	155	27	162	39
Peak Hour Factor	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	56	15	5	44	3	7	37	46	8	48	12
Total Analysis Volume [veh/h]	130	223	60	19	175	13	26	148	183	32	191	46
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	618	581	633	597
Degree of Utilization, x	0.57	0.30	0.48	0.38

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	3.81	1.29	2.69	1.84
95th-Percentile Queue Length [ft]	95.26	32.13	67.29	45.93
Approach Delay [s/veh]	16.36	11.86	13.84	12.75
Approach LOS	C	B	B	B
Intersection Delay [s/veh]	14.11			
Intersection LOS	B			

Intersection Level Of Service Report
Intersection 5: Meridian Ave (NS) at Monterey Rd (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.827

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	225.00	100.00	100.00	155.00	100.00	100.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	229	269	30	66	225	32	46	820	239	32	812	28
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	0	6	2	0	0	0	0	0	0	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	229	271	30	72	227	32	46	820	239	32	812	33
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	57	68	8	18	57	8	12	205	60	8	203	8
Total Analysis Volume [veh/h]	229	271	30	72	227	32	46	820	239	32	812	33
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.14	0.33	0.33	0.05	0.21	0.21	0.03	0.33	0.33	0.02	0.26	0.26
Intersection LOS	D											
Intersection V/C	0.827											

Seven Patios Mixed Use Project

Vistro File: C:\...\PME.vistro

Report File: C:\...\PMEP.pdf

Scenario 2 Existing Plus Project PM Peak Hour

2/24/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Orange Grove Ave (NS) at El Centro St (EW)	All-way stop	HCM 6th Edition	SB Left	0.283	9.2	A
2	Orange Grove Ave (NS) at Monterey Rd (EW)	Two-way stop	HCM 6th Edition	SB Thru	0.015	111.4	F
3	Project Dwy (NS) at El Centro St (EW)	Two-way stop	HCM 6th Edition	NB Left	0.007	11.8	B
4	Meridian Ave (NS) at El Centro St (EW)	All-way stop	HCM 6th Edition	EB Right	0.391	11.1	B
5	Meridian Ave (NS) at Monterey Rd (EW)	Signalized	ICU 1	EB Thru	0.842	-	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report**Intersection 1: Orange Grove Ave (NS) at El Centro St (EW)**

Control Type:
Analysis Method:
Analysis Period:

All-way stop
HCM 6th Edition
1 hour

Delay (sec / veh):
Level Of Service:
Volume to Capacity (v/c):

9.2
A
0.283

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	23	51	6	143	34	26	12	120	9	7	98	76
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	5	6	0	0	0	1	0	2	0	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	51	11	149	34	26	12	121	9	9	98	78
Peak Hour Factor	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	13	3	39	9	7	3	32	2	2	26	21
Total Analysis Volume [veh/h]	24	54	12	157	36	27	13	127	9	9	103	82
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	725	738	739	783
Degree of Utilization, x	0.12	0.28	0.19	0.24

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.40	1.18	0.71	0.93
95th-Percentile Queue Length [ft]	9.95	29.53	17.77	23.13
Approach Delay [s/veh]	8.62	9.81	9.02	9.02
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	9.23			
Intersection LOS	A			

Intersection Level Of Service Report**Intersection 2: Orange Grove Ave (NS) at Monterey Rd (EW)**

Control Type:
Analysis Method:
Analysis Period:

Two-way stop
HCM 6th Edition
1 hour

Delay (sec / veh):
Level Of Service:
Volume to Capacity (v/c):

111.4
F
0.015

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+ +			+ +		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	2	0	6	57	1	8	9	956	2	6	873	52
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	2	5	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	0	6	57	1	10	14	956	2	6	873	52
Peak Hour Factor	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	2	15	0	3	4	251	1	2	229	14
Total Analysis Volume [veh/h]	2	0	6	60	1	10	15	1002	2	6	915	55
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.01	0.60	0.01	0.02	0.02	0.01	0.00	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	45.19	60.63	12.20	96.07	111.41	64.75	9.91	0.00	0.00	10.00	0.00	0.00
Movement LOS	E	F	B	F	F	F	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.10	0.10	0.10	4.24	4.24	4.24	0.06	0.03	0.00	0.02	0.01	0.00
95th-Percentile Queue Length [ft/ln]	2.57	2.57	2.57	106.11	106.11	106.11	1.43	0.72	0.00	0.62	0.31	0.00
d_A, Approach Delay [s/veh]	20.45			91.69			0.14			0.06		
Approach LOS	C			F			A			A		
d_I, Intersection Delay [s/veh]	3.33											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Project Dwy (NS) at El Centro St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	11.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.007

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	265	0	0	175
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	10	0	12	17	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	10	265	12	17	175
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	3	70	3	4	46
Total Analysis Volume [veh/h]	4	11	279	13	18	184
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	11.77	9.77	0.00	0.00	7.81	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.06	0.06	0.00	0.00	0.04	0.04
95th-Percentile Queue Length [ft/ln]	1.56	1.56	0.00	0.00	1.00	1.00
d_A, Approach Delay [s/veh]	10.34		0.00		0.69	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.57					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: Meridian Ave (NS) at El Centro St (EW)

Control Type:	All-way stop	Delay (sec / veh):	11.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.391

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	56	111	43	23	171	10	4	124	137	36	109	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	9	0	0	0	0	7	5	0	5	0	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	65	111	43	23	171	17	9	124	142	36	110	39
Peak Hour Factor	0.9070	0.9070	0.9070	0.9070	0.9070	0.9070	0.9070	0.9070	0.9070	0.9070	0.9070	0.9070
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	31	12	6	47	5	2	34	39	10	30	11
Total Analysis Volume [veh/h]	72	122	47	25	189	19	10	137	157	40	121	43
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	660	655	703	658
Degree of Utilization, x	0.33	0.32	0.39	0.28

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.48	1.42	1.91	1.17
95th-Percentile Queue Length [ft]	37.00	35.44	47.75	29.20
Approach Delay [s/veh]	11.16	11.11	11.40	10.61
Approach LOS	B	B	B	B
Intersection Delay [s/veh]	11.11			
Intersection LOS	B			

Intersection Level Of Service Report
Intersection 5: Meridian Ave (NS) at Monterey Rd (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.842

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	225.00	100.00	100.00	155.00	100.00	100.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	248	144	57	52	271	23	27	864	213	50	728	33
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	0	4	1	0	0	0	0	0	0	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	248	146	57	56	272	23	27	864	213	50	728	40
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	62	37	14	14	68	6	7	216	53	13	182	10
Total Analysis Volume [veh/h]	248	146	57	56	272	23	27	864	213	50	728	40
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.16	0.28	0.28	0.04	0.22	0.22	0.02	0.34	0.34	0.03	0.24	0.24
Intersection LOS	D											
Intersection V/C	0.842											

OPENING YEAR (2022) WITHOUT PROJECT

Seven Patios Mixed Use Project

Vistro File: C:\...\AME.vistro

Scenario 4 Opening Year (2022) Without Project AM Peak
Hour

Report File: C:\...\AMOYWO.pdf

2/24/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Orange Grove Ave (NS) at El Centro St (EW)	All-way stop	HCM 6th Edition	SB Left	0.284	9.3	A
2	Orange Grove Ave (NS) at Monterey Rd (EW)	Two-way stop	HCM 6th Edition	SB Thru	0.030	137.1	F
4	Meridian Ave (NS) at El Centro St (EW)	All-way stop	HCM 6th Edition	NB Thru	0.569	14.1	B
5	Meridian Ave (NS) at Monterey Rd (EW)	Signalized	ICU 1	NB Thru	0.839	-	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report**Intersection 1: Orange Grove Ave (NS) at El Centro St (EW)**

Control Type:	All-way stop	Delay (sec / veh):	9.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.284

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	23	51	6	143	34	26	12	120	9	7	98	76
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	4	0	0	1	0	1	1	0	0	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	56	6	146	36	27	13	123	9	7	101	78
Peak Hour Factor	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	15	2	38	9	7	3	32	2	2	27	21
Total Analysis Volume [veh/h]	24	59	6	154	38	28	14	129	9	7	106	82
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	719	737	739	782
Degree of Utilization, x	0.12	0.28	0.20	0.24

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.40	1.18	0.73	0.93
95th-Percentile Queue Length [ft]	10.05	29.58	18.27	23.33
Approach Delay [s/veh]	8.68	9.82	9.06	9.04
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	9.26			
Intersection LOS	A			

Intersection Level Of Service Report**Intersection 2: Orange Grove Ave (NS) at Monterey Rd (EW)**

Control Type:
Analysis Method:
Analysis Period:

Two-way stop
HCM 6th Edition
1 hour

Delay (sec / veh):
Level Of Service:
Volume to Capacity (v/c):

137.1
F
0.030

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+ +			+ +		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	2	0	6	57	1	8	9	956	2	6	873	52
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	4	0	0	1	0	0	0	0	0	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	4	6	58	2	8	9	975	2	6	891	53
Peak Hour Factor	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	2	15	1	2	2	256	1	2	233	14
Total Analysis Volume [veh/h]	2	4	6	61	2	8	9	1022	2	6	934	56
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.06	0.01	0.66	0.03	0.01	0.01	0.01	0.00	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	49.18	65.03	14.93	123.17	137.13	88.91	9.96	0.00	0.00	10.08	0.00	0.00
Movement LOS	E	F	B	F	F	F	A	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	0.32	0.32	0.32	5.22	5.22	5.22	0.04	0.02	0.00	0.03	0.01	0.00
95th-Percentile Queue Length [ft/ln]	8.04	8.04	8.04	130.54	130.54	130.54	0.93	0.46	0.00	0.64	0.32	0.00
d_A, Approach Delay [s/veh]	37.34			119.55			0.09			0.06		
Approach LOS	E			F			A			A		
d_I, Intersection Delay [s/veh]	4.33											
Intersection LOS	F											

Intersection Level Of Service Report**Intersection 4: Meridian Ave (NS) at El Centro St (EW)**

Control Type:
Analysis Method:
Analysis Period:

All-way stop
HCM 6th Edition
1 hour

Delay (sec / veh):
Level Of Service:
Volume to Capacity (v/c):

14.1
B
0.569

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	103	189	51	16	148	6	14	124	147	27	161	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	1	0	2	0	0	1	0	1	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	105	195	53	16	153	6	14	127	150	29	165	40
Peak Hour Factor	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	58	16	5	45	2	4	38	44	9	49	12
Total Analysis Volume [veh/h]	124	230	63	19	181	7	17	150	177	34	195	47
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	620	581	632	599
Degree of Utilization, x	0.57	0.30	0.46	0.39

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	3.85	1.29	2.52	1.91
95th-Percentile Queue Length [ft]	96.36	32.18	63.10	47.70
Approach Delay [s/veh]	16.41	11.88	13.54	12.87
Approach LOS	C	B	B	B
Intersection Delay [s/veh]	14.08			
Intersection LOS	B			

Intersection Level Of Service Report
Intersection 5: Meridian Ave (NS) at Monterey Rd (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.839

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	225.00	100.00	100.00	155.00	100.00	100.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	229	269	30	66	225	32	46	820	239	32	812	28
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	0	0	4	0	0	0	0	0	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	234	277	31	67	234	33	47	836	244	33	829	29
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	59	69	8	17	59	8	12	209	61	8	207	7
Total Analysis Volume [veh/h]	234	277	31	67	234	33	47	836	244	33	829	29
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.15	0.34	0.34	0.04	0.21	0.21	0.03	0.34	0.34	0.02	0.27	0.27
Intersection LOS	D											
Intersection V/C	0.839											

Seven Patios Mixed Use Project

Vistro File: C:\...\PME.vistro

Scenario 4 Opening Year (2022) Without Project PM Peak
Hour

Report File: C:\...\PMOYWO.pdf

2/24/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Orange Grove Ave (NS) at El Centro St (EW)	All-way stop	HCM 6th Edition	SB Left	0.289	9.3	A
2	Orange Grove Ave (NS) at Monterey Rd (EW)	Two-way stop	HCM 6th Edition	SB Thru	0.076	146.3	F
4	Meridian Ave (NS) at El Centro St (EW)	All-way stop	HCM 6th Edition	EB Right	0.387	11.1	B
5	Meridian Ave (NS) at Monterey Rd (EW)	Signalized	ICU 1	EB Thru	0.856	-	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report**Intersection 1: Orange Grove Ave (NS) at El Centro St (EW)**

Control Type:
Analysis Method:
Analysis Period:

All-way stop
HCM 6th Edition
1 hour

Delay (sec / veh):
Level Of Service:
Volume to Capacity (v/c):

9.3
A
0.289

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	23	51	6	143	34	26	12	120	9	7	98	76
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	0	0	4	1	0	2	0	0	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	54	6	146	39	28	12	124	9	7	101	78
Peak Hour Factor	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	14	2	38	10	7	3	33	2	2	27	21
Total Analysis Volume [veh/h]	24	57	6	154	41	29	13	130	9	7	106	82
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	718	738	738	782
Degree of Utilization, x	0.12	0.29	0.20	0.24

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.39	1.21	0.73	0.93
95th-Percentile Queue Length [ft]	9.80	30.32	18.29	23.36
Approach Delay [s/veh]	8.67	9.86	9.07	9.05
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	9.28			
Intersection LOS	A			

Intersection Level Of Service Report**Intersection 2: Orange Grove Ave (NS) at Monterey Rd (EW)**

Control Type:
Analysis Method:
Analysis Period:

Two-way stop
HCM 6th Edition
1 hour

Delay (sec / veh):
Level Of Service:
Volume to Capacity (v/c):

146.3
F
0.076

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	2	0	6	57	1	8	9	956	2	6	873	52
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	0	0	4	0	0	1	0	0	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	2	6	58	5	8	9	976	2	6	891	53
Peak Hour Factor	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	2	15	1	2	2	256	1	2	233	14
Total Analysis Volume [veh/h]	2	2	6	61	5	8	9	1023	2	6	934	56
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.03	0.01	0.64	0.08	0.01	0.01	0.01	0.00	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	49.46	63.68	13.50	131.22	146.30	98.00	9.96	0.00	0.00	10.09	0.00	0.00
Movement LOS	E	F	B	F	F	F	A	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	0.21	0.21	0.21	5.71	5.71	5.71	0.04	0.02	0.00	0.03	0.01	0.00
95th-Percentile Queue Length [ft/ln]	5.34	5.34	5.34	142.73	142.73	142.73	0.93	0.46	0.00	0.64	0.32	0.00
d_A, Approach Delay [s/veh]	30.73			128.54			0.09			0.06		
Approach LOS	D			F			A			A		
d_I, Intersection Delay [s/veh]	4.75											
Intersection LOS	F											

Intersection Level Of Service Report**Intersection 4: Meridian Ave (NS) at El Centro St (EW)**

Control Type:
Analysis Method:
Analysis Period:

All-way stop
HCM 6th Edition
1 hour

Delay (sec / veh):
Level Of Service:
Volume to Capacity (v/c):

11.1
B
0.387

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	56	111	43	23	171	10	4	124	137	36	109	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	2	0	1	0	0	2	0	2	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	57	115	46	23	175	10	4	128	140	39	112	40
Peak Hour Factor	0.9070	0.9070	0.9070	0.9070	0.9070	0.9070	0.9070	0.9070	0.9070	0.9070	0.9070	0.9070
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	32	13	6	48	3	1	35	39	11	31	11
Total Analysis Volume [veh/h]	63	127	51	25	193	11	4	141	154	43	123	44
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	662	652	704	660
Degree of Utilization, x	0.33	0.32	0.39	0.29

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.46	1.40	1.87	1.22
95th-Percentile Queue Length [ft]	36.62	34.93	46.87	30.42
Approach Delay [s/veh]	11.11	11.11	11.33	10.68
Approach LOS	B	B	B	B
Intersection Delay [s/veh]	11.09			
Intersection LOS	B			

Intersection Level Of Service Report
Intersection 5: Meridian Ave (NS) at Monterey Rd (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.856

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	225.00	100.00	100.00	155.00	100.00	100.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	248	144	57	52	271	23	27	864	213	50	728	33
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	5	0	0	4	0	0	1	0	0	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	253	152	58	53	280	23	28	882	217	51	744	34
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	63	38	15	13	70	6	7	221	54	13	186	9
Total Analysis Volume [veh/h]	253	152	58	53	280	23	28	882	217	51	744	34
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.16	0.29	0.29	0.03	0.22	0.22	0.02	0.34	0.34	0.03	0.24	0.24
Intersection LOS	D											
Intersection V/C	0.856											

OPENING YEAR (2022) WITH PROJECT

Seven Patios Mixed Use Project

Vistro File: C:\...\AME.vistro

Scenario 6 Opening Year (2022) With Project AM Peak Hour

Report File: C:\...\AMOYW.pdf

2/24/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Orange Grove Ave (NS) at El Centro St (EW)	All-way stop	HCM 6th Edition	SB Left	0.292	9.4	A
2	Orange Grove Ave (NS) at Monterey Rd (EW)	Two-way stop	HCM 6th Edition	SB Thru	0.031	141.0	F
3	Project Dwy (NS) at El Centro St (EW)	Two-way stop	HCM 6th Edition	NB Left	0.026	13.1	B
4	Meridian Ave (NS) at El Centro St (EW)	All-way stop	HCM 6th Edition	NB Thru	0.591	14.8	B
5	Meridian Ave (NS) at Monterey Rd (EW)	Signalized	ICU 1	NB Thru	0.844	-	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report**Intersection 1: Orange Grove Ave (NS) at El Centro St (EW)**

Control Type:
Analysis Method:
Analysis Period:

All-way stop
HCM 6th Edition
1 hour

Delay (sec / veh):
Level Of Service:
Volume to Capacity (v/c):

9.4
A
0.292

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	23	51	6	143	34	26	12	120	9	7	98	76
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	4	3	4	1	0	1	2	0	5	2	6
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	56	9	150	36	27	13	124	9	12	102	84
Peak Hour Factor	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	15	2	39	9	7	3	33	2	3	27	22
Total Analysis Volume [veh/h]	24	59	9	158	38	28	14	130	9	13	107	88
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	715	730	732	777
Degree of Utilization, x	0.12	0.29	0.20	0.25

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.42	1.23	0.74	1.02
95th-Percentile Queue Length [ft]	10.52	30.76	18.62	25.55
Approach Delay [s/veh]	8.74	9.96	9.14	9.21
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	9.38			
Intersection LOS	A			

Intersection Level Of Service Report**Intersection 2: Orange Grove Ave (NS) at Monterey Rd (EW)**

Control Type:
Analysis Method:
Analysis Period:

Two-way stop
HCM 6th Edition
1 hour

Delay (sec / veh):
Level Of Service:
Volume to Capacity (v/c):

141.0
F
0.031

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	2	0	6	57	1	8	9	956	2	6	873	52
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	4	0	0	1	5	3	0	0	0	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	4	6	58	2	13	12	975	2	6	891	53
Peak Hour Factor	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	2	15	1	3	3	256	1	2	233	14
Total Analysis Volume [veh/h]	2	4	6	61	2	14	13	1022	2	6	934	56
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.06	0.01	0.67	0.03	0.02	0.02	0.01	0.00	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	50.29	65.95	15.03	126.88	141.01	92.00	9.98	0.00	0.00	10.08	0.00	0.00
Movement LOS	F	F	C	F	F	F	A	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	0.33	0.33	0.33	5.60	5.60	5.60	0.05	0.02	0.00	0.03	0.01	0.00
95th-Percentile Queue Length [ft/ln]	8.17	8.17	8.17	140.02	140.02	140.02	1.24	0.62	0.00	0.64	0.32	0.00
d_A, Approach Delay [s/veh]	37.88			121.06			0.12			0.06		
Approach LOS	E			F			A			A		
d_I, Intersection Delay [s/veh]	4.68											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Project Dwy (NS) at El Centro St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	13.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.026

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	285	0	0	270
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	12	17	1	8	13	1
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	17	292	8	13	276
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	4	77	2	3	73
Total Analysis Volume [veh/h]	13	18	307	8	14	291
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.02	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	13.09	10.12	0.00	0.00	7.86	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.15	0.15	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft/ln]	3.83	3.83	0.00	0.00	0.77	0.77
d_A, Approach Delay [s/veh]	11.35		0.00		0.35	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.70					
Intersection LOS	B					

Intersection Level Of Service Report**Intersection 4: Meridian Ave (NS) at El Centro St (EW)**

Control Type:
Analysis Method:
Analysis Period:

All-way stop
HCM 6th Edition
1 hour

Delay (sec / veh):
Level Of Service:
Volume to Capacity (v/c):

14.8
B
0.591

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	103	189	51	16	148	6	14	124	147	27	161	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	7	2	1	0	2	5	8	2	8	1	2	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	112	195	53	16	153	11	22	128	158	29	166	40
Peak Hour Factor	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460	0.8460
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	58	16	5	45	3	7	38	47	9	49	12
Total Analysis Volume [veh/h]	132	230	63	19	181	13	26	151	187	34	196	47
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	609	571	623	587
Degree of Utilization, x	0.59	0.32	0.50	0.40

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	4.20	1.37	2.89	1.98
95th-Percentile Queue Length [ft]	104.93	34.32	72.20	49.59
Approach Delay [s/veh]	17.36	12.21	14.42	13.23
Approach LOS	C	B	B	B
Intersection Delay [s/veh]	14.77			
Intersection LOS	B			

Intersection Level Of Service Report
Intersection 5: Meridian Ave (NS) at Monterey Rd (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.844

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	225.00	100.00	100.00	155.00	100.00	100.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	229	269	30	66	225	32	46	820	239	32	812	28
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	5	0	6	6	0	0	0	0	0	1	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	234	279	31	73	236	33	47	836	244	33	829	34
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	59	70	8	18	59	8	12	209	61	8	207	9
Total Analysis Volume [veh/h]	234	279	31	73	236	33	47	836	244	33	829	34
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.15	0.34	0.34	0.05	0.21	0.21	0.03	0.34	0.34	0.02	0.27	0.27
Intersection LOS	D											
Intersection V/C	0.844											

Seven Patios Mixed Use Project

Vistro File: C:\...\PME.vistro

Scenario 6 Opening Year (2022) With Project PM Peak Hour

Report File: C:\...\PMOYW.pdf

2/24/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Orange Grove Ave (NS) at El Centro St (EW)	All-way stop	HCM 6th Edition	SB Left	0.299	9.4	A
2	Orange Grove Ave (NS) at Monterey Rd (EW)	Two-way stop	HCM 6th Edition	SB Thru	0.078	155.5	F
3	Project Dwy (NS) at El Centro St (EW)	Two-way stop	HCM 6th Edition	NB Left	0.008	11.9	B
4	Meridian Ave (NS) at El Centro St (EW)	All-way stop	HCM 6th Edition	EB Right	0.407	11.4	B
5	Meridian Ave (NS) at Monterey Rd (EW)	Signalized	ICU 1	EB Thru	0.859	-	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report**Intersection 1: Orange Grove Ave (NS) at El Centro St (EW)**

Control Type:
Analysis Method:
Analysis Period:

All-way stop
HCM 6th Edition
1 hour

Delay (sec / veh):
Level Of Service:
Volume to Capacity (v/c):

9.4
A
0.299

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	23	51	6	143	34	26	12	120	9	7	98	76
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	5	6	4	1	0	3	0	2	1	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	54	11	152	39	28	12	125	9	9	101	80
Peak Hour Factor	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510	0.9510
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	14	3	40	10	7	3	33	2	2	27	21
Total Analysis Volume [veh/h]	24	57	12	160	41	29	13	131	9	9	106	84
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	718	733	732	776
Degree of Utilization, x	0.12	0.30	0.20	0.25

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.42	1.27	0.75	0.97
95th-Percentile Queue Length [ft]	10.46	31.79	18.63	24.27
Approach Delay [s/veh]	8.71	10.00	9.14	9.15
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	9.38			
Intersection LOS	A			

Intersection Level Of Service Report**Intersection 2: Orange Grove Ave (NS) at Monterey Rd (EW)**

Control Type:
Analysis Method:
Analysis Period:

Two-way stop
HCM 6th Edition
1 hour

Delay (sec / veh):
Level Of Service:
Volume to Capacity (v/c):

155.5
F
0.078

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+ +			+ +		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	2	0	6	57	1	8	9	956	2	6	873	52
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	0	0	4	2	5	1	0	0	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	2	6	58	5	10	14	976	2	6	891	53
Peak Hour Factor	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	2	15	1	3	4	256	1	2	233	14
Total Analysis Volume [veh/h]	2	2	6	61	5	10	15	1023	2	6	934	56
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.03	0.01	0.66	0.08	0.02	0.02	0.01	0.00	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	50.82	65.14	13.58	140.08	155.49	105.86	9.99	0.00	0.00	10.09	0.00	0.00
Movement LOS	F	F	B	F	F	F	A	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	0.22	0.22	0.22	6.09	6.09	6.09	0.06	0.03	0.00	0.03	0.01	0.00
95th-Percentile Queue Length [ft/ln]	5.47	5.47	5.47	152.33	152.33	152.33	1.46	0.73	0.00	0.64	0.32	0.00
d_A, Approach Delay [s/veh]	31.34			136.45			0.14			0.06		
Approach LOS	D			F			A			A		
d_I, Intersection Delay [s/veh]	5.17											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Project Dwy (NS) at El Centro St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	11.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.008

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	265	0	0	175
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	10	2	12	17	1
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	10	272	12	17	180
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	3	72	3	4	47
Total Analysis Volume [veh/h]	4	11	286	13	18	189
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	11.88	9.81	0.00	0.00	7.83	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.06	0.06	0.00	0.00	0.04	0.04
95th-Percentile Queue Length [ft/ln]	1.58	1.58	0.00	0.00	1.00	1.00
d_A, Approach Delay [s/veh]	10.40		0.00		0.68	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.56					
Intersection LOS	B					

Intersection Level Of Service Report**Intersection 4: Meridian Ave (NS) at El Centro St (EW)**

Control Type:	All-way stop	Delay (sec / veh):	11.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.407

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	56	111	43	23	171	10	4	124	137	36	109	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	9	2	2	0	1	7	5	2	5	2	2	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	66	115	46	23	175	17	9	128	145	39	113	40
Peak Hour Factor	0.9070	0.9070	0.9070	0.9070	0.9070	0.9070	0.9070	0.9070	0.9070	0.9070	0.9070	0.9070
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	32	13	6	48	5	2	35	40	11	31	11
Total Analysis Volume [veh/h]	73	127	51	25	193	19	10	141	160	43	125	44
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	652	646	694	649
Degree of Utilization, x	0.35	0.33	0.41	0.30

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.59	1.49	2.03	1.25
95th-Percentile Queue Length [ft]	39.74	37.19	50.87	31.33
Approach Delay [s/veh]	11.46	11.35	11.73	10.87
Approach LOS	B	B	B	B
Intersection Delay [s/veh]	11.40			
Intersection LOS	B			

Intersection Level Of Service Report
Intersection 5: Meridian Ave (NS) at Monterey Rd (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.859

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	225.00	100.00	100.00	155.00	100.00	100.00
Speed [mph]	25.00			25.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	248	144	57	52	271	23	27	864	213	50	728	33
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	7	0	4	5	0	0	1	0	0	1	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	253	154	58	57	281	23	28	882	217	51	744	41
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	63	39	15	14	70	6	7	221	54	13	186	10
Total Analysis Volume [veh/h]	253	154	58	57	281	23	28	882	217	51	744	41
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.16	0.29	0.29	0.04	0.23	0.23	0.02	0.34	0.34	0.03	0.25	0.25
Intersection LOS	D											
Intersection V/C	0.859											

APPENDIX E

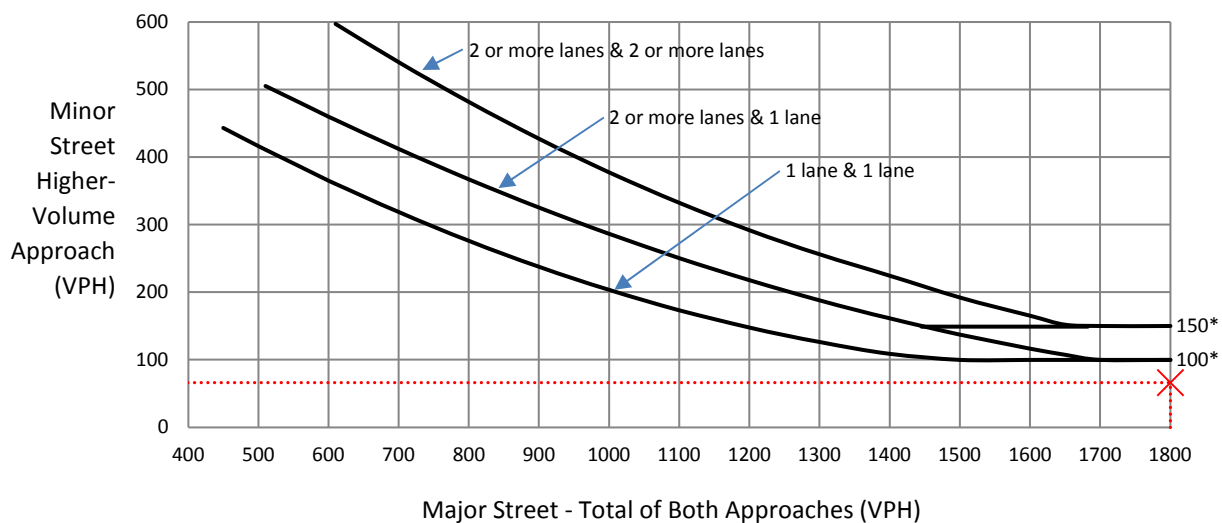
TRAFFIC SIGNAL WARRANT WORKSHEETS

Figure E-1

Orange Grove Ave (NS) / Monterey Rd (EW) - #2
Existing
AM Peak Hour

Major Street: <u>Monterey Rd</u>	Volume: <u>1898</u>
Minor Street: <u>Orange Grove Ave</u>	Volume: <u>66</u>

Warrant 3, Peak Hour Vehicular Volume (100% Factor)



Traffic Signal Warrant Is NOT Satisfied

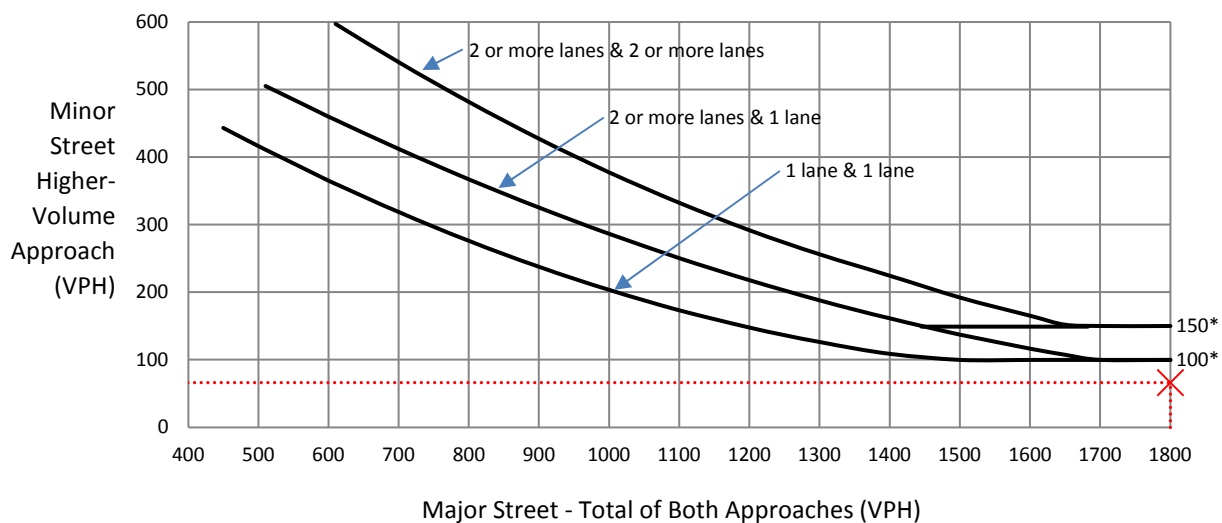
*Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with one lane.

Figure E-2

Orange Grove Ave (NS) / Monterey Rd (EW) - #2
Existing
PM Peak Hour

Major Street: <u>Monterey Rd</u>	Volume: <u>1898</u>
Minor Street: <u>Orange Grove Ave</u>	Volume: <u>66</u>

Warrant 3, Peak Hour Vehicular Volume (100% Factor)



Traffic Signal Warrant Is NOT Satisfied

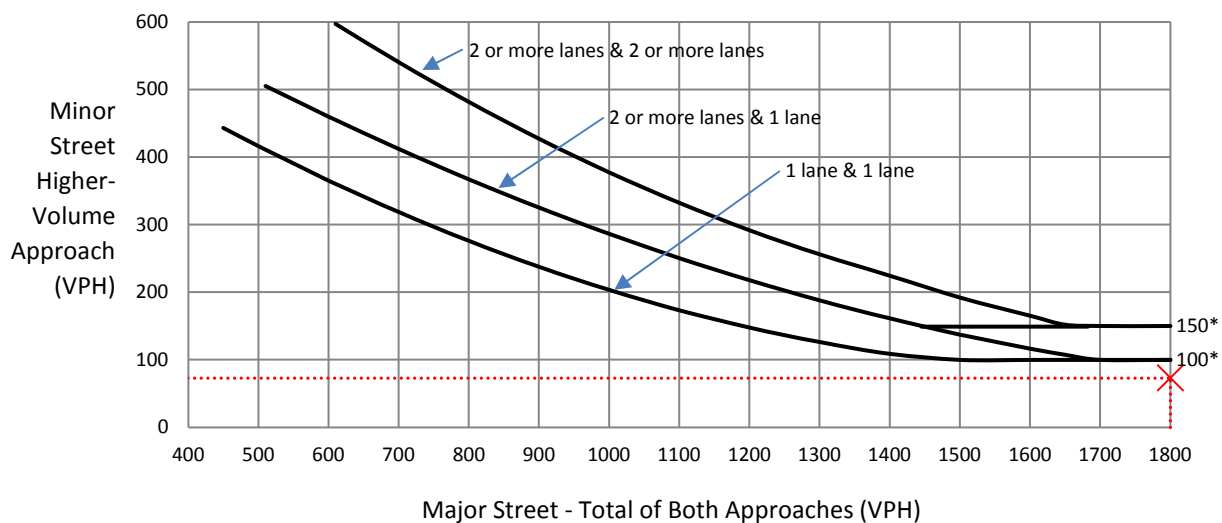
*Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with one lane.

Figure E-3

Orange Grove Ave (NS) / Monterey Rd (EW) - #2
Opening Year With Project
AM Peak Hour

Major Street: <u>Monterey Rd</u>	Volume: <u>1939</u>
Minor Street: <u>Orange Grove Ave</u>	Volume: <u>73</u>

Warrant 3, Peak Hour Vehicular Volume (100% Factor)



Traffic Signal Warrant Is NOT Satisfied

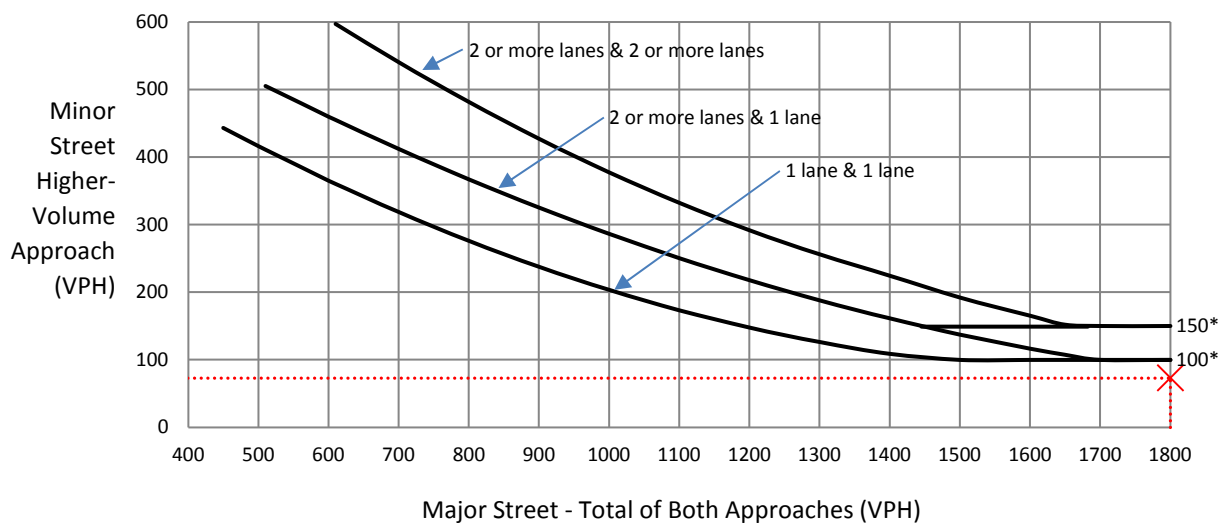
*Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with one lane.

Figure E-4

Orange Grove Ave (NS) / Monterey Rd (EW) - #2
Opening Year With Project
PM Peak Hour

Major Street: <u>Monterey Rd</u>	Volume: <u>1942</u>
Minor Street: <u>Orange Grove Ave</u>	Volume: <u>73</u>

Warrant 3, Peak Hour Vehicular Volume (100% Factor)



Traffic Signal Warrant Is NOT Satisfied

*Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with one lane.

**Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)**

Scenario: Opening Year With Project
 Major Street: Monterey Rd
 Minor Street: Orange Grove Ave

Critical Approach Speed 35 mph
 Critical Approach Speed n/a mph

Speed limit or critical speed on major street traffic > 40 mph
 or, in built up area of isolated community of <10,000 population

Rural

X

Urban

(Based on Estimated Average Daily Traffic - See Note)

CONDITION A - Minimum Vehicular Volume		Minimum Requirements EADT			
Satisfied _____ Not Satisfied <u>X</u>		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Number of lanes for moving traffic on each approach		Urban	Rural	Urban	Rural
Major Street	Minor Street				
1.....	1.....	8,000	5,600	2,400	1,680
2 or more.. 21,400	1..... 750	9,600	6,720	2,400	1,680
2 or more..	2 or more..	9,600	6,720	3,200	2,240
1.....	2 or more..	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied _____ Not Satisfied <u>X</u>					
Number of lanes for moving traffic on each approach		Urban	Rural	Urban	Rural
Major Street	Minor Street				
1.....	1.....	12,000	8,400	1,200	850
2 or more.. 21,400	1..... 750	14,400	10,080	1,200	850
2 or more..	2 or more..	14,400	10,080	1,600	1,120
1.....	2 or more..	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B		2 CONDITIONS 80%		2 CONDITIONS 80%	
Satisfied _____ Not Satisfied <u>X</u>		80% Condition A = 7,680		80% Condition A = 1,920	
No one condition satisfied, but the following conditions fulfilled 80% or more.....		80% Condition B = 11,520		80% Condition B = 960	
<u>No</u> <u>No</u> A B					

Note: To be used only for new intersections or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.



GANDDINI GROUP, INC.

550 Parkcenter Drive, Suite 202, Santa Ana, CA 92705
714.795.3100 | www.ganddini.com