POMONA MISSION 71 TRAFFIC IMPACT ANALYSIS (REVISED)

City of Pomona

July 17, 2019

gandini

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

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City of Pomona

July 17, 2019

prepared by

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EXECUTIVE SUMMARY

The purpose of this Traffic Impact Analysis (Revised) is to provide an assessment of traffic operations resulting from development of the proposed Pomona Mission 71 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 2020, at which time it is anticipated to be generating trips at its ultimate potential.

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 project site is located at 1626 & 1630 West Mission Boulevard in the City of Pomona. The currently vacant project site is proposed to be developed with 24 dwelling units of multi-family housing (low-rise). Project site access is proposed at Brea Canyon Road. For purposes of this analysis, the project is assumed to be fully operational by Year 2020.

EXISTING OPERATIONS

The study intersections currently operate within acceptable Levels of Service (D or better) during the peak hours for Existing conditions (see Table 1).

PROJECT TRIPS

The proposed project is forecast to generate approximately 176 daily trips, including 12 trips during the AM peak hour and 13 trips during the PM peak hour (see Table 2).

FORECAST OPERATIONS

Existing Plus Project Conditions: The study intersections are forecast to operate within acceptable Levels of Service (D or better) during the peak hours for Existing Plus Project conditions (see Table 3). Therefore, the proposed project is forecast to result in no significant traffic impact during the peak hours for Existing Plus Project conditions.

Opening Year (2020) Without Project: The study intersections are forecast to operate within acceptable Levels of Service (D or better) during the peak hours for Opening Year (2020) Without Project conditions (see Table 4).

Opening Year (2020) With Project: The study intersections are forecast to operate within acceptable Levels of Service (D or better) during the peak hours for Opening Year (2020) With Project conditions (see Table 5). Therefore, the proposed project is forecast to result in no significant traffic impact during the peak hours for Opening Year (2020) With Project conditions.

OFF-SITE MITIGATION MEASURES

No off-site mitigation measure improvements were identified since the proposed project is forecast to result in no significant traffic impacts at the study intersections for the scenarios analyzed.

GENERAL RECOMMENDATIONS

All roadway design, traffic signing and striping, and traffic control improvements relating to the proposed project should be constructed in accordance with applicable engineering standards to the satisfaction of the City of Pomona Public Works Department.

Site-adjacent roadways should be constructed at their ultimate half-section width, including landscaping and parkway improvements in conjunction with development, or as otherwise required by the City of Pomona Public Works Department.

On-site traffic signing and striping plans should be submitted for City of Pomona approval in conjunction with detailed construction plans for the project.

Off-street parking should be provided to meet City of Pomona Municipal Code requirements.

The final grading, landscaping, and street improvement plans should demonstrate that sight distance standards are met in accordance with applicable City of Pomona/California Department of Transportation sight distance standards.

As is the case for any roadway design, the City of Pomona should periodically review traffic operations in the vicinity of the project once the project is constructed to assure that the traffic operations are satisfactory.

1. INTRODUCTION

This section describes the purpose and objectives, project location, proposed development, and study area. Figure 1 shows the project location map and Figure 2 illustrates the project site plan.

PURPOSE AND OBJECTIVES

The purpose of this Traffic Impact Analysis (Revised) is to provide an assessment of traffic operations resulting from development of the proposed Pomona Mission 71 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 2020, at which time it is anticipated to be generating trips at its ultimate potential.

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STUDY AREA

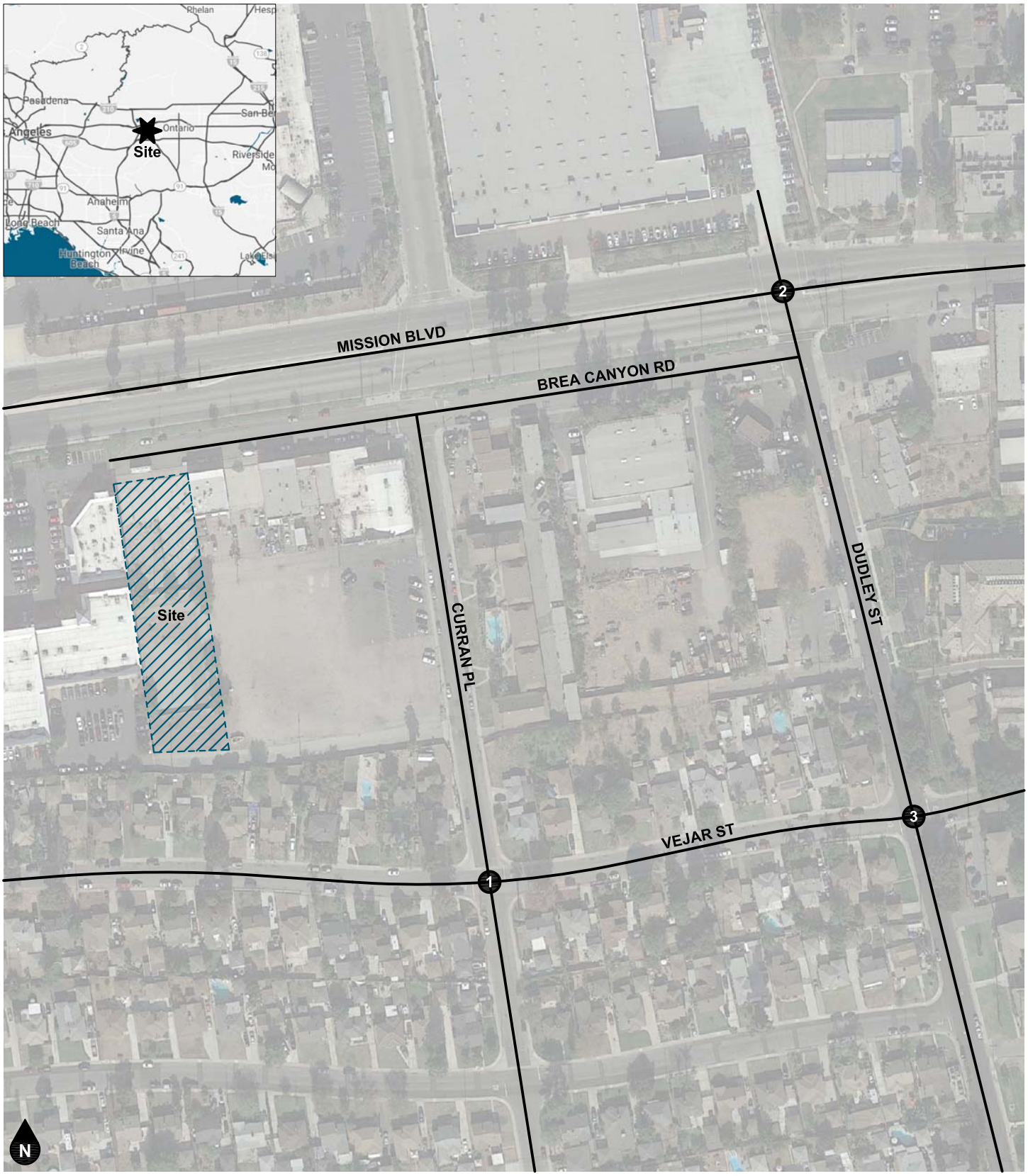
Based on the study intersections identified in the scoping agreement (Appendix B), the study area consists of the following study intersections within the City of Pomona:

Study Intersections	Jurisdiction
1. Curran Place (NS) at Vejar Street (EW)	City of Pomona
2. Dudley Street (NS) at Mission Boulevard (EW)	City of Pomona
3. Dudley Street (NS) at Vejar Street (EW)	City of Pomona

ANALYSIS SCENARIOS

The following scenarios are analyzed during typical weekday AM and PM peak hour conditions in accordance with the City of Pomona Traffic Impact Study Guidelines (February 2012):

- Existing Conditions
- Existing Plus Project Conditions
- Opening Year (2020) Without Project Conditions
- Opening Year (2020) With Project Conditions



Legend

(#) Study Intersection

Figure 1
Project Location Map

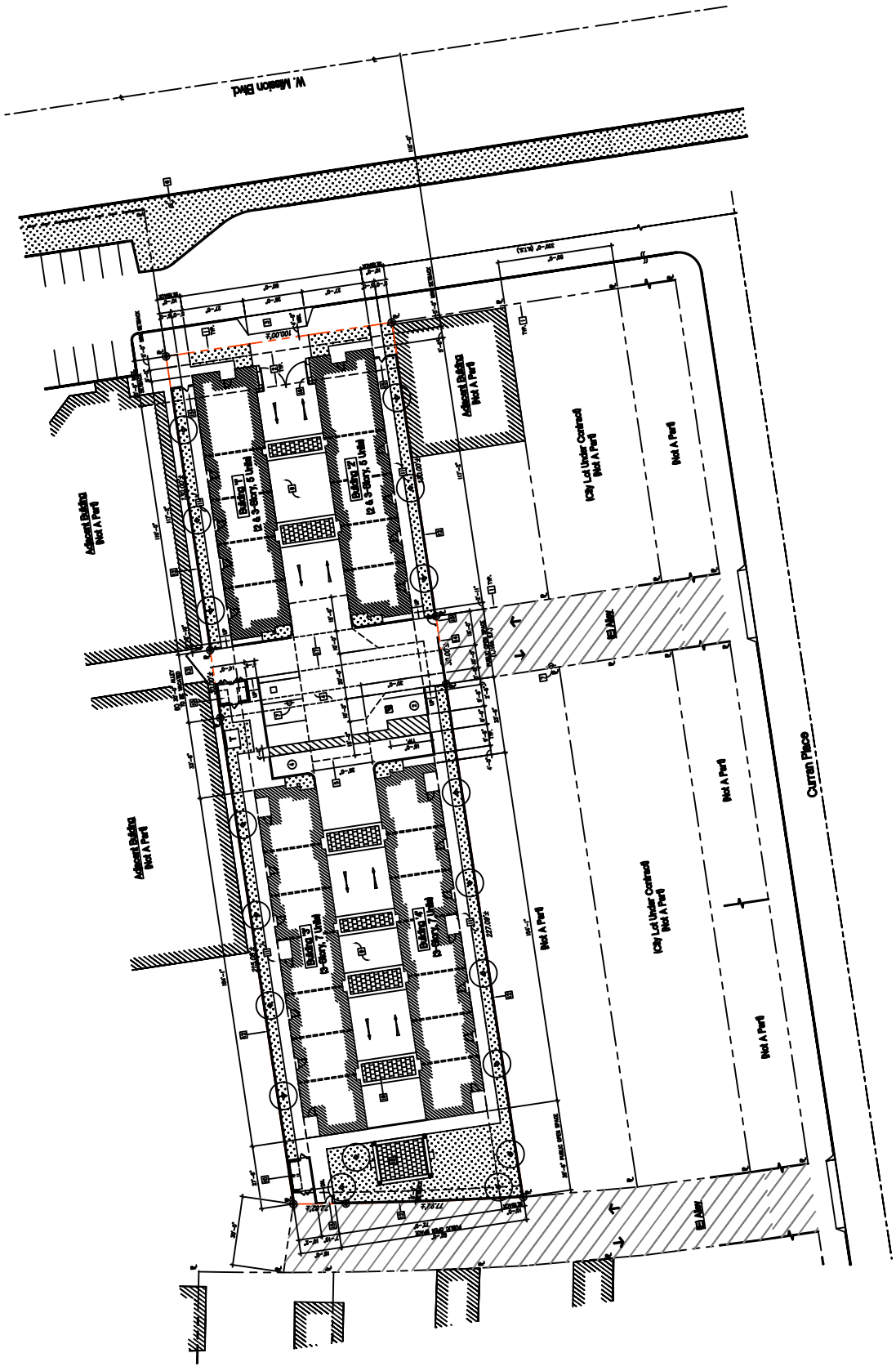


Figure 2
Site Plan

2. METHODOLOGY

This section discusses the analysis methodologies used to assess transportation facility performance as adopted by the respective jurisdictional agencies. The scope of this traffic impact analysis is based on the guidance provided in the City of Pomona Traffic Impact Study Guidelines (February 2012).

INTERSECTION DELAY METHODOLOGY

The technique used to assess the performance of intersections in the City of Pomona is known as the intersection delay methodology based on the procedures contained in the Highway Capacity Manual. The methodology compares the traffic volume using the intersection to the capacity of the intersection to calculate the delay associated with the traffic control at the intersection. The intersection delay is then correlated to a performance measure known as Level of Service based on the following thresholds:

Level of Service	Intersection Control Delay (Seconds / Vehicle)	
	Signalized Intersection	Unsignalized Intersection
A	≤ 10.0	≤ 10.0
B	> 10.0 to ≤ 20.0	> 10.0 to ≤ 15.0
C	> 20.0 to ≤ 35.0	> 15.0 to ≤ 25.0
D	> 35.0 to ≤ 55.0	> 25.0 to ≤ 35.0
E	> 55.0 to ≤ 80.0	> 35.0 to ≤ 50.0
F	> 80.0	> 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). Intersection delay analysis was performed using the Vistro (Version 6.00-00) software. The intersection Level of Service analysis has been performed in accordance with City of Pomona Traffic Impact Study Guidelines (February 2012), including optimized signal timing, lost time, and saturation flow rates.

If the paved lane width of a shared through/right turn lane is wide enough to permit a separate right turn, it is common practice for a right turn lane to be considered "de facto." To function as a de facto right turn lane there must be sufficient width for right turning vehicles to travel outside the through lane. This analysis uses a minimum lane width of 20 feet from curb to lane stripe.

The peak hour intersection turning movement volumes have been adjusted to peak 15 minute volumes for analysis purposes using the existing observed peak 15 minute to peak hour factors for all scenarios analyzed.

PERFORMANCE STANDARDS

Level of Service D is considered the minimum acceptable Level of Service for intersections within City of Pomona.

THRESHOLDS OF SIGNIFICANCE

Based on the performance standards established by the City of Pomona, a potentially significant transportation impact is defined to occur if:

Signalized Intersections:

- Any study intersection that is operating at a LOS 'A', 'B', 'C' or 'D' for any study scenario without project traffic in which the addition of project traffic causes the intersection to degrade to a LOS 'E' or 'F' shall mitigate that impact so as to bring the intersection back to at least LOS 'D'.

- Any study intersection that is operating at a LOS 'E' or 'F' for any study scenario without project traffic shall mitigate any impacts so as to bring the intersection back to the overall level of delay established prior to project traffic being added.

Unsignalized Intersections:

An impact is considered significant if the study determines that either section a) or both sections b) and c) occur.

- a) The addition of project related traffic causes the intersection to move from a LOS 'D' or better to a LOS 'E' or worse

  or
- b) The project contributes additional traffic to an intersection that is already projected to operate at an LOS 'E' or 'F' with background traffic (per Section 3.2 b))

  and
- c) One or both of the following conditions are met:
  1) The project adds ten (10) or more trips to any approach
  2) The intersection meets the peak hour traffic signal warrant after the addition of project traffic (per Section 3.2 c)).

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 State Route 71 (SR-71) west of the project site and Interstate 10 (I-10) north of the project site. The key north-south roadways providing local circulation are Curran Place and Dudley Street. The key east-west roadways providing local circulation are Mission Boulevard, Brea Canyon Road, and Vejar Street.

Curran Place is a two lane undivided roadway and is classified as a Local Street in the City of Pomona General Plan. On-street parking is generally permitted in the project area. No bicycle facilities are provided in the study area. Sidewalks are provided on both sides of the roadway.

Dudley Street is a two lane undivided roadway and is classified as a Minor Arterial in the City of Pomona General Plan. On-street parking is generally permitted in the study area. Dudley Street is an existing Bike Route with on-street "sharrow" bicycle markings. Sidewalks are provided on both sides of the roadway.

Mission Boulevard is a four lane divided roadway east of Dudley Street and a six lane divided roadway west of Dudley Street. On-street parking is prohibited in the project vicinity, except east of Dudley Street. No bicycle facilities are currently provided in the study area; however, Mission Boulevard is identified as a potential future bicycle facility. Sidewalks are provided on both sides of the roadway.

Brea Canyon Road is a two lane undivided frontage road and is not classified in the City of Pomona General Plan. On-street parking is generally permitted in the study area. No bicycle facilities are provided in the study area. Sidewalks are provided on the south side of the roadway.

Vejar Street is a two lane undivided roadway and is classified as a Local Street in the City of Pomona General Plan. On-street parking is generally permitted in the project area. No bicycle facilities are provided in the study area. Sidewalks are provided on both sides of the roadway.

PEDESTRIAN FACILITIES

Existing pedestrian facilities in the project vicinity are shown on Figure 4. A pedestrian sidewalk is currently provided along the north project site frontage on Brea Canyon Road.

BICYCLE ROUTES

Dudley Street is an existing Bike Route with on-street "sharrow" bicycle markings. Mission Boulevard is a identified as a potential future bicycle facility in the City of Pomona General Plan. The City of Pomona bicycle route map is illustrated on Figure 5.

TRUCK ROUTES

The City of Pomona truck route map is illustrated on Figure 6.

TRANSIT FACILITIES

Figure 7 shows the existing transit routes available in the project vicinity. The study area is currently served by Foothill Transit Routes 286 and 480 along Mission Boulevard.

GENERAL PLAN CONTEXT

Figure 8 shows the City of Pomona General Plan Mobility and Access Component roadway 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. The City of Pomona standard roadway cross-sections are illustrated on Figure 9.

EXISTING ROADWAY VOLUMES

Figure 10 shows the Existing average daily traffic volumes. The Existing average daily traffic volumes have been factored from peak hour intersection turning movement volumes using the following formula for each intersection leg:

Evening Peak Hour (Approach Volume + Exit Volume) x 10 = Leg Volume.

Existing peak hour intersection turning movement volumes are based upon AM peak period and PM peak period intersection turning movement counts obtained in February 2019 during typical weekday conditions. The AM peak period was counted between 7:00 AM and 9:00 AM and the PM 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 PM 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.

Figure 11 and Figure 12 show the Existing AM and PM peak hour intersection turning movement volumes.

EXISTING INTERSECTION LEVEL OF SERVICE

The intersection Levels of Service for Existing conditions have been calculated and are shown in Table 1. Existing intersection Level of Service worksheets are provided in Appendix D.

The study intersections currently operate within acceptable Levels of Service (D or better) during the peak hours for Existing conditions (see Table 1).

Table 1
Existing Intersection Delay and Levels of Service

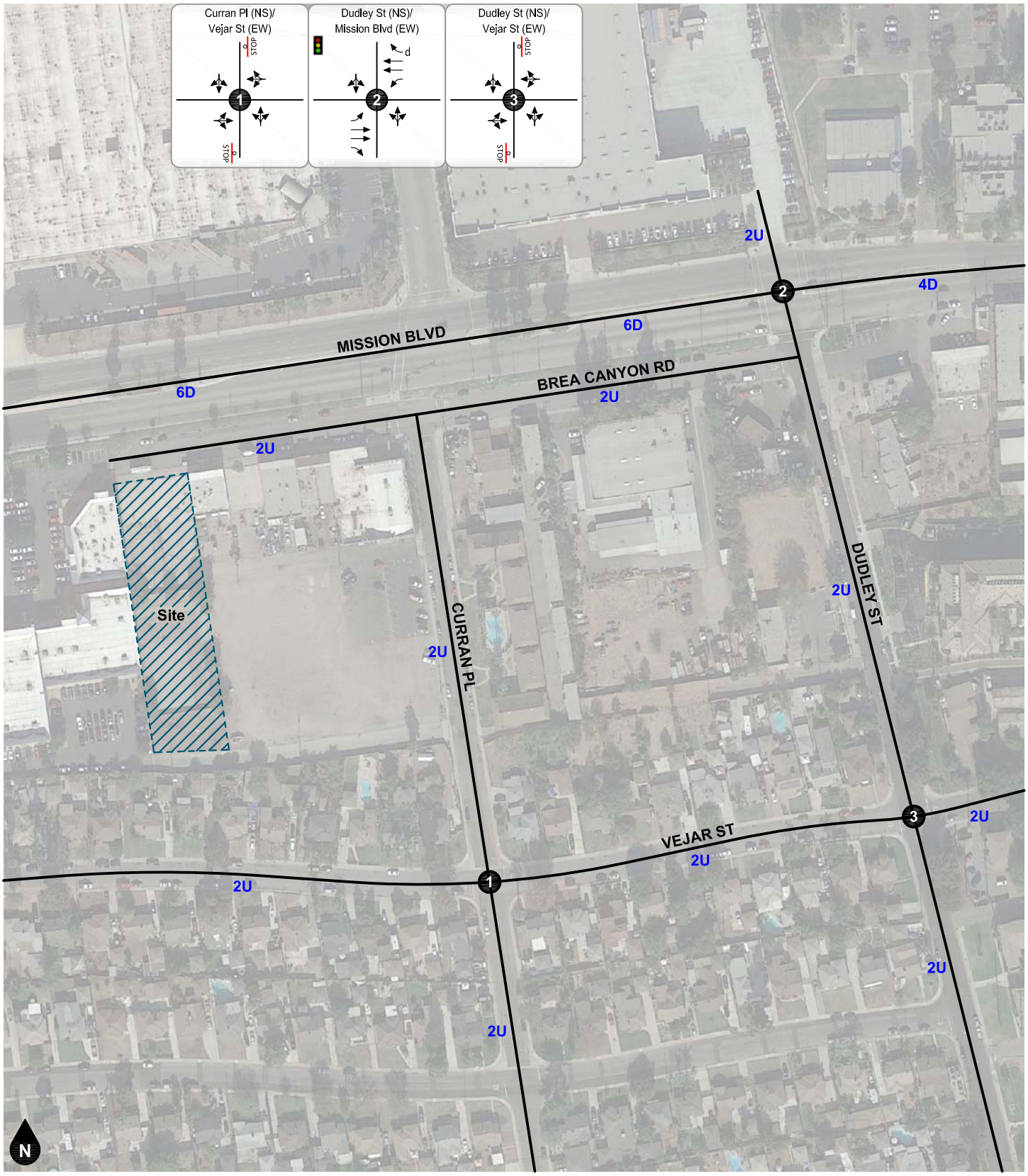
ID	Study Intersection	Traffic Control[1]	AM Peak Hour		PM Peak Hour	
			Delay[2]	LOS[3]	Delay[2]	LOS[3]
1.	Curran Place at Vejar Street	CSS	10.7	B	10.0	B
2.	Dudley Street at Mission Boulevard	TS	25.5	C	14.7	B
3.	Dudley Street at Vejar Street	CSS	21.0	C	18.9	C

Notes:

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

(2) Delay is shown in seconds/vehicle. For intersections with traffic signal or 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).

(3) LOS = Level of Service



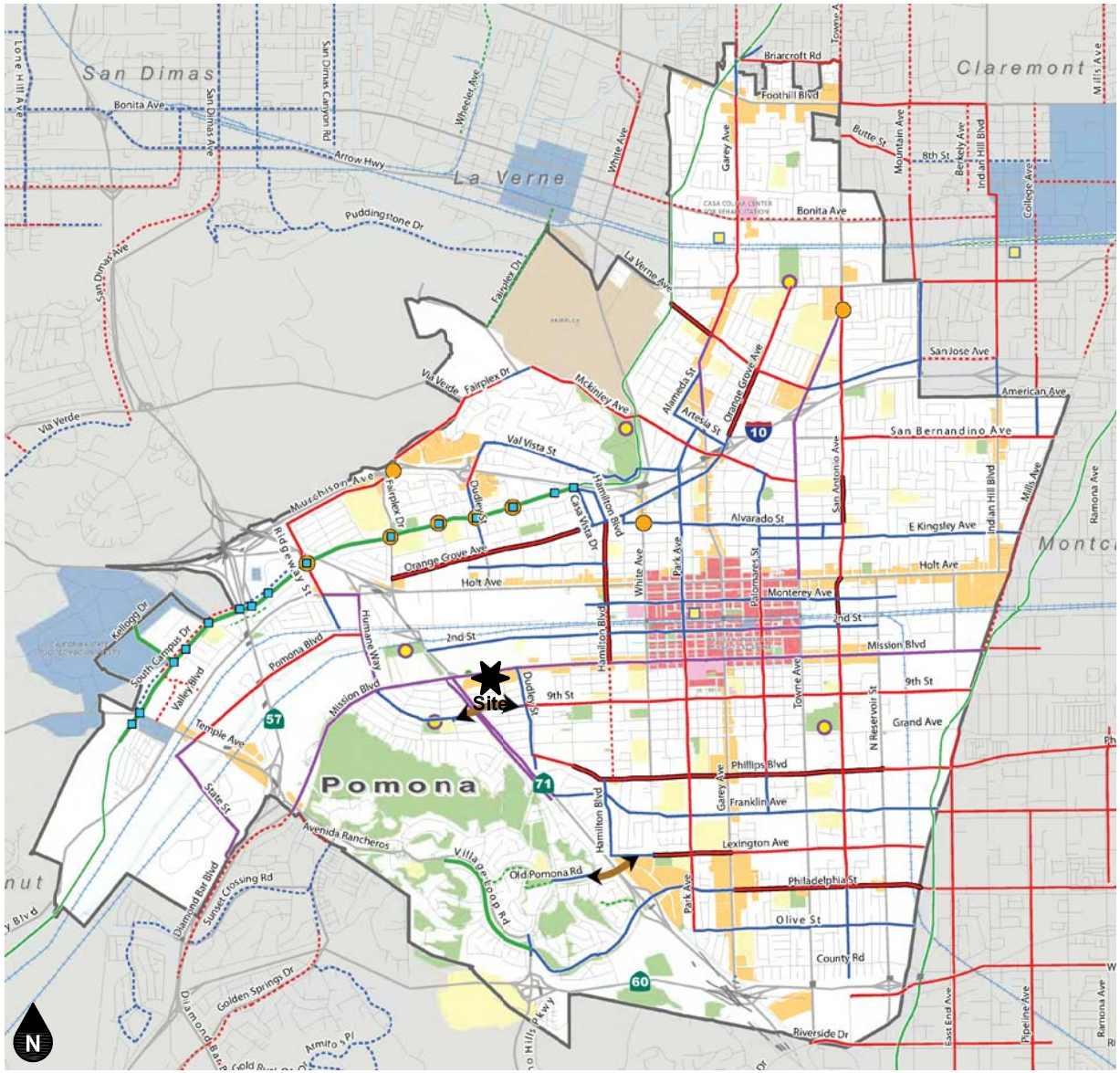
Legend

- Traffic Signal
- STOP Stop Sign
- #D #-Lane Divided Roadway
- #U #-Lane Undivided Roadway
- Existing Lane
- d De Facto Right Turn Lane

Figure 3
Existing Lane Geometry and Intersection Traffic Controls

Legend
- Sidewalk
- Cross Walk
- B Bus Stop

Figure 4
Existing Pedestrian Facilities



Potential Future Connection
Bike Path Access Points
Intersection / Crossing Improvements

Proposed Bike Facilities

Bike Path
Bike Path (Long Term)
Bike Lane
Bike Route
Bike Lane After Road Diet
Bike Lane After Removal of Parking
Potential Future Bike Facilities
Transit Centers
Day Labor Center
Bridges
Community Centers

Existing Bike Facilities

Bike Path
Bike Lane
Bike Route
City Boundary

Zoning / Land Use

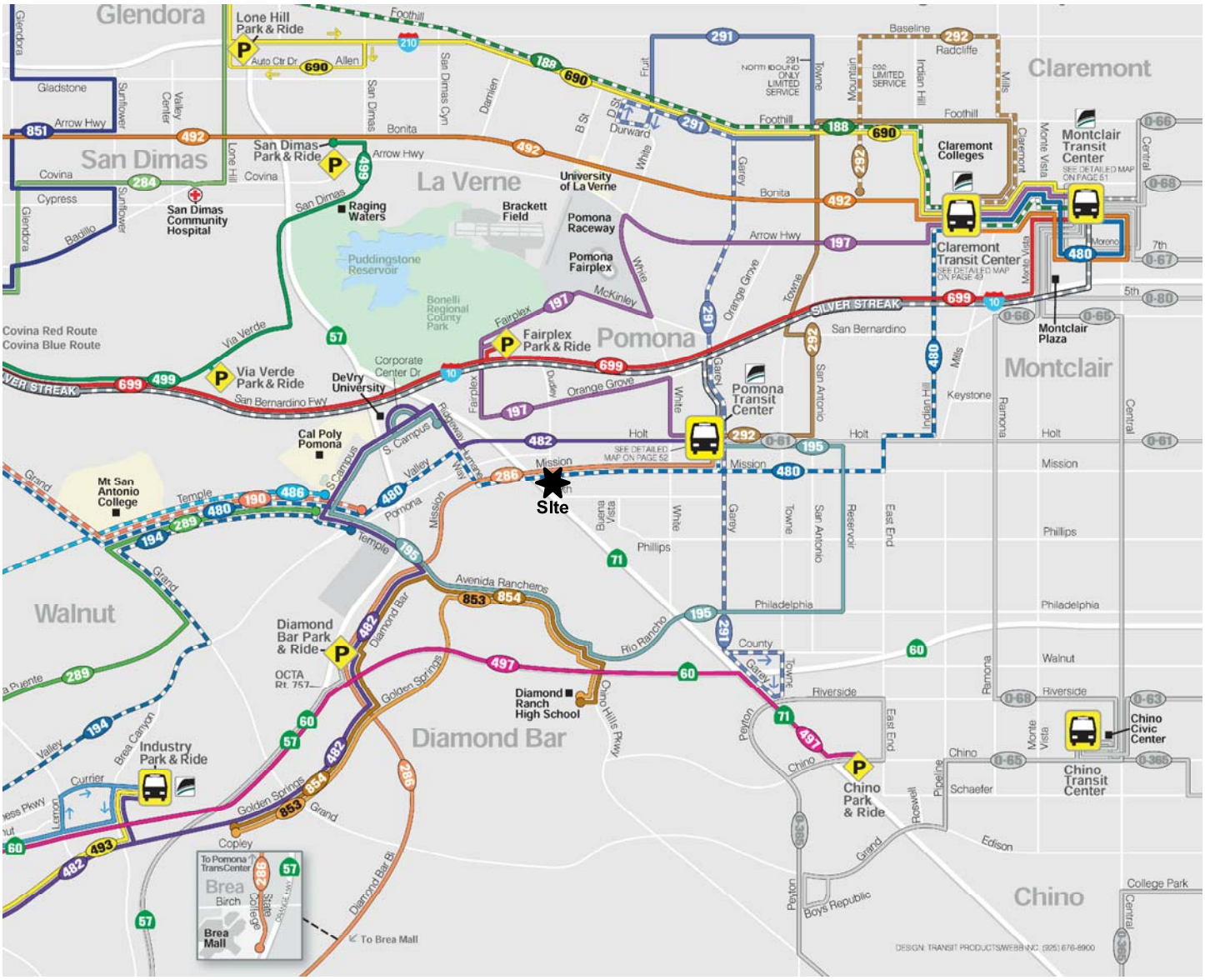
Commercial
Parks, Open Spaces, Vacant
Civic Center / Public Buildings
Fairplex
Schools
Universities
Downtown Specific Plan Area

Figure 5
City of Pomona Bicycle Routes

Source: City of Pomona

Figure 6
City of Pomona Truck Routes

Source: City of Pomona



ROUTE DESIGNATIONS

Foothill Transit lines are shown with solid route lines

Foothill Transit lines with *stops* ***every 20 minutes or less*** *during weekday service* on local routes are shown with dashed lines

Other transit lines are shown with light gray route lines

Metro routes have an "M" in the route symbol

Omitrans routes have an "O" in the route symbol

Pasadena routes have a "P" in the route symbol

INFORMATION ABOUT OTHER TRANSIT AGENCIES IS LOCATED ON PG.48 OF THE BUS BOOK

N

Figure 7
Existing Transit Routes

Source: Foothill Transit

Figure 8
City of Pomona General Plan Mobility and Access Component

Source: City of Pomona

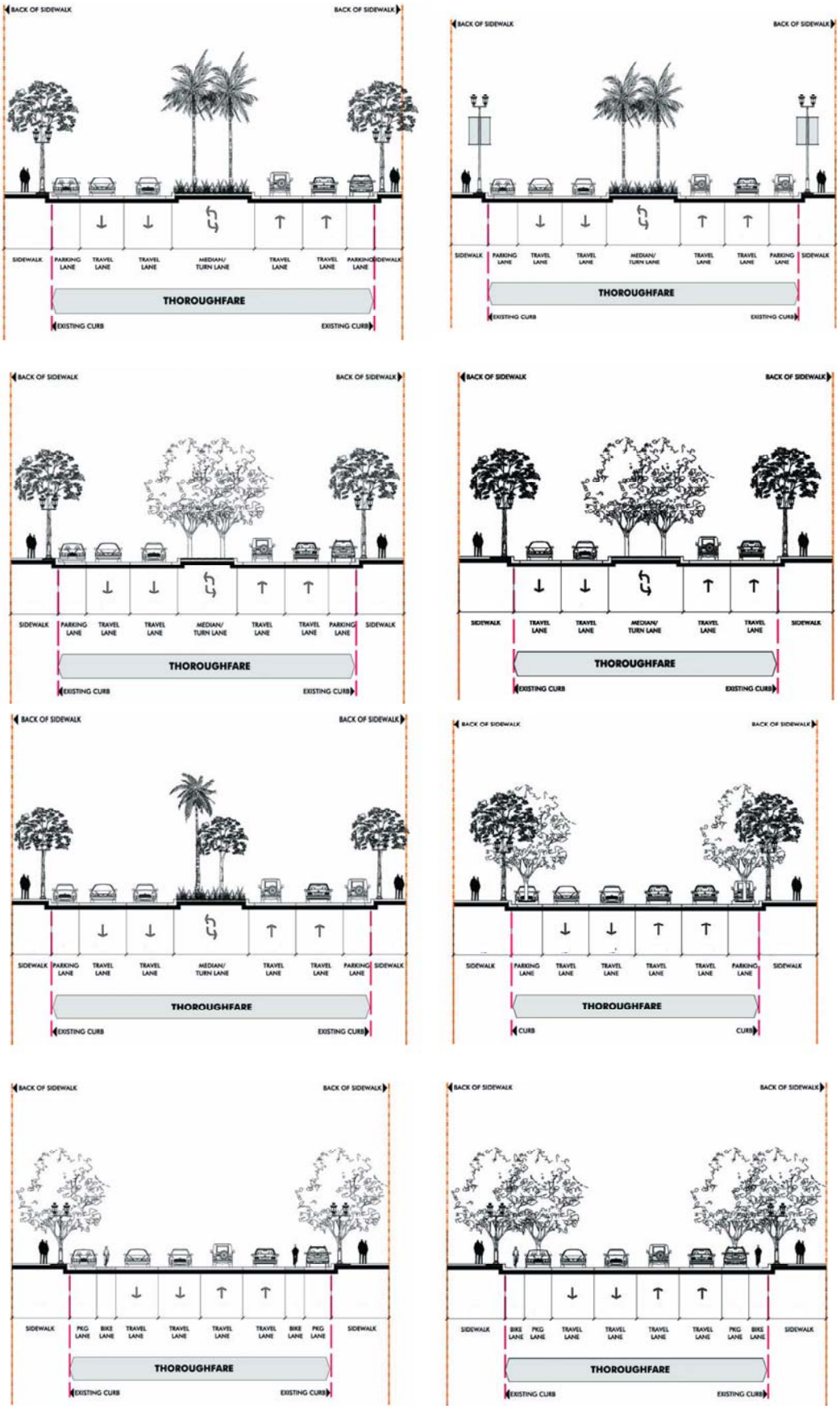
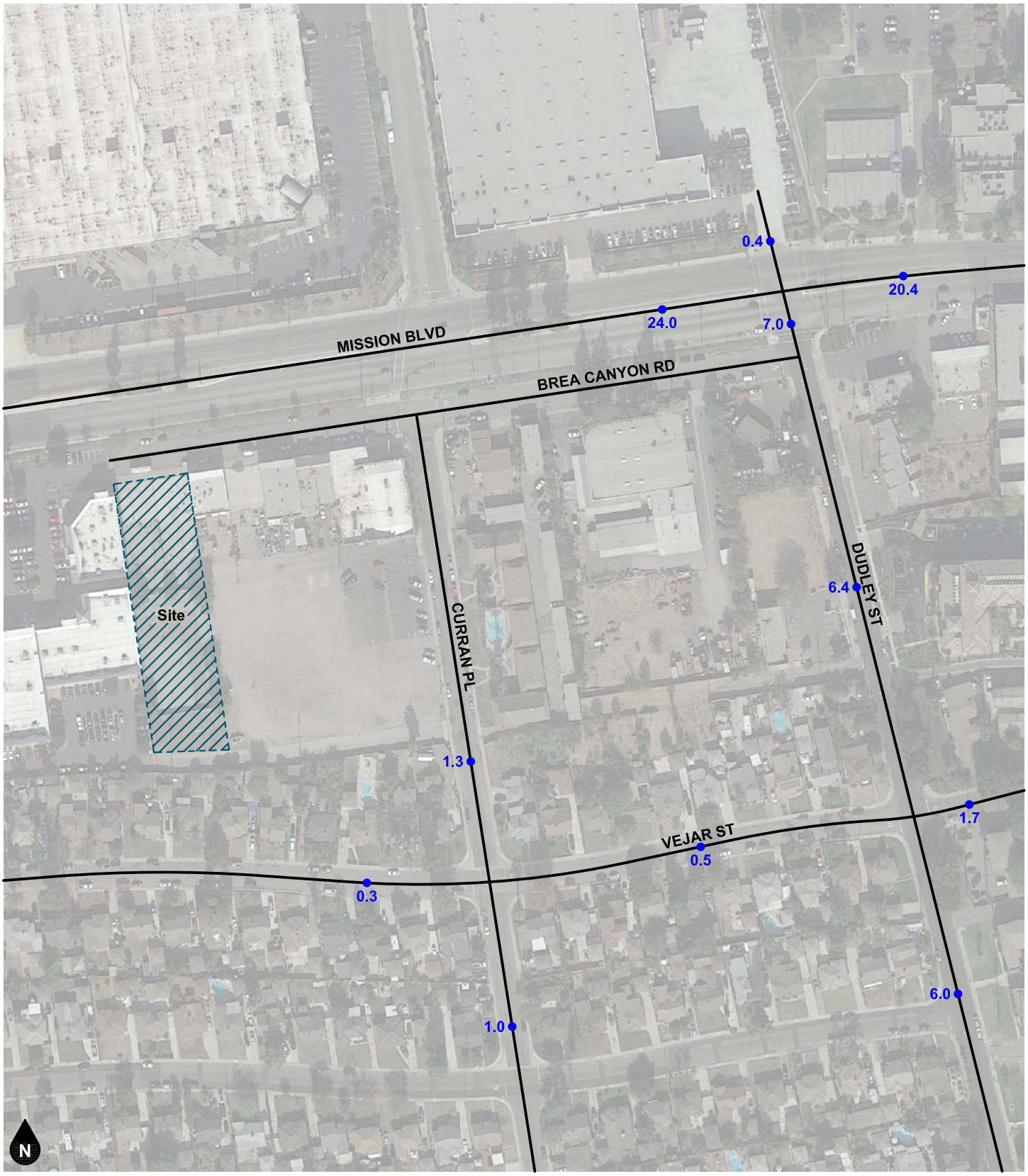


Figure 9
City of Pomona General Plan Roadway Cross-Sections

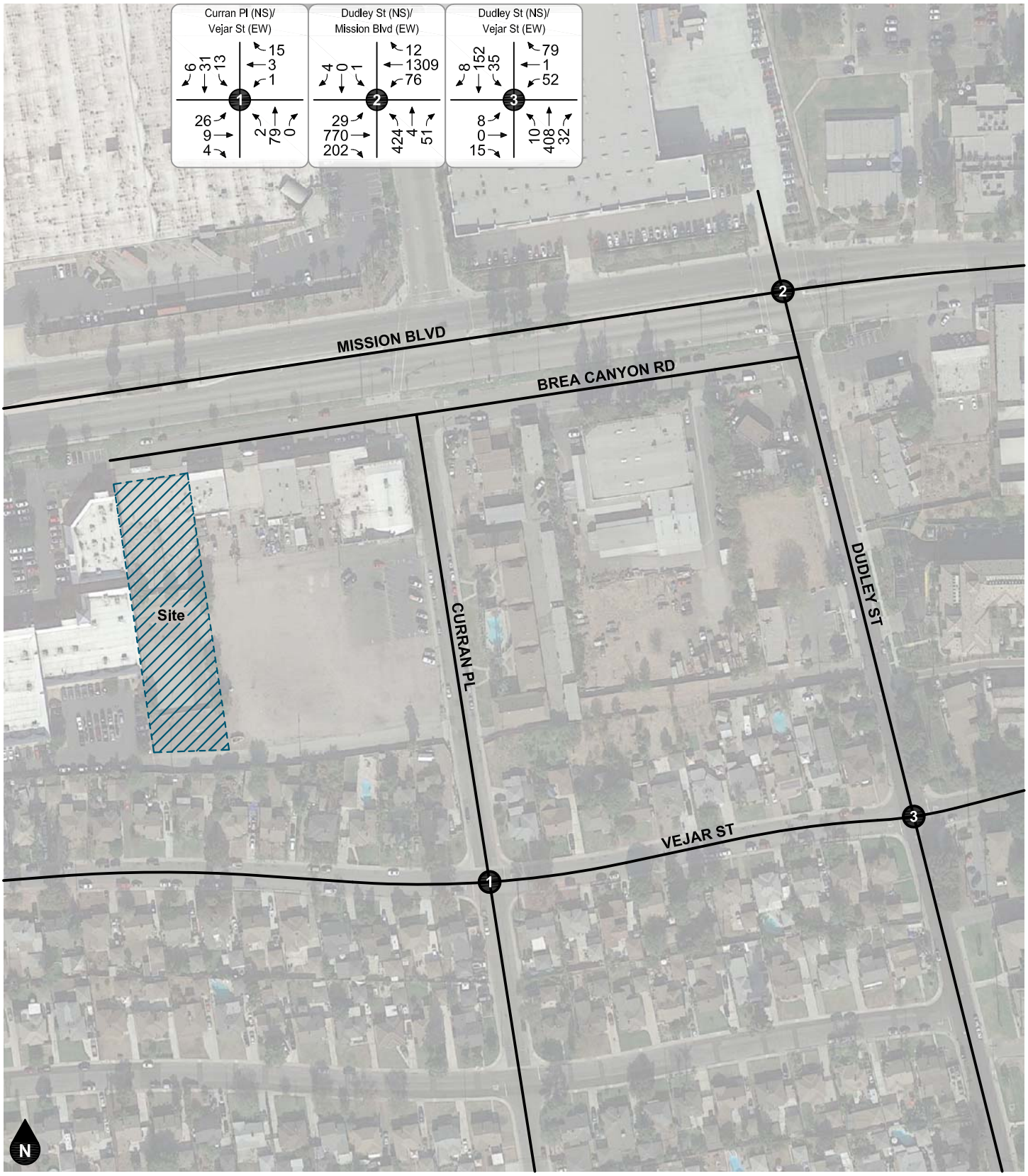
Source: City of Pomona



Legend

●## Vehicles Per Day (1,000's)

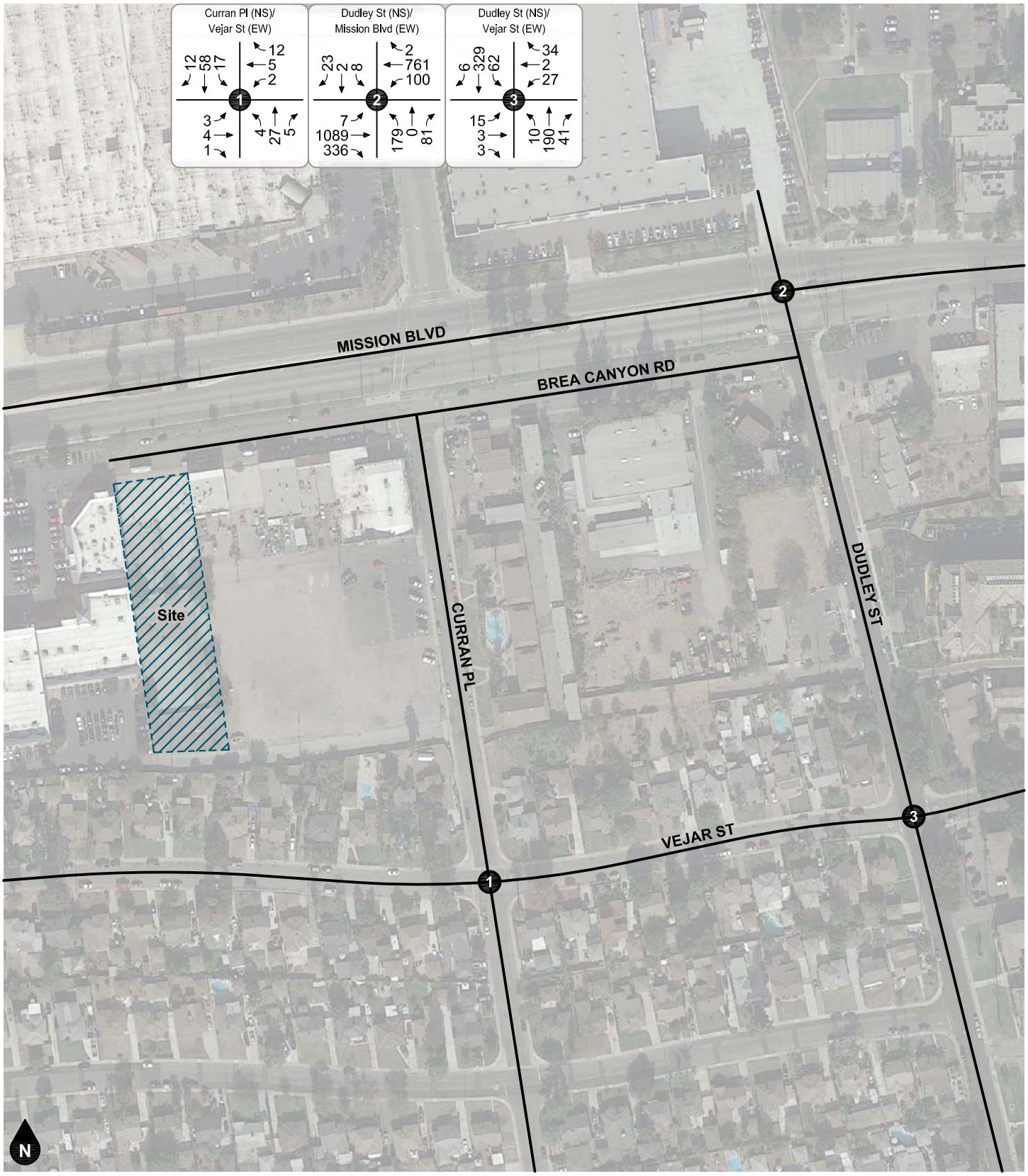
Figure 10
Existing Average Daily Traffic Volumes



Legend

(#) Study Intersection

Figure 11
Existing AM Peak Hour Intersection Turning Movement Volumes



Legend

(#) Study Intersection

Figure 12
Existing PM Peak Hour Intersection Turning Movement Volumes

4. PROJECT TRIP FORECASTS

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

PROJECT TRIP GENERATION

Table 2 shows the project trip generation based upon trip generation rates obtained from the Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017. Trip generation rates for Land Use Code 220 (Multifamily Residential (Low-Rise)) were used for the proposed project. Trip generation rates were determined for daily trips, AM peak hour trips, and PM peak hour trips for the proposed land use. The number of trips forecast to be generated by the proposed lane use is determined by multiplying the trip generation rates by the land use quantity.

As shown in Table 2, the proposed project is forecast to generate approximately 176 daily trips, including 12 trips during the AM peak hour and 13 trips during the PM peak hour.

PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

Figure 13 shows the forecast directional distribution patterns for the project. The project trip distribution patterns were determined in consultation with City of Pomona 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 14. The AM and PM peak hour intersection turning movement volumes expected from the project are depicted on Figure 15 and Figure 16.

Table 2
Project Trip Generation

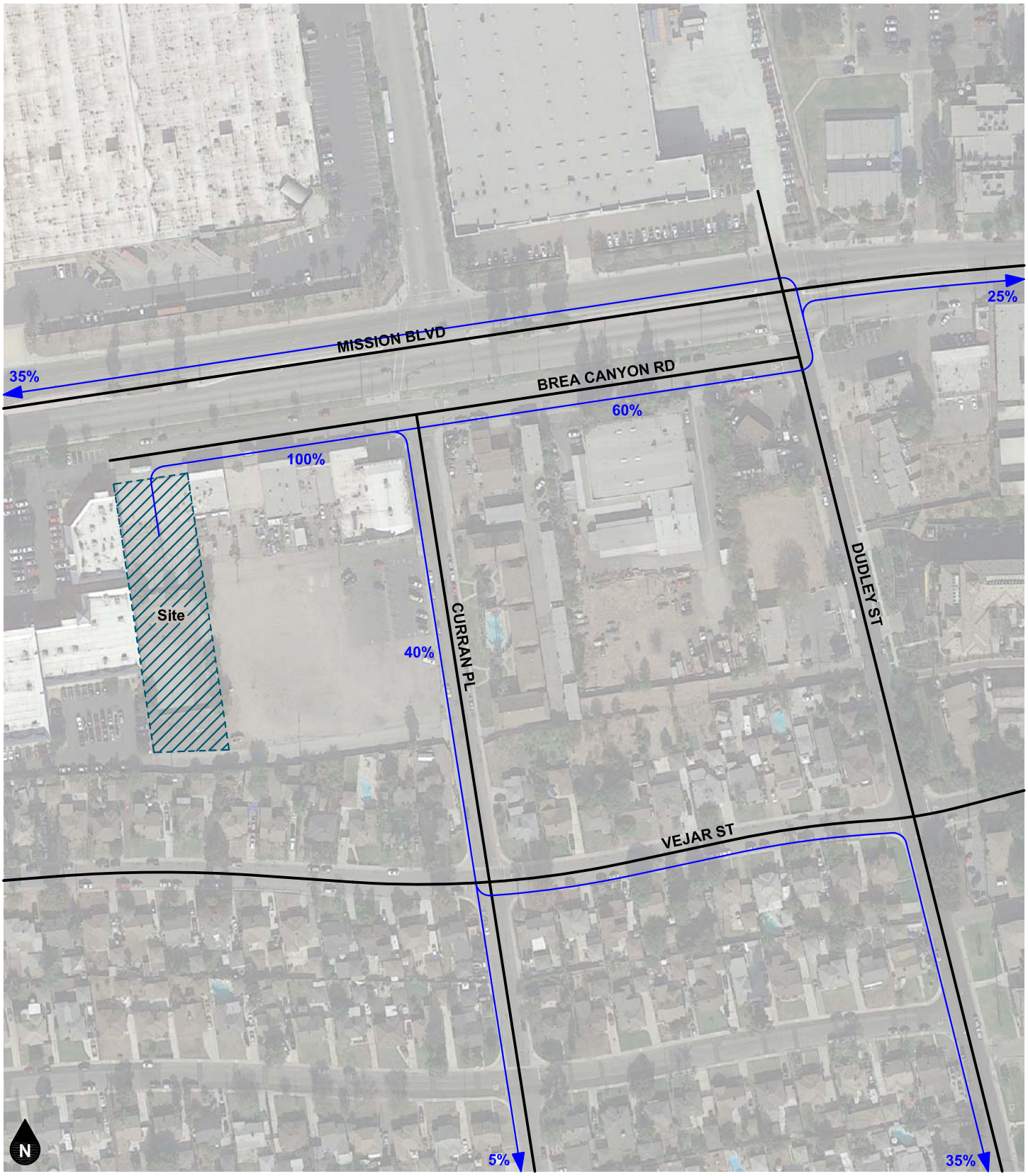
Trip Generation Rates									
			AM Peak Hour			PM Peak Hour			
Land Use	Source[1]	Unit[2]	% In	% Out	Rate	% In	% Out	Rate	Daily Rate
Multi-Family Housing (Low-Rise)	ITE 220	DU	23%	77%	0.46	63%	37%	0.56	7.32

Trips Generated									
			AM Peak Hour			PM Peak Hour			
Land Use	Quantity	Unit[2]	In	Out	Total	In	Out	Total	Daily
Multi-Family Housing (Low-Rise)	24	DU	**3**	**9**	**12**	**8**	**5**	**13**	**176**

Notes:

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

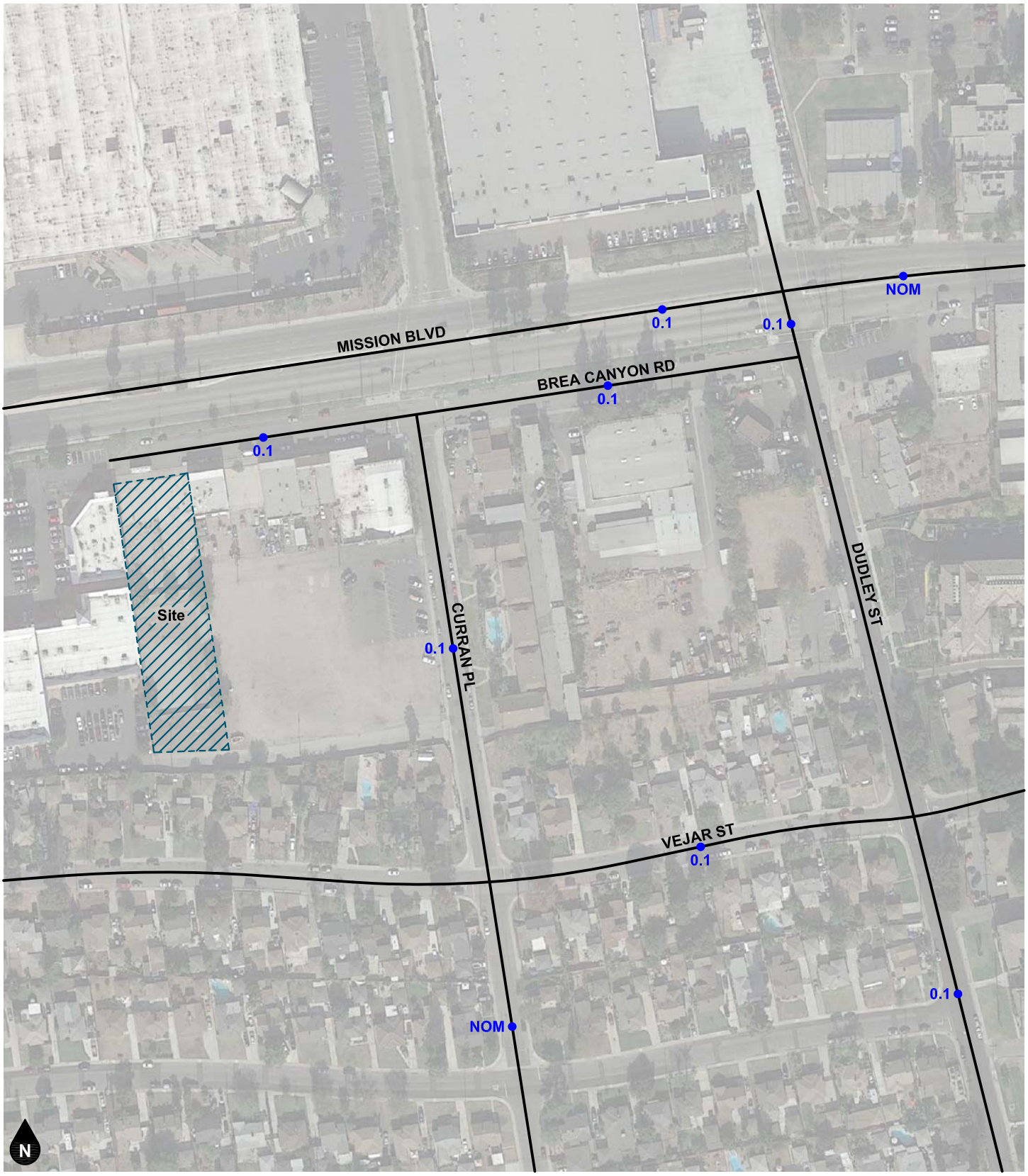
(2) DU = Dwelling Units



Legend

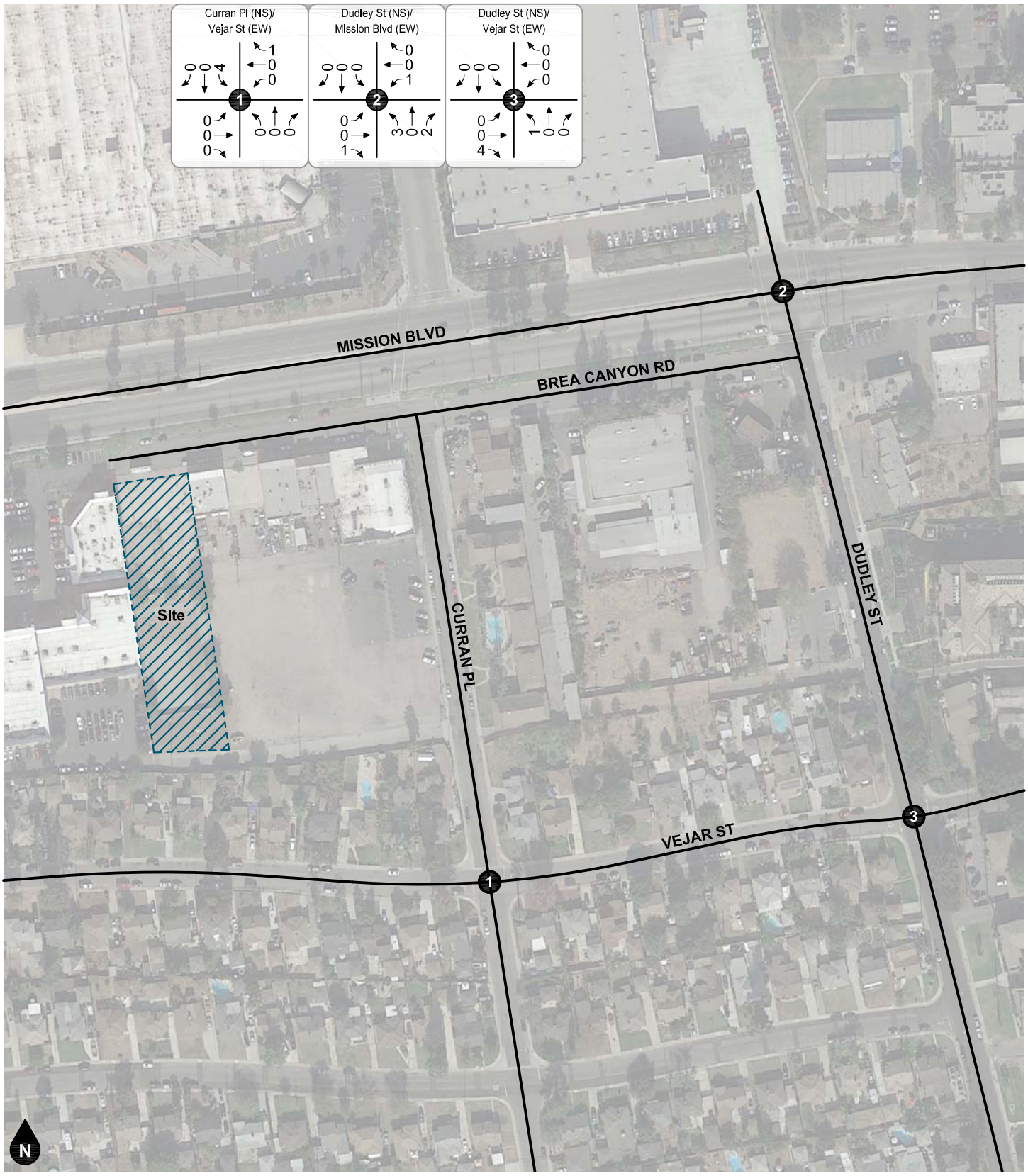
10% Percent To/From Project

Figure 13
Project Trip Distribution



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

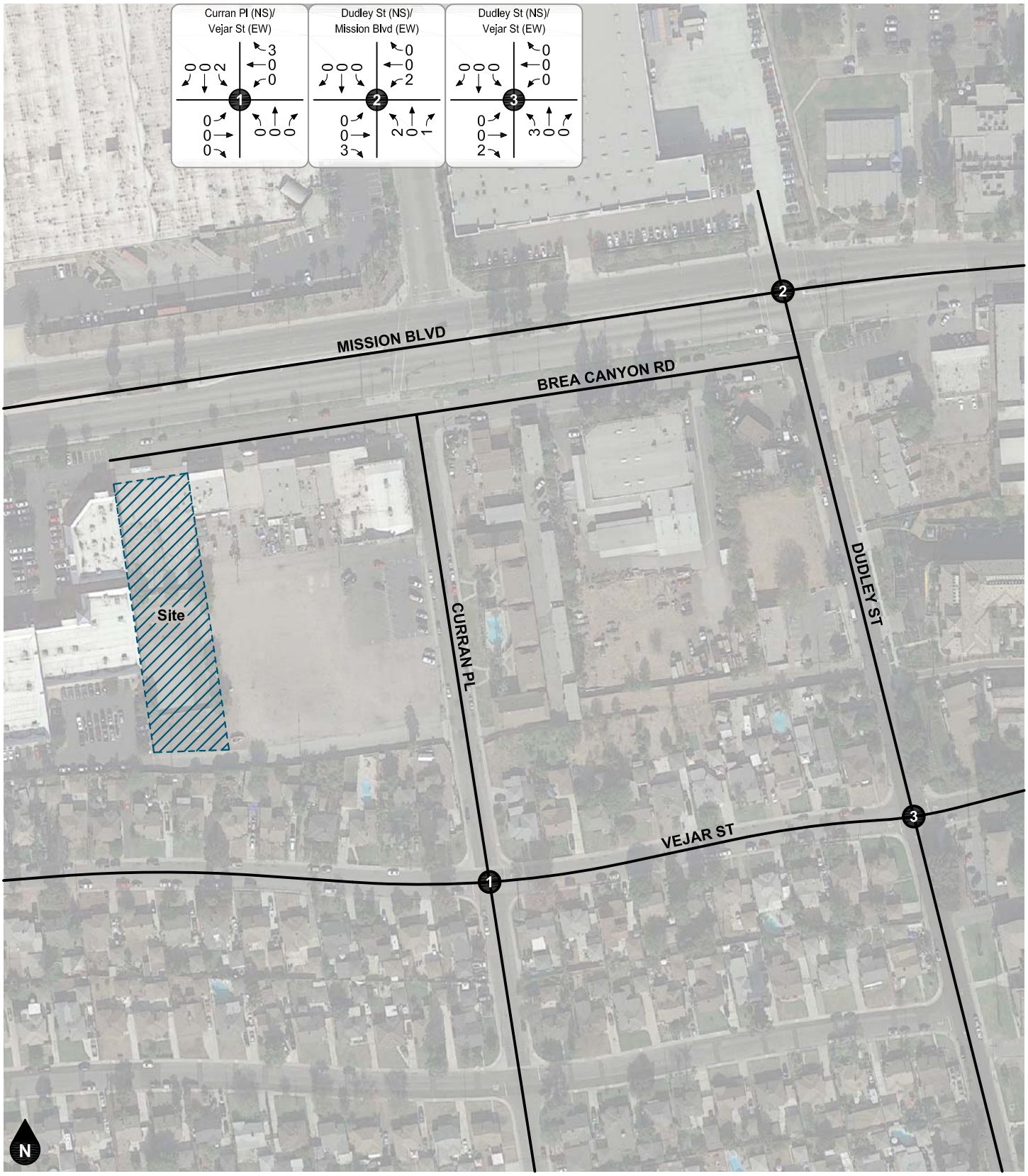
Figure 14
Project Average Daily Traffic Volumes



Legend

(#) Study Intersection

Figure 15
Project AM Peak Hour Intersection Turning Movement Volumes



Legend

(#) Study Intersection

Figure 16
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.

METHOD OF PROJECTION

To assess future traffic conditions, existing volumes are combined with project trips, ambient growth, and other development trips (as necessary). The opening year for analysis purposes in this report is 2020.

Ambient Growth

To account for ambient growth on roadways, existing volumes were increased by a growth rate of two percent (2%) per year over a two-year period. This equates to a total growth factor of approximately 1.04. The ambient growth was conservatively applied to all movements at the study intersections.

Other Development

According to the City of Pomona Traffic Impact Study Guidelines (February 2012):

> "For developments projected to generate fewer than 200 gross peak hour trips, the future project opening year base traffic volumes shall be estimated using an annual growth factor of two (2) percent per year or as directed by the City Traffic Engineer.
>
> If the project is expected to generate over 200 gross peak hour trips, the Project's Opening Year Background Traffic should include an annual ambient growth factor as determined by the City Traffic Engineer plus cumulative projects (i.e. development projects that have been approved by the City but have not yet been fully occupied)."

Since the proposed project is projected to generate fewer than 200 gross peak hour trips, the two percent annual growth factor has been utilized to account for other development.

ANALYSIS SCENARIO VOLUME FORECASTS

Existing Plus Project

Existing Plus Project volume forecasts were developed by adding the project generated trips to Existing volumes. Existing Plus Project average daily traffic volumes are shown on Figure 17. Existing Plus Project AM and PM peak hour intersection turning movement volumes are shown on Figure 18 and Figure 19.

Opening Year (2020) Without Project

Opening Year (2020) Without Project volume forecasts were developed by adding ambient growth to Existing volumes. Opening Year (2020) Without Project average daily traffic volumes are shown on Figure 20. Opening Year (2020) Without Project AM and PM peak hour intersection turning movement volumes are shown Figure 21 and Figure 22.

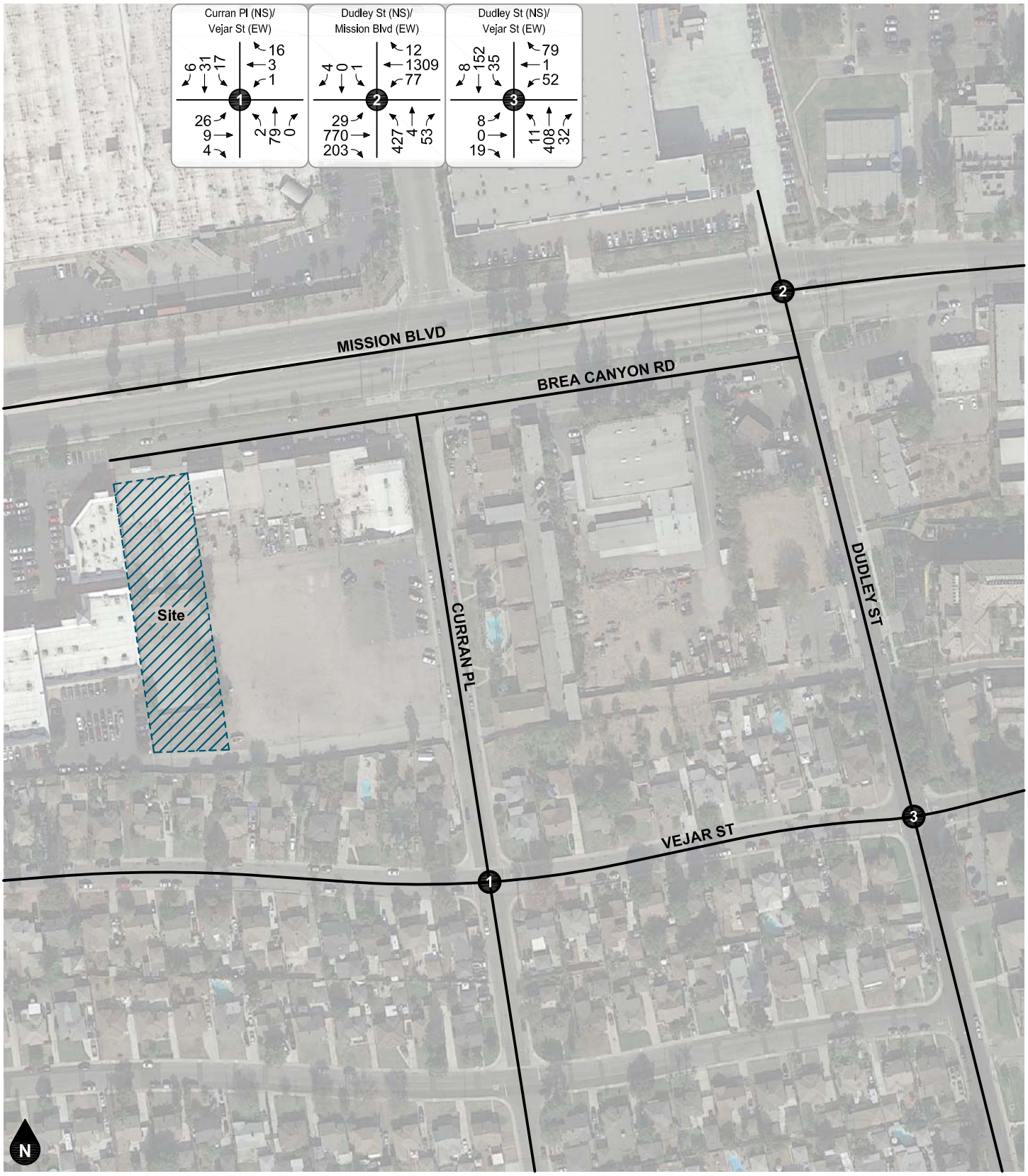
Opening Year (2020) With Project

Opening Year (2020) With Project volumes were developed by adding project generated trips to the Opening Year (2020) Without Project forecast volumes. Opening Year (2020) With Project average daily traffic volumes are shown on Figure 23. Opening Year (2020) With Project AM and PM peak hour intersection turning movement volumes are shown on Figure 24 and Figure 25.

Legend

●## Vehicles Per Day (1,000's)

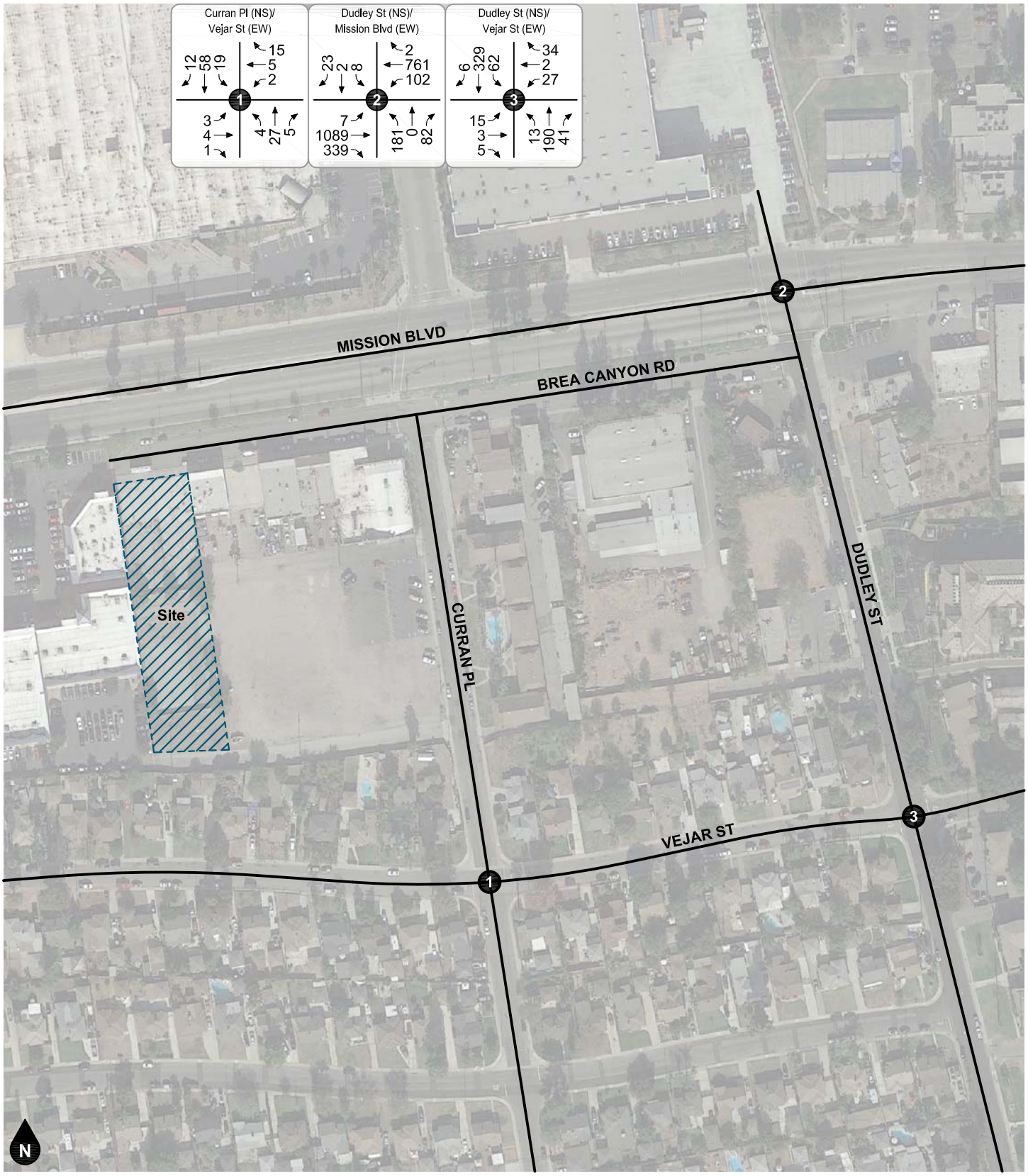
Figure 17
Existing Plus Project Average Daily Traffic Volumes



Legend

(#) Study Intersection

Figure 18
Existing Plus Project
AM Peak Hour Intersection Turning Movement Volumes



Legend

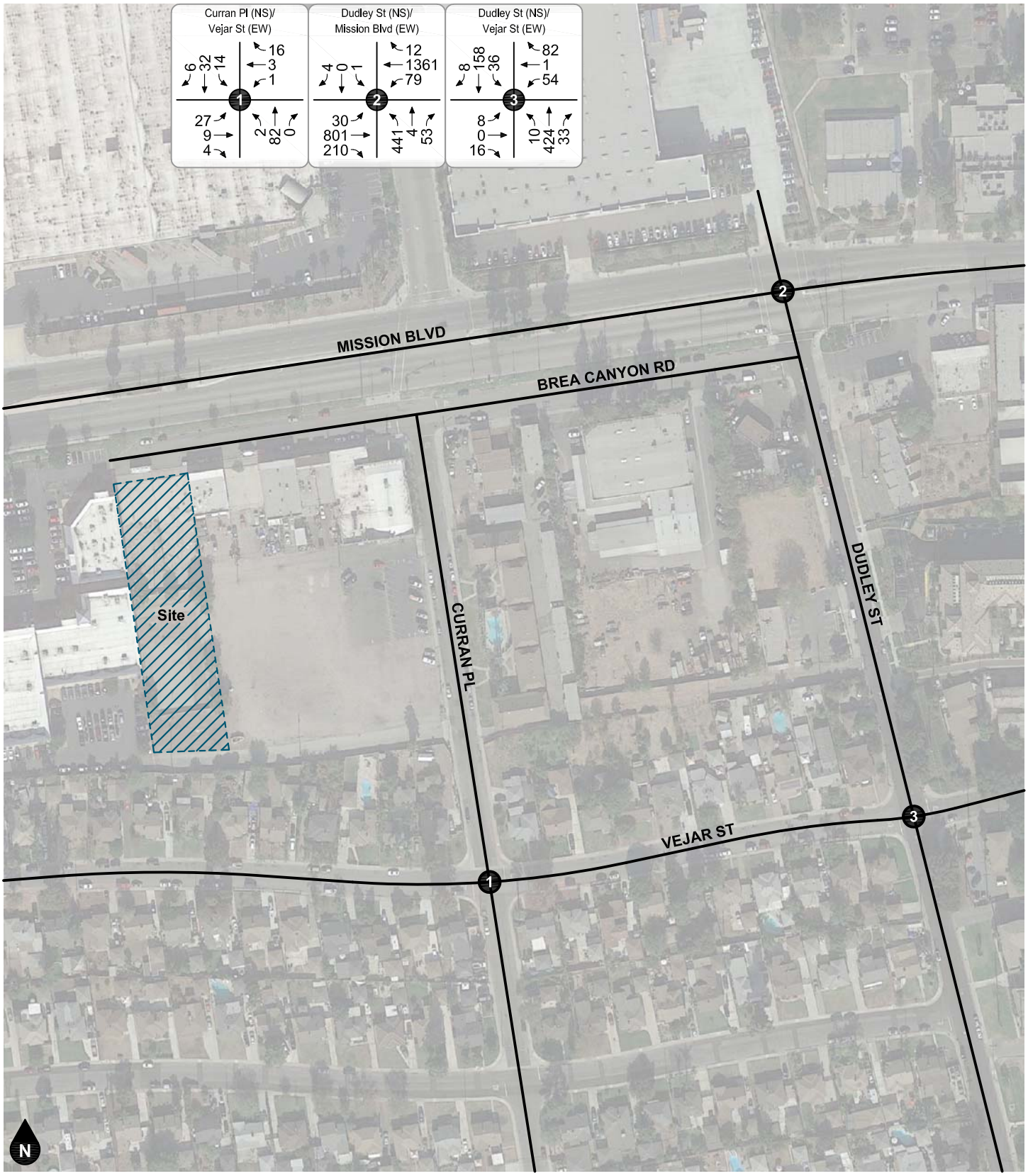
(#) Study Intersection

Figure 19
Existing Plus Project
PM Peak Hour Intersection Turning Movement Volumes

Legend

●## Vehicles Per Day (1,000's)

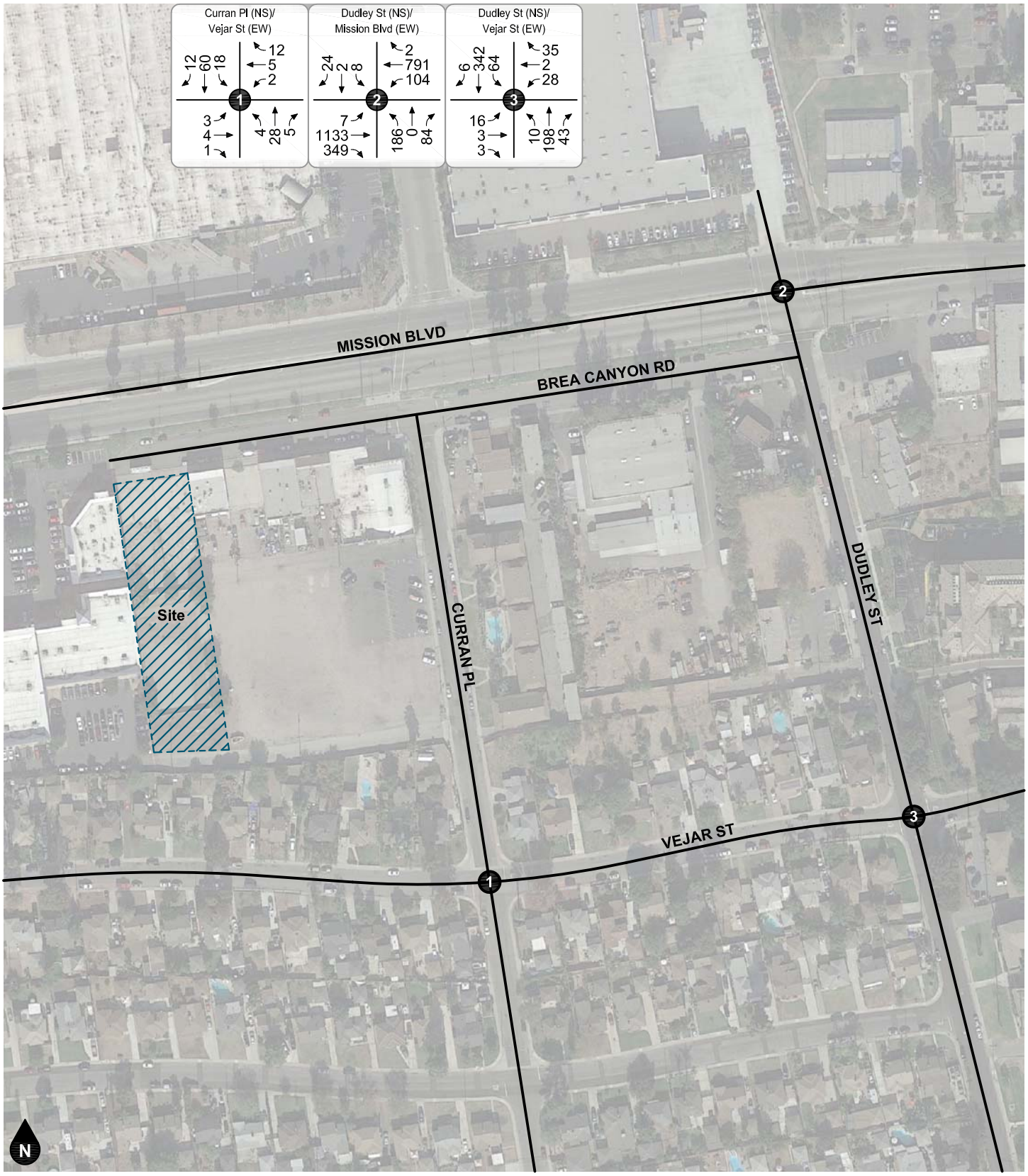
Figure 20
Opening Year (2020) Without Project Average Daily Traffic Volumes



Legend

(#) Study Intersection

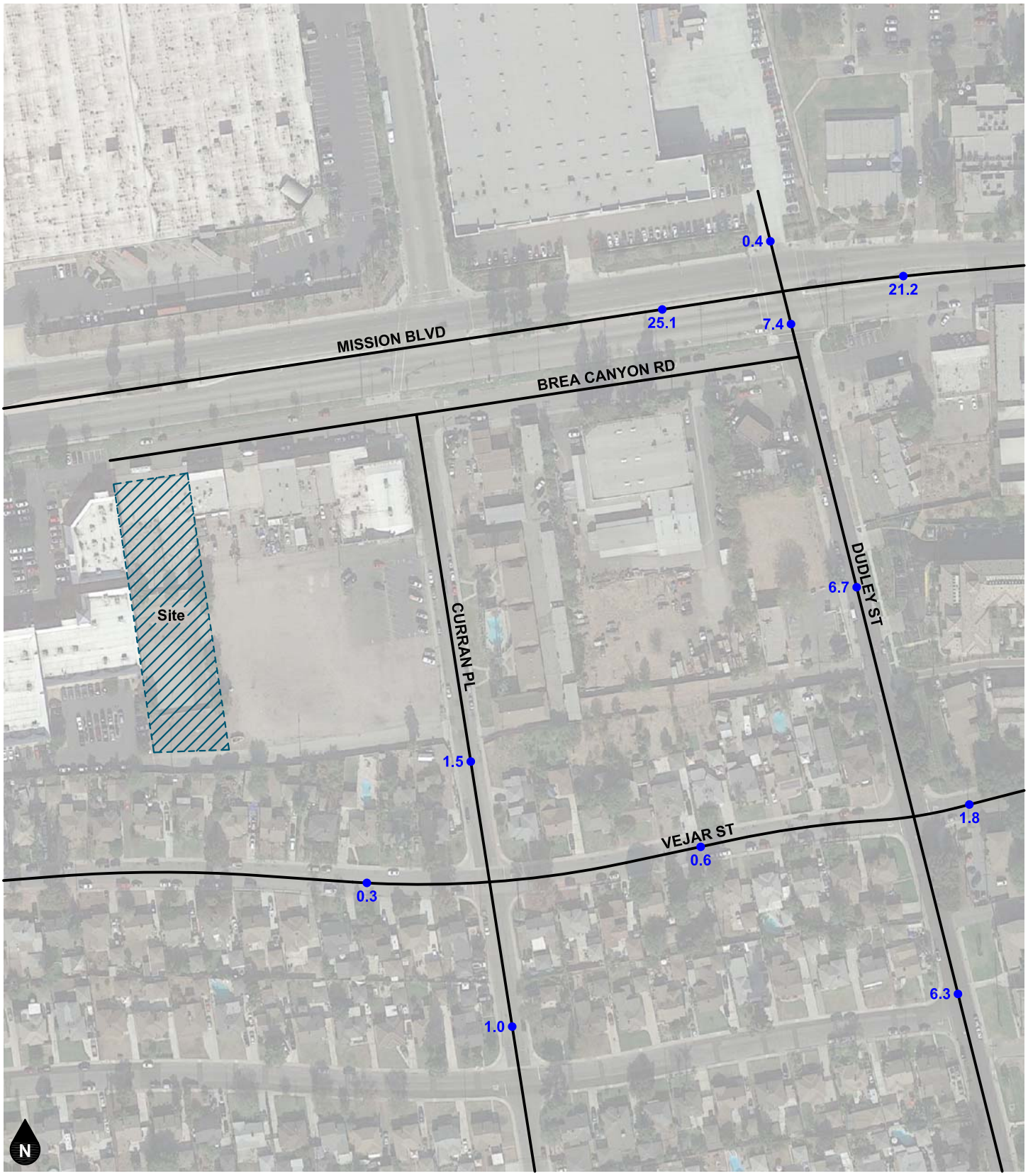
Figure 21
Opening Year (2020) Without Project
AM Peak Hour Intersection Turning Movement Volumes



Legend

(#) Study Intersection

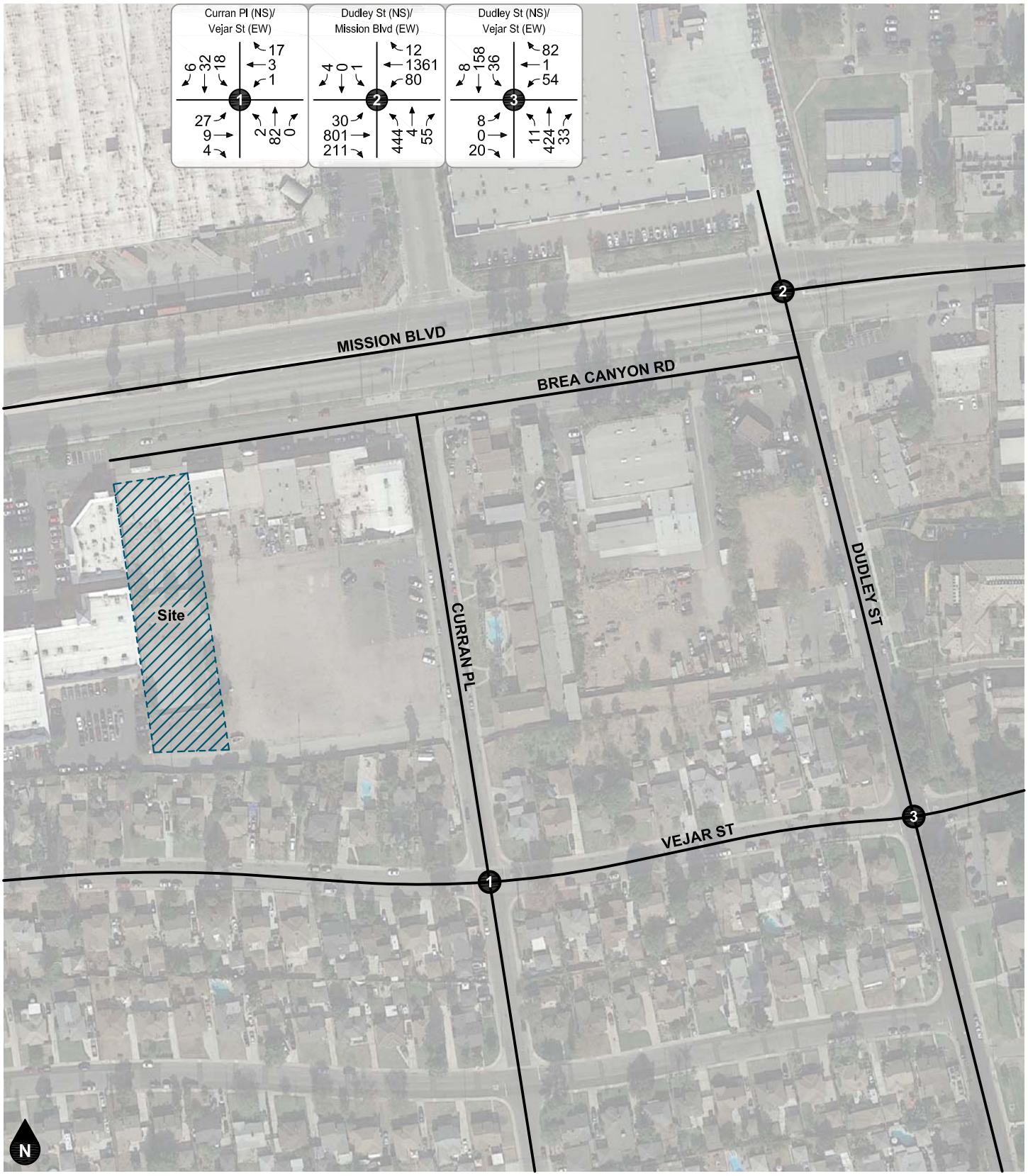
Figure 22
Opening Year (2020) Without Project
PM Peak Hour Intersection Turning Movement Volumes



Legend

●## Vehicles Per Day (1,000's)

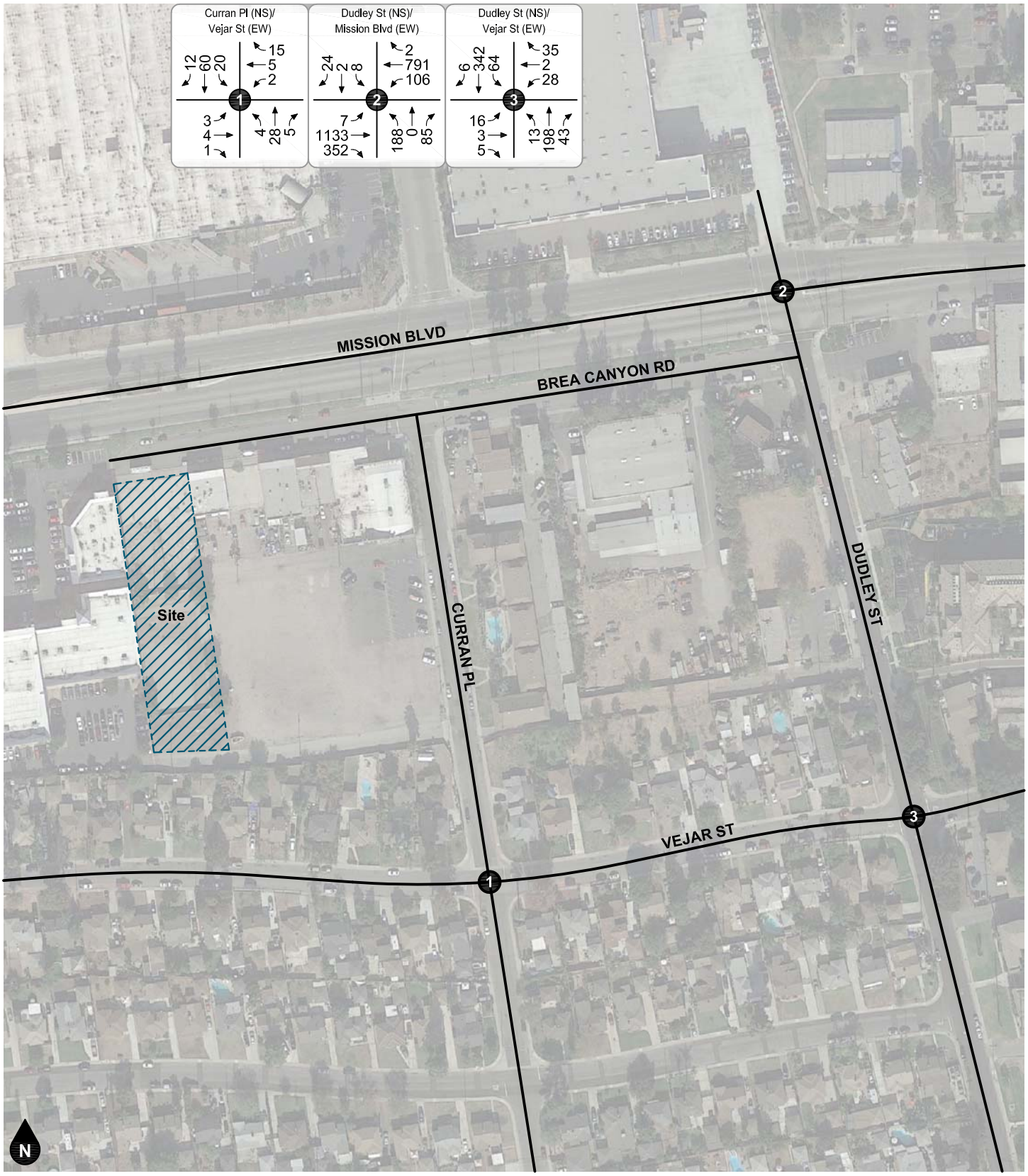
Figure 23
Opening Year (2020) With Project Average Daily Traffic Volumes



Legend

(#) Study Intersection

Figure 24
Opening Year (2020) With Project
AM Peak Hour Intersection Turning Movement Volumes



Legend

(#) Study Intersection

Figure 25
Opening Year (2020) With Project
PM Peak Hour Intersection Turning Movement Volumes

6. FUTURE OPERATIONAL ANALYSIS

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

EXISTING PLUS PROJECT

The intersection Levels of Service for Existing Plus Project conditions have been calculated and are shown in Table 3. The study intersections are forecast to operate within acceptable Levels of Service (D or better) during the peak hours for Existing Plus Project conditions (see Table 3). Therefore, the proposed project is forecast to result in no significant traffic impact during the peak hours for Existing Plus Project conditions.

OPENING YEAR (2020) WITHOUT PROJECT

The intersection Levels of Service for Opening Year (2020) Without Project conditions have been calculated and are shown in Table 4. The study intersections are forecast to operate within acceptable Levels of Service (D or better) during the peak hours for Opening Year (2020) Without Project conditions (see Table 4).

OPENING YEAR (2020) WITH PROJECT

The intersection Levels of Service for Opening Year (2020) With Project conditions have been calculated are shown in Table 5. The study intersections are forecast to operate within acceptable Levels of Service (D or better) during the peak hours for Opening Year (2020) With Project conditions (see Table 5). Therefore, the proposed project is forecast to result in no significant traffic impact during the peak hours for Opening Year (2020) With Project conditions.

Table 3
Existing Plus Project Intersection Delay and Levels of Service

ID	Study Intersection	Traffic Control[1]	AM Peak Hour		PM Peak Hour	
			Delay[2]	LOS[3]	Delay[2]	LOS[3]
1.	Curran Place at Vejar Street	CSS	10.8	B	10.1	B
2.	Dudley Street at Mission Boulevard	TS	26.0	C	14.9	B
3.	Dudley Street at Vejar Street	CSS	21.2	C	19.0	C

Notes:

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

(2) Delay is shown in seconds/vehicle. For intersections with traffic signal or 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).

(3) LOS = Level of Service

Table 4
Opening Year (2020) Without Project Intersection Delay and Levels of Service

ID	Study Intersection	Traffic Control[1]	AM Peak Hour		PM Peak Hour	
			Delay[2]	LOS[3]	Delay[2]	LOS[3]
1.	Curran Place at Vejar Street	CSS	10.8	B	10.1	B
2.	Dudley Street at Mission Boulevard	TS	29.5	C	15.5	B
3.	Dudley Street at Vejar Street	CSS	22.1	C	19.7	C

Notes:

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

(2) Delay is shown in seconds/vehicle. For intersections with traffic signal or all way stop control, overall average intersection delay and LOS are shown. For intersections with cross street stop control, Level of Service is based on average delay of the worst individual lane (or movements sharing a lane).

(3) LOS = Level of Service

Table 5
Opening Year (2020) With Project Intersection Delay and Levels of Service

ID	Study Intersection	Traffic Control[1]	AM Peak Hour		PM Peak Hour	
			Delay[2]	LOS[3]	Delay[2]	LOS[3]
1.	Curran Place at Vejar Street	CSS	10.9	B	10.1	B
2.	Dudley Street at Mission Boulevard	TS	30.6	C	15.7	B
3.	Dudley Street at Vejar Street	CSS	22.4	C	19.9	C

Notes:

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

(2) Delay is shown in seconds/vehicle. For intersections with traffic signal or all way stop control, overall average intersection delay and LOS are shown. For intersections with cross street stop control, Level of Service is based on average delay of the worst individual lane (or movements sharing a lane).

(3) LOS = Level of Service

7. QUEUING ANALYSIS

As requested by the City of Pomona Public Works Department, a queuing analysis was prepared for the eastbound left turn and right turn lanes at the intersection of Dudley Street and Mission Boulevard. The available queue storage length for the eastbound left turn lane is approximately 225 feet measured from the crosswalk to the left turn bay taper. The available queue storage length for the eastbound right turn lane is approximately 400 feet measured from the crosswalk to the east leg limit line extension at the intersection of Curran Place at Mission Boulevard. Dudley Street at Mission Boulevard is a four-way signalized intersection.

METHODOLOGY

The queuing analysis is based on the Highway Capacity Manual (6th Edition) 95th-percentile back of queue methodology as reported in the Level of Service worksheets contained in Appendix D.

QUEUING ANALYSIS RESULTS

Table 6 summarizes the queuing analysis. As shown in Table 6, the 95th-percentile queue length for the eastbound left turn and right turn queues is not forecast to exceed the available storage capacity during the AM or PM peak hours for Existing Plus Project and Opening Year (2020) With Project conditions.

DUDLEY STREET/BREA CANYON ROAD INTERSECTION

The intersection of Dudley Street at Brea Canyon Road is situated adjacent to the south leg of the intersection of Dudley Street at Mission Boulevard. Northbound vehicular stacking on the south leg of Dudley Street at the traffic signal precludes eastbound left turning vehicles on Brea Canyon Road to turn left onto Dudley Street. Due to this adjacent proximity, any northbound vehicles queued on Dudley Street causes this situation to occur. Although more prevalent in the AM peak hour, this issue is apparent throughout the day. During the AM peak hour, 503 northbound movements are projected to occur for Opening Year (2020) With Project conditions at the intersection of Dudley Street at Mission Boulevard, with 444 of these movements being northbound left turns. The 95th-percentile queue length for the northbound left turn movement is 540 feet.

The project is projected to add 5 AM peak hour trips to the intersection of Dudley Street at Brea Canyon Road. This is equivalent to one trip every 12 minutes. Since this situation currently occurs the proposed project is not a cause of the problem and will be contributing minimal traffic to the intersection in the future. Any northbound traffic on Dudley Street creates an issue for eastbound vehicles turning left from Brea Canyon Road onto Dudley Street, since there is no stacking distance from the crosswalk to the intersection for vehicles to queue.

As a corrective measure, the City of Pomona has recently striped “KEEP CLEAR” at the intersection so that vehicles will queue behind the intersection instead of queuing from the crosswalk on the south leg of the Dudley Street at Mission Boulevard intersection, and blocking eastbound left turning traffic from Brea Canyon Road. The City of Pomona has indicated that this recent corrective measure has helped in allowing eastbound left turning vehicles from Brea Canyon Road to turn northbound onto Dudley Street. It is recommended that this situation continue to be monitored in the future and if the situation is deemed unsatisfactory, an analysis for possible corrective measures be conducted.

Table 6
Queuing Analysis

ID	Study Intersection	Movement	Storage Length	Existing				Existing Plus Project			
				AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
				Volume	95th-%ile Queue	Volume	95th-%ile Queue	Volume	95th-%ile Queue	Volume	95th-%ile Queue
2.	Dudley Street (NS) at Mission Boulevard (EW)	EB Left Turn Lane	225 Feet[1]	29	26 Feet	7	7 Feet	29	22 Feet	7	7 Feet
		EB Right Turn Lane	400 Feet[2]	202	101 Feet	336	134 Feet	203	88 Feet	339	137 Feet

ID	Study Intersection	Lane	Storage Length	Opening Year (2020) Without Project				Opening Year (2020) With Project			
				AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
				Volume	95th-%ile Queue	Volume	95th-%ile Queue	Volume	95th-%ile Queue	Volume	95th-%ile Queue
2.	Dudley Street (NS) at Mission Boulevard (EW)	EB Left Turn Lane	225 Feet[1]	30	25 Feet	7	8 Feet	30	35 Feet	7	8 Feet
		EB Right Turn Lane	400 Feet[2]	210	99 Feet	349	151 Feet	211	135 Feet	352	154 Feet

Notes:
95th-percentile queue lengths obtained from intersection Level of Service worksheets (see Appendix D).

(1) Distance from crosswalk to left turn bay taper.

(2) Distance from crosswalk to east leg limit line extension at intersection of Curran Place and Mission Boulevard.

8. CONCLUSIONS

PROJECT SPECIFIC IMPROVEMENTS

To provide adequate project site and emergency access, the project shall construct the proposed driveway at Brea Canyon Road in accordance with City of Pomona standards.

OFF-SITE MITIGATION MEASURES

No off-site mitigation measure improvements were identified since the proposed project is forecast to result in no significant traffic impacts at the study intersections for the scenarios analyzed.

GENERAL RECOMMENDATIONS

All roadway design, traffic signing and striping, and traffic control improvements relating to the proposed project should be constructed in accordance with applicable engineering standards to the satisfaction of the City of Pomona Public Works Department.

Site-adjacent roadways should be constructed at their ultimate half-section width, including landscaping and parkway improvements in conjunction with development, or as otherwise required by the City of Pomona Public Works Department.

On-site traffic signing and striping plans should be submitted for City of Pomona approval in conjunction with detailed construction plans for the project.

Off-street parking should be provided to meet City of Pomona Municipal Code requirements.

The final grading, landscaping, and street improvement plans should demonstrate that sight distance standards are met in accordance with applicable City of Pomona/California Department of Transportation sight distance standards.

As is the case for any roadway design, the City of Pomona should periodically review traffic operations in the vicinity of the project once the project is constructed to assure that the traffic operations are satisfactory.

APPENDICES

Appendix A Glossary
Appendix B Scoping Agreement
Appendix C Volume Count Worksheets
Appendix D Level of Service 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

SCOPING AGREEMENT

TRAFFIC IMPACT STUDY SCOPE
CITY OF POMONA

Project Name: Pomona Mission 71
Project Address: 1626 & 1630 West Mission Boulevard
Project Description: 24 dwelling units of multi-family housing (low-rise)

	Consultant	Developer
Name:	GANDDINI GROUP, INC.	K U & ASSOCIATES, INC.
Address:	550 Parkcenter Drive, Suite 202	650 Camino De Gloria
	Santa Ana, CA 92705	Walnut, CA 91789
Telephone:	(714) 795-3100 x 104	(909) 869-5828 x 101
E-mail:	bryan@ganddini.com	paulina_ying@kuassociates.com

A. Trip Generation

Existing Land Use: Vacant
Existing Zoning: SP-CSP / S Overlay
Proposed Land Use: Residential
Proposed Zoning: SP-CSP / S Overlay

	Current Trip Generation			Proposed Trip Generation		
	In	Out	Total	In	Out	Total
AM Trips	0	0	0	3	9	12
PM Trips	0	0	0	8	5	13

B. Trip Geographic Distribution: See Figure 3.

C. Background Traffic

Project Build-out Year 2020
Annual Ambient Growth Rate: 2 %

D. Study intersections:

1. Curran Place (NS) / Vejar Street (EW) - #1
2. Dudley Street (NS) / Mission Boulevard (EW) - #2
3. Dudley Street (NS) / Vejar Street (EW) - #3

E. Specific issues to be addressed in the Study

Please provide cumulative projects

Review eastbound queuing at Dudley Street and Mission Boulevard intersection

Approved By:

Ron Chan

Digitally signed by Ron Chan
DN: cn=Ron Chan, o=City of Pomona, ou=Public Works, email=ronald_chan@ci.pomona.ca.us, c=US
Date: 2019.01.31 10:55:04 -08'00'

City of Pomona Traffic Engineering

_____
Date

#18-0048

Table 1
Project Trip Generation

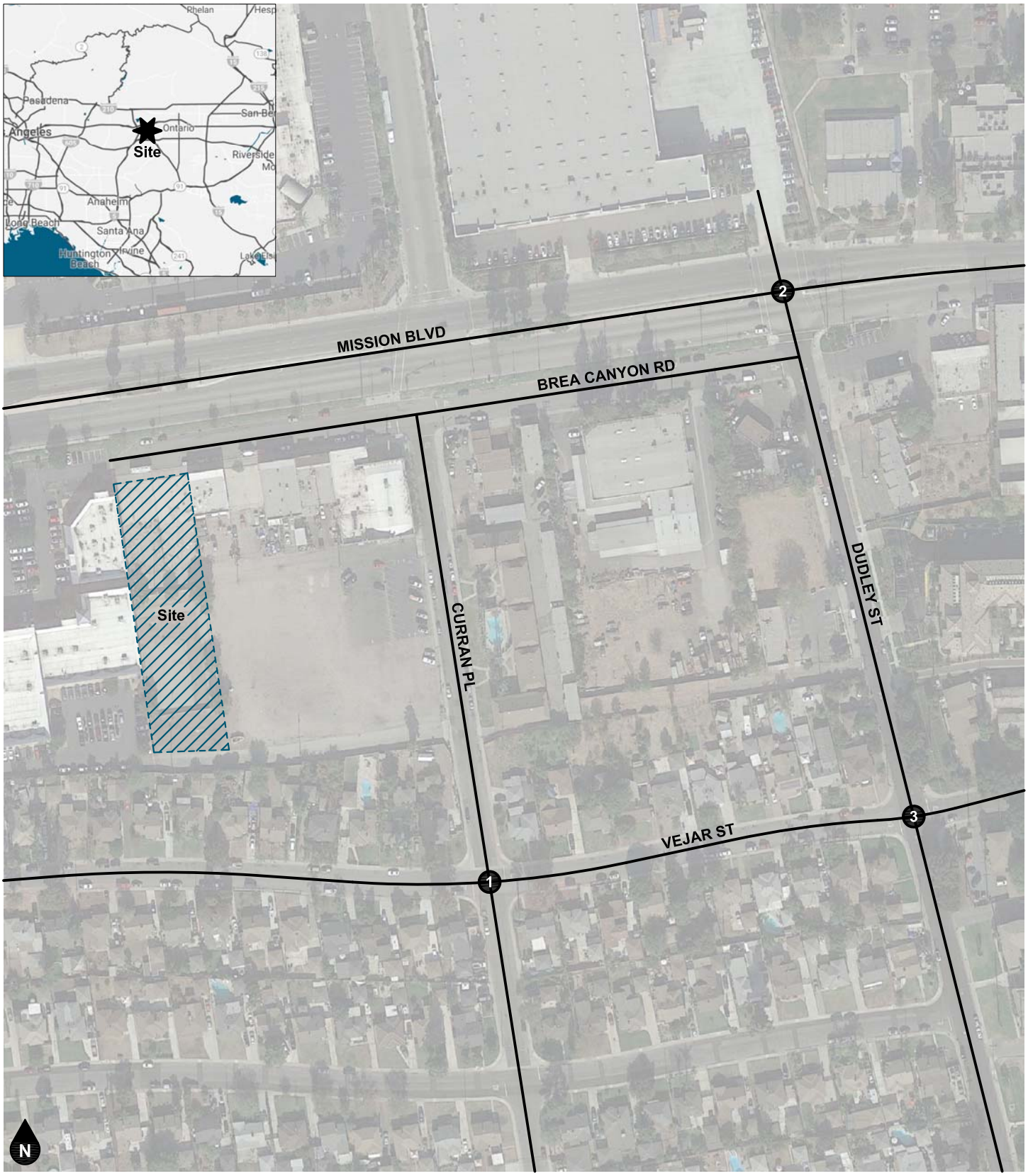
Trip Generation Rates									
			AM Peak Hour			PM Peak Hour			
Land Use	Source[1]	Unit[2]	% In	% Out	Total	% In	% Out	Total	Daily Rate
Multi-Family Housing (Low-Rise)	ITE 220[3]	DU	23%	77%	0.46	63%	37%	0.56	7.32

Trips Generated									
			AM Peak Hour			PM Peak Hour			
Land Use	Quantity	Unit[2]	In	Out	Total	In	Out	Total	Daily
Multi-Family Housing (Low-Rise)	24	DU	**3**	**9**	**12**	**8**	**5**	**13**	**176**

Notes:

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

(2) DU = Dwelling Units



Legend

(#) Study Intersection

Figure 1
Project Location Map

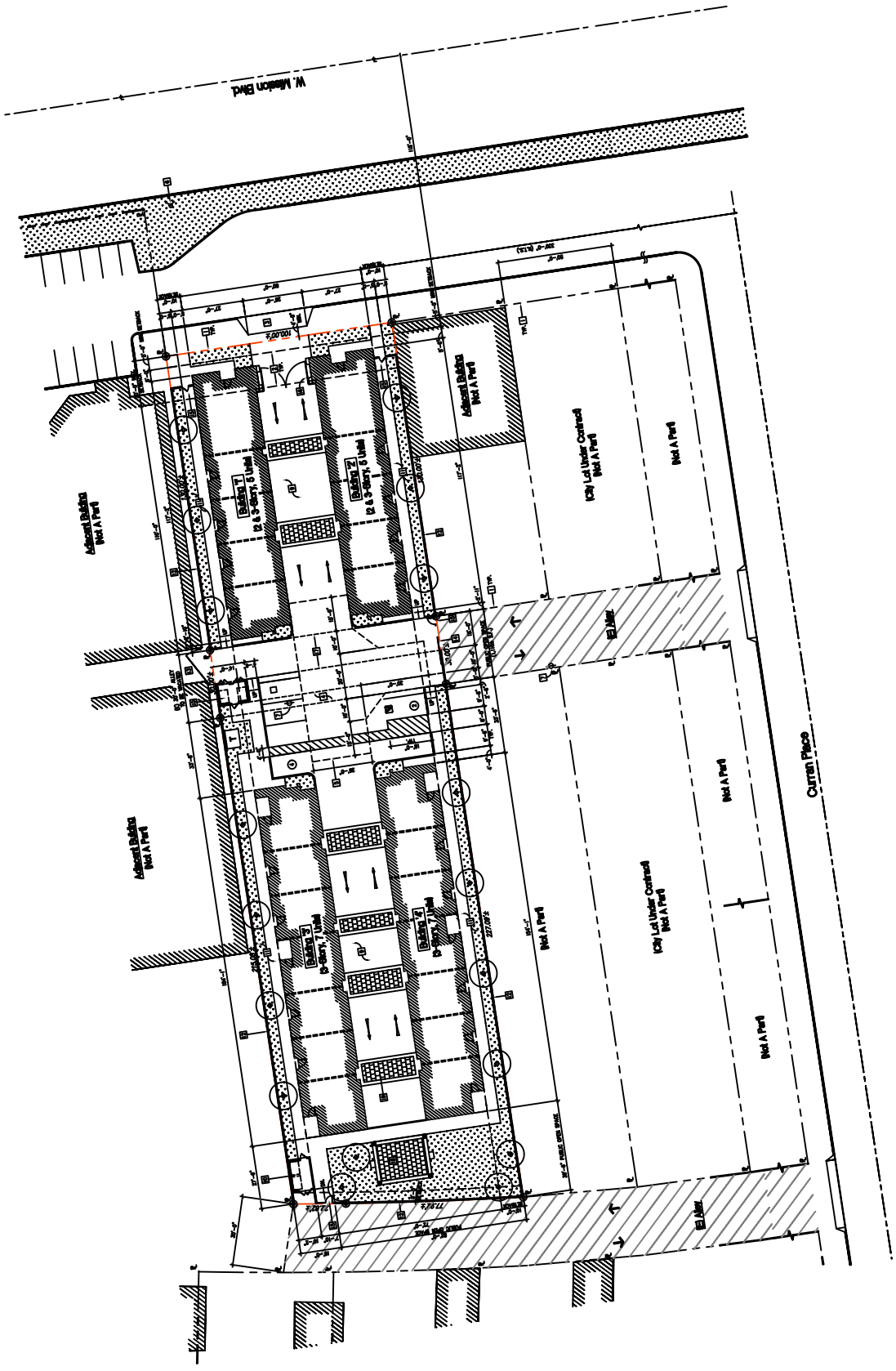
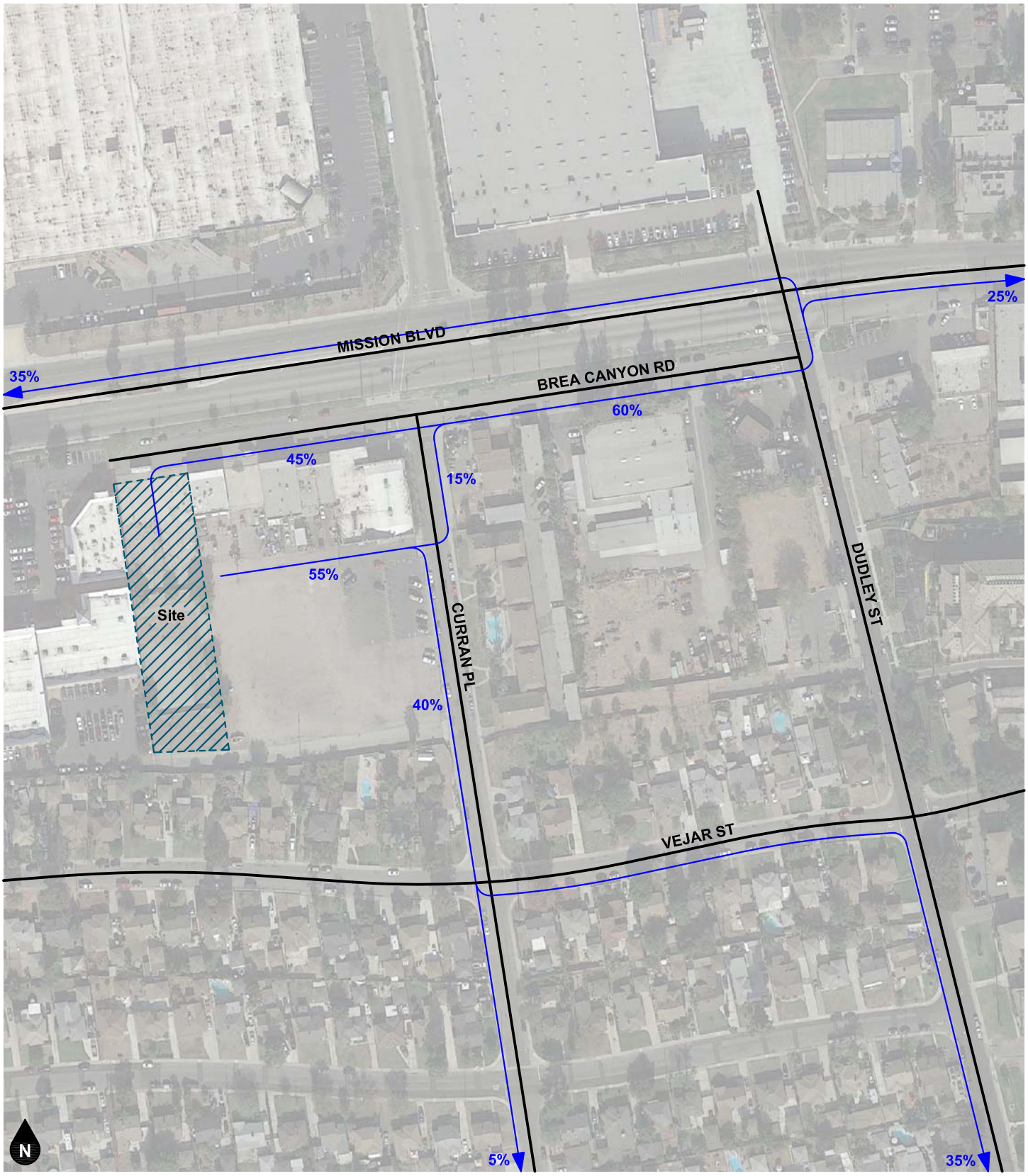


Figure 2
Site Plan



Legend

10% Percent To/From Project

Figure 3
Project Trip Distribution

APPENDIX C

VOLUME COUNT WORKSHEETS

INTERSECTION TURNING MOVEMENT COUNTS

T218

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

DATE: Thu, Feb 7, 19

LOCATION: Pomona
NORTH & SOUTH: Curran
EAST & WEST: Vejar

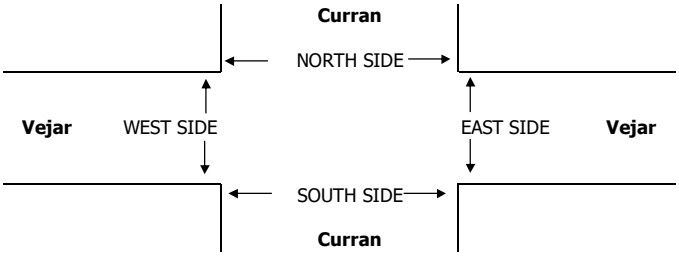
PROJECT #: SC2076
LOCATION #: 3
CONTROL: STOP E/W

NOTES:

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

☑ Add U-Turns to Left Turns

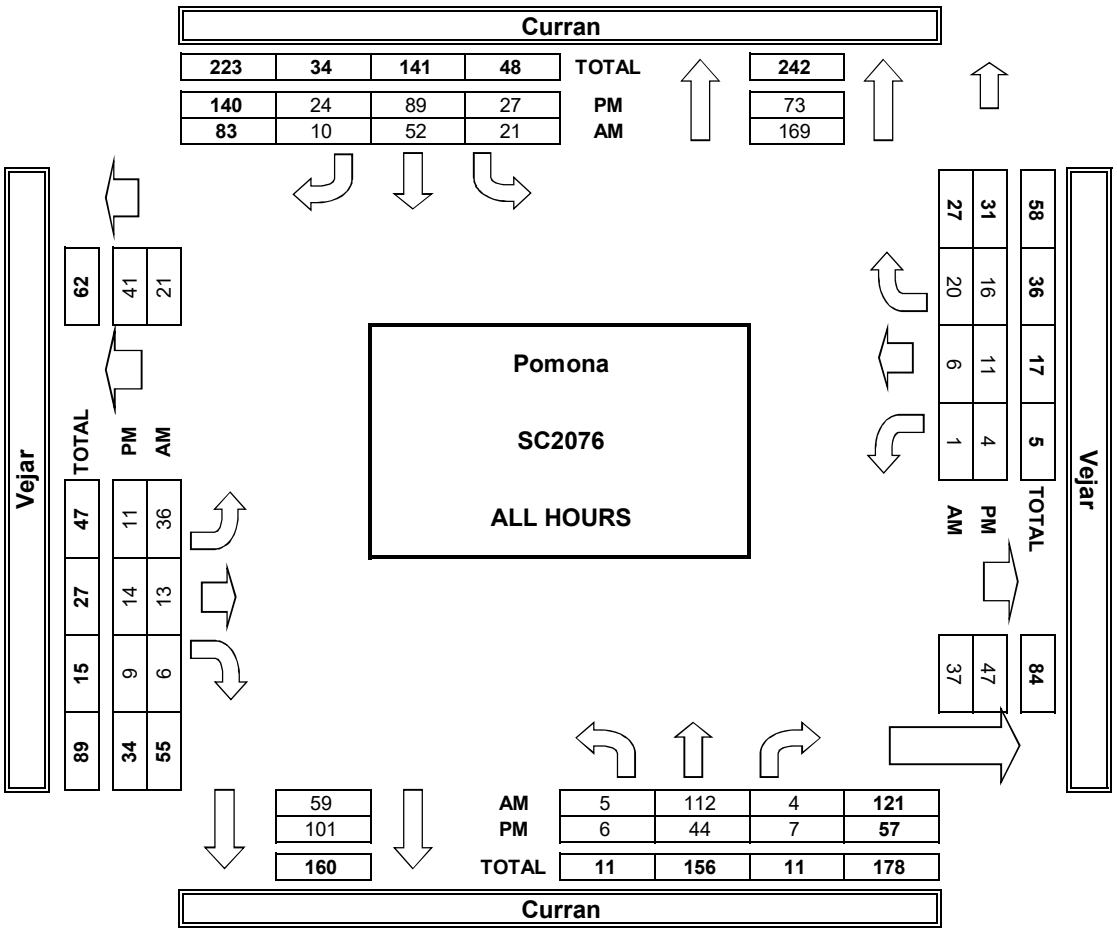
		NORTHBOUND Curran			SOUTHBOUND Curran			EASTBOUND Vejar			WESTBOUND Vejar				U-TURNS				
	LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	2	12	1	2	6	0	4	2	0	0	1	3	33	0	0	0	0	0
	7:15 AM	0	13	0	3	1	1	6	6	0	1	0	1	32	0	0	0	0	0
	7:30 AM	1	19	0	0	11	0	7	1	2	0	2	3	46	0	0	0	0	0
	7:45 AM	0	32	0	5	12	1	9	0	2	0	1	5	67	0	0	0	0	0
	8:00 AM	1	15	0	5	7	4	4	2	0	0	0	6	44	0	0	0	0	0
	8:15 AM	0	8	1	1	11	4	1	0	1	0	2	2	31	0	1	0	0	1
	8:30 AM	0	7	1	2	3	0	1	0	1	0	0	0	15	0	0	0	0	0
	8:45 AM	1	6	1	3	1	0	4	2	0	0	0	0	18	0	0	0	0	0
	VOLUMES	5	112	4	21	52	10	36	13	6	1	6	20	286	0	1	0	0	1
	APPROACH %	4%	93%	3%	25%	63%	12%	65%	24%	11%	4%	22%	74%						
	APP/DEPART	121	/	169	83	/	59	55	/	37	27	/	21	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	2	79	0	13	31	6	26	9	4	1	3	15	189					
	APPROACH %	2%	98%	0%	26%	62%	12%	67%	23%	10%	5%	16%	79%						
	PEAK HR FACTOR		0.633			0.694			0.813			0.792		0.705					
	APP/DEPART	81	/	120	50	/	36	39	/	22	19	/	11	0					
PM	4:00 PM	2	5	1	3	9	6	3	5	1	2	2	1	40	0	0	0	0	0
	4:15 PM	0	5	1	4	6	1	4	3	0	0	0	1	25	0	0	0	0	0
	4:30 PM	0	11	1	4	14	2	1	1	0	1	1	4	40	0	0	0	0	0
	4:45 PM	0	4	0	6	17	4	1	1	0	0	0	2	35	0	1	0	0	1
	5:00 PM	2	5	1	6	11	2	0	1	0	1	2	3	34	0	1	0	1	2
	5:15 PM	2	7	3	1	16	4	1	1	1	0	2	3	41	0	0	0	0	0
	5:30 PM	0	4	0	1	7	3	1	0	4	0	3	2	25	0	0	0	0	0
	5:45 PM	0	3	0	2	9	2	0	2	3	0	1	0	22	0	0	0	0	0
	VOLUMES	6	44	7	27	89	24	11	14	9	4	11	16	262	0	2	0	1	3
	APPROACH %	11%	77%	12%	19%	64%	17%	32%	41%	26%	13%	35%	52%						
	APP/DEPART	57	/	73	140	/	101	34	/	47	31	/	41	0					
	BEGIN PEAK HR		4:30 PM																
	VOLUMES	4	27	5	17	58	12	3	4	1	2	5	12	150					
	APPROACH %	11%	75%	14%	20%	67%	14%	38%	50%	13%	11%	26%	63%						
	PEAK HR FACTOR		0.750			0.806			0.667			0.792		0.915					
	APP/DEPART	36	/	44	87	/	60	8	/	25	19	/	21	0					

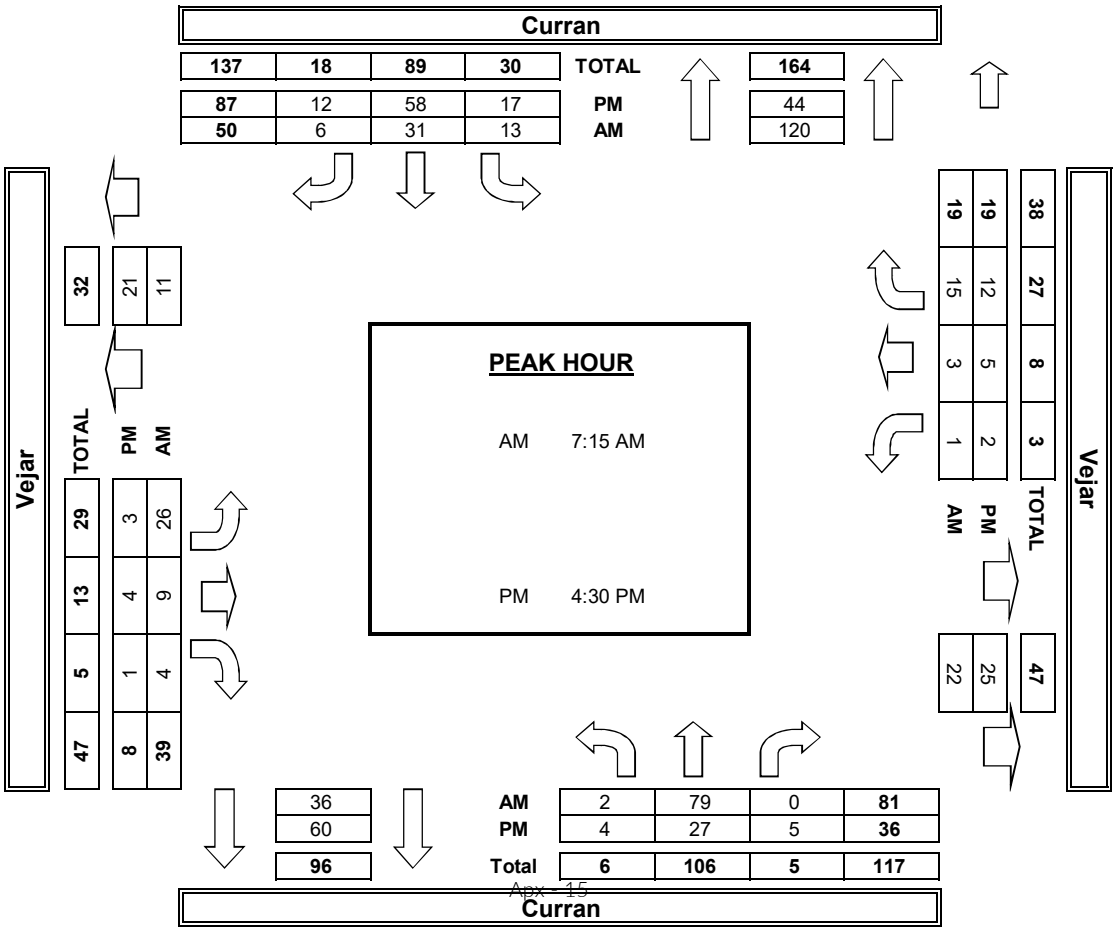


		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0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

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

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

DATE: Thu, Feb 7, 19

LOCATION: Pomona
NORTH & SOUTH: Dudley
EAST & WEST: Mission

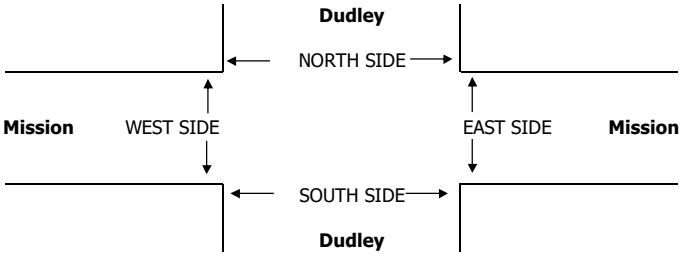
PROJECT #: SC2076
LOCATION #: 2
CONTROL: SIGNAL

NOTES:

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

☑ Add U-Turns to Left Turns

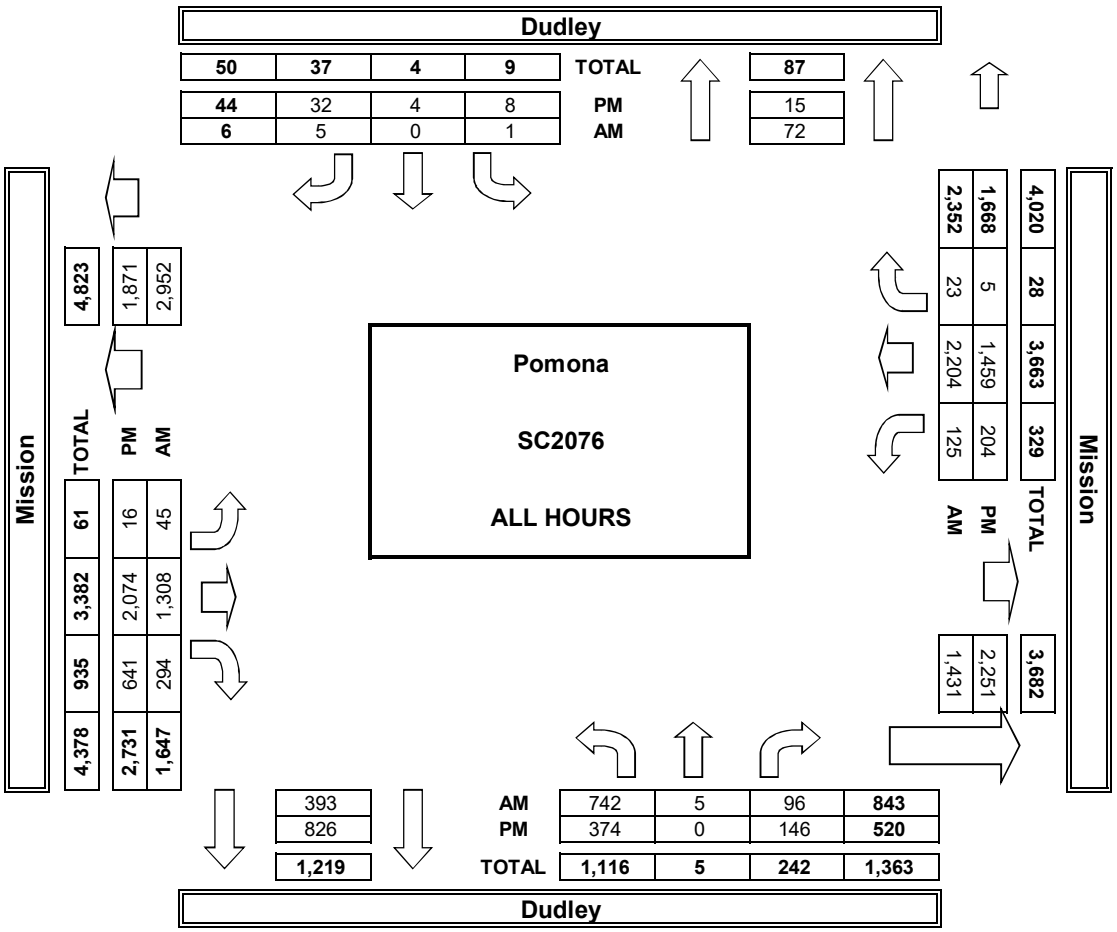
		NORTHBOUND Dudley			SOUTHBOUND Dudley			EASTBOUND Mission			WESTBOUND Mission				U-TURNS				
	LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 2	ER 1	WL 1	WT 2	WR 0	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	75	0	10	0	0	0	1	110	23	8	233	0	460	0	0	0	2	2
	7:15 AM	123	0	10	0	0	0	4	150	23	13	289	2	614	0	0	0	3	3
	7:30 AM	133	2	10	0	0	1	1	168	33	18	409	1	776	0	0	0	3	3
	7:45 AM	128	0	21	0	0	0	3	220	51	15	358	2	798	0	0	0	3	3
	8:00 AM	73	1	11	0	0	1	7	196	66	22	290	2	669	0	0	1	4	5
	8:15 AM	90	1	9	1	0	2	18	186	52	21	252	7	639	0	0	0	5	5
	8:30 AM	63	0	14	0	0	0	9	134	27	16	198	8	469	0	0	0	5	5
	8:45 AM	57	1	11	0	0	1	2	144	19	12	175	1	423	0	0	0	1	1
	VOLUMES	742	5	96	1	0	5	45	1,308	294	125	2,204	23	4,848	0	0	1	26	27
	APPROACH %	88%	1%	11%	17%	0%	83%	3%	79%	18%	5%	94%	1%						
	APP/DEPART	843	/	72	6	/	393	1,647	/	1,431	2,352	/	2,952	0					
	BEGIN PEAK HR		7:30 AM																
	VOLUMES	424	4	51	1	0	4	29	770	202	76	1,309	12	2,882					
	APPROACH %	89%	1%	11%	20%	0%	80%	3%	77%	20%	5%	94%	1%						
	PEAK HR FACTOR		0.804			0.417			0.913			0.816		0.903					
	APP/DEPART	479	/	44	5	/	263	1,001	/	837	1,397	/	1,738	0					
PM	4:00 PM	46	0	16	0	0	2	2	247	90	26	169	0	598	0	0	0	3	3
	4:15 PM	57	0	20	0	0	1	1	225	81	26	209	1	621	0	0	0	2	2
	4:30 PM	47	0	18	0	1	5	4	271	76	27	188	2	639	0	0	1	4	5
	4:45 PM	38	0	19	0	1	1	2	275	73	21	176	1	607	0	0	1	0	1
	5:00 PM	45	0	24	4	1	15	3	266	89	24	235	1	707	0	0	2	3	5
	5:15 PM	42	0	16	2	0	4	1	252	86	30	183	0	616	0	0	1	7	8
	5:30 PM	54	0	22	2	1	3	1	296	88	25	167	0	659	0	0	0	3	3
	5:45 PM	45	0	11	0	0	1	2	242	58	25	132	0	516	0	0	1	1	2
	VOLUMES	374	0	146	8	4	32	16	2,074	641	204	1,459	5	4,963	0	0	6	23	29
	APPROACH %	72%	0%	28%	18%	9%	73%	1%	76%	23%	12%	87%	0%						
	APP/DEPART	520	/	15	44	/	826	2,731	/	2,251	1,668	/	1,871	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	179	0	81	8	3	23	7	1,089	336	100	761	2	2,589					
	APPROACH %	69%	0%	31%	24%	9%	68%	0%	76%	23%	12%	88%	0%						
	PEAK HR FACTOR		0.855			0.425			0.930			0.830		0.915					
	APP/DEPART	260	/	5	34	/	426	1,432	/	1,191	863	/	967	0					

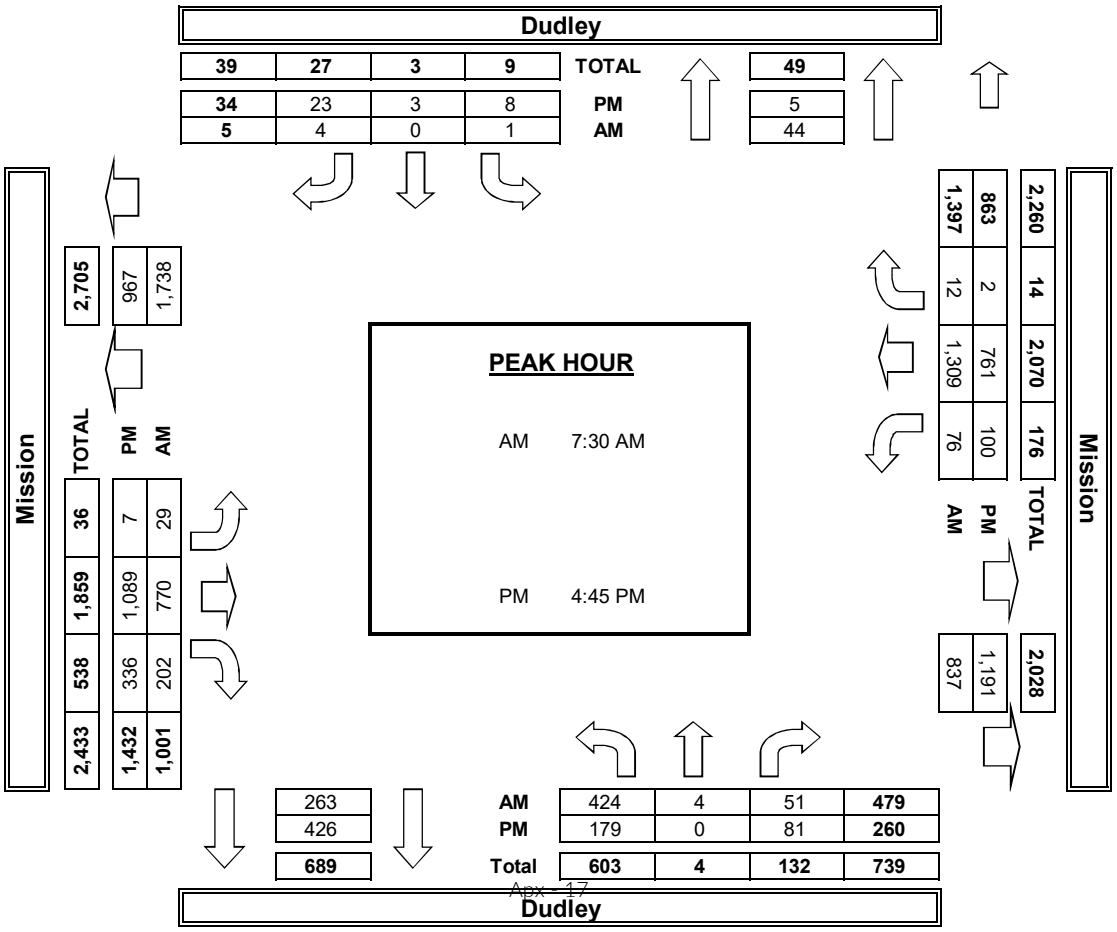


		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0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

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

T218

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

DATE: Thu, Feb 7, 19

LOCATION: Pomona
NORTH & SOUTH: Dudley
EAST & WEST: Vejar

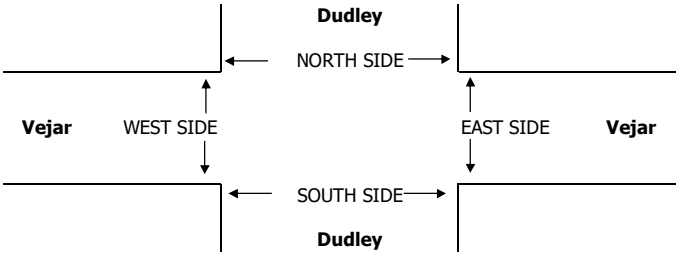
PROJECT #: SC2076
LOCATION #: 1
CONTROL: STOP E/W

NOTES:

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

☑ Add U-Turns to Left Turns

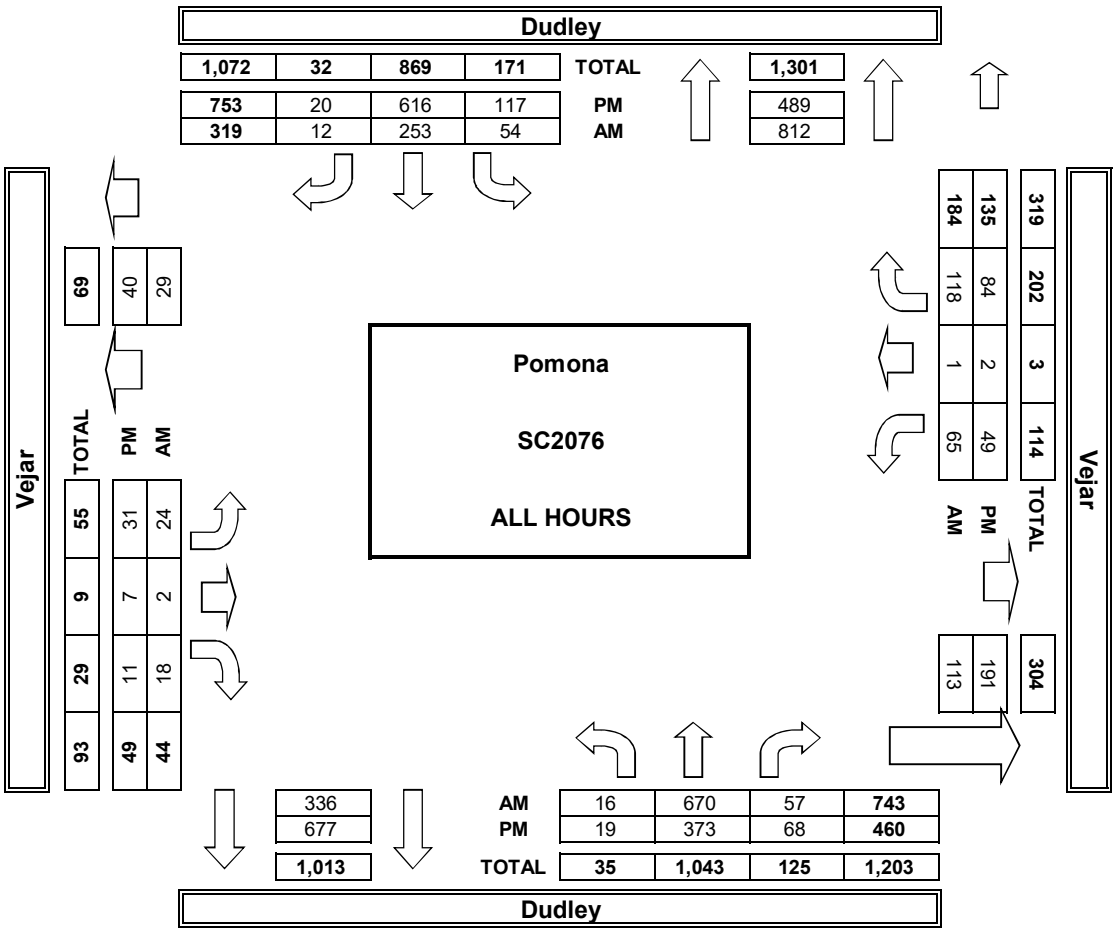
		NORTHBOUND Dudley			SOUTHBOUND Dudley			EASTBOUND Vejar			WESTBOUND Vejar				U-TURNS				
	LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	0	66	12	3	15	2	8	0	1	9	0	13	129	0	0	0	0	0
	7:15 AM	0	124	8	5	19	0	2	0	5	9	0	18	190	0	0	0	0	0
	7:30 AM	1	106	3	6	35	3	1	0	5	25	0	24	209	0	0	0	0	0
	7:45 AM	5	106	11	7	40	3	1	0	3	14	1	31	222	0	0	0	0	0
	8:00 AM	4	72	10	17	58	2	4	0	2	4	0	6	179	0	0	0	0	0
	8:15 AM	4	86	5	12	40	2	1	0	0	1	0	9	160	0	0	0	0	0
	8:30 AM	1	56	4	3	24	0	4	2	0	1	0	11	106	0	0	0	0	0
	8:45 AM	1	54	4	1	22	0	3	0	2	2	0	6	95	0	0	0	0	0
	VOLUMES	16	670	57	54	253	12	24	2	18	65	1	118	1,290	0	0	0	0	0
	APPROACH %	2%	90%	8%	17%	79%	4%	55%	5%	41%	35%	1%	64%						
	APP/DEPART	743	/	812	319	/	336	44	/	113	184	/	29	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	10	408	32	35	152	8	8	0	15	52	1	79	800					
	APPROACH %	2%	91%	7%	18%	78%	4%	35%	0%	65%	39%	1%	60%						
	PEAK HR FACTOR		0.852			0.633			0.821			0.673		0.901					
	APP/DEPART	450	/	495	195	/	219	23	/	67	132	/	19	0					
PM	4:00 PM	1	54	9	12	82	7	5	0	2	3	0	11	186	0	0	0	0	0
	4:15 PM	2	48	5	16	72	5	5	3	2	7	0	18	183	0	0	0	0	0
	4:30 PM	6	46	5	16	72	2	3	1	2	6	0	10	169	0	0	0	0	0
	4:45 PM	3	39	8	10	82	0	4	2	0	8	1	5	162	0	0	0	0	0
	5:00 PM	2	52	12	14	79	2	5	0	2	7	0	8	183	0	0	0	0	0
	5:15 PM	4	41	12	19	87	1	2	1	1	2	0	7	177	1	0	0	0	1
	5:30 PM	1	58	9	19	81	3	4	0	0	10	1	14	200	0	1	0	0	1
	5:45 PM	0	35	8	11	61	0	3	0	2	6	0	11	137	0	0	0	0	0
	VOLUMES	19	373	68	117	616	20	31	7	11	49	2	84	1,397	1	1	0	0	2
	APPROACH %	4%	81%	15%	16%	82%	3%	63%	14%	22%	36%	1%	62%						
	APP/DEPART	460	/	489	753	/	677	49	/	191	135	/	40	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	10	190	41	62	329	6	15	3	3	27	2	34	722					
	APPROACH %	4%	79%	17%	16%	83%	2%	71%	14%	14%	43%	3%	54%						
	PEAK HR FACTOR		0.886			0.928			0.750			0.630		0.903					
	APP/DEPART	241	/	240	397	/	360	21	/	105	63	/	17	0					

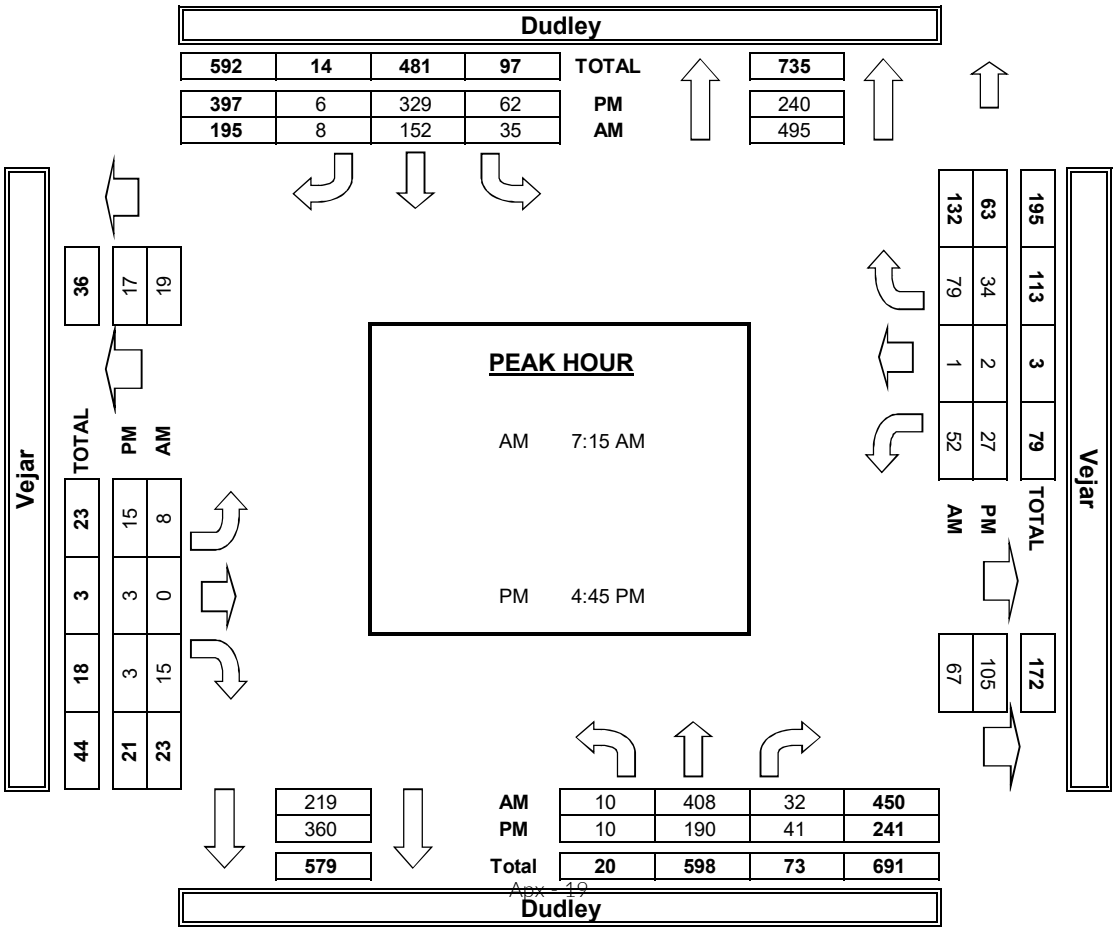


		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0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

AimTD LLC

TURNING MOVEMENT COUNTS





APPENDIX D

LEVEL OF SERVICE WORKSHEETS

EXISTING

Pomona Mission 71

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

Scenario 1 Existing Morning Peak Hour
2/19/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Curran Pl (NS) at Vejar St (EW)	Two-way stop	HCM 6th Edition	EB Thru	0.019	10.7	B
2	Dudley St (NS) at Mission Blvd (EW)	Signalized	HCM 6th Edition	WB Left	0.893	25.5	C
3	Dudley St (NS) at Vejar St (EW)	Two-way stop	HCM 6th Edition	WB Left	0.189	21.0	C

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: Curran Pl (NS) at Vejar St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	10.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.019

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]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	2	79	0	13	31	6	26	9	4	1	3	15
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	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	79	0	13	31	6	26	9	4	1	3	15
Peak Hour Factor	0.7050	0.7050	0.7050	0.7050	0.7050	0.7050	0.7050	0.7050	0.7050	0.7050	0.7050	0.7050
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	28	0	5	11	2	9	3	1	0	1	5
Total Analysis Volume [veh/h]	3	112	0	18	44	9	37	13	6	1	4	21
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
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	0.00	0.00	0.00	0.01	0.00	0.00	0.05	0.02	0.01	0.00	0.01	0.02
d_M, Delay for Movement [s/veh]	7.32	0.00	0.00	7.47	0.00	0.00	10.45	10.68	8.94	10.11	10.42	8.95
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.03	0.03	0.03	0.25	0.25	0.25	0.09	0.09	0.09
95th-Percentile Queue Length [ft/ln]	0.10	0.10	0.10	0.67	0.67	0.67	6.22	6.22	6.22	2.28	2.28	2.28
d_A, Approach Delay [s/veh]	0.19			1.89			10.34			9.22		
Approach LOS	A			A			B			A		
d_I, Intersection Delay [s/veh]	3.64											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 2: Dudley St (NS) at Mission Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	25.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.893

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	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	100.00	100.00	100.00
Speed [mph]	30.00			30.00			45.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	424	4	51	1	0	4	29	770	202	76	1309	12
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	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
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	424	4	51	1	0	4	29	770	202	76	1309	12
Peak Hour Factor	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030
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]	117	1	14	0	0	1	8	213	56	21	362	3
Total Analysis Volume [veh/h]	470	4	56	1	0	4	32	853	224	84	1450	13
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	0	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	130	0	0	130	0	130	130	0	130	130	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	26	0	0	26	0	11	21	0	23	33	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering 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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	L	C	R
C, Cycle Length [s]	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	22	22	3	30	30	6	33	33
g / C, Green / Cycle	0.31	0.31	0.05	0.43	0.43	0.08	0.47	0.47
(v / s)_i Volume / Saturation Flow Rate	0.37	0.00	0.02	0.25	0.15	0.05	0.43	0.01
s, saturation flow rate [veh/h]	1446	1669	1593	3373	1506	1593	3373	1506
c, Capacity [veh/h]	551	586	75	1460	652	131	1578	704
d1, Uniform Delay [s]	25.55	16.58	32.57	15.13	13.28	31.28	17.47	10.05
k, delay calibration	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.85	0.01	3.76	1.72	1.44	5.17	10.13	0.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.96	0.01	0.42	0.58	0.34	0.64	0.92	0.02
d, Delay for Lane Group [s/veh]	36.39	16.59	36.32	16.85	14.72	36.45	27.61	10.10
Lane Group LOS	D	B	D	B	B	D	C	B
Critical Lane Group	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	10.43	0.05	0.57	4.62	2.23	1.48	11.17	0.10
50th-Percentile Queue Length [ft/ln]	260.67	1.34	14.22	115.44	55.72	36.99	279.18	2.54
95th-Percentile Queue Length [veh/ln]	15.72	0.10	1.02	8.14	4.01	2.66	16.65	0.18
95th-Percentile Queue Length [ft/ln]	393.06	2.41	25.60	203.55	100.29	66.58	416.19	4.57

Movement, Approach, & Intersection Results

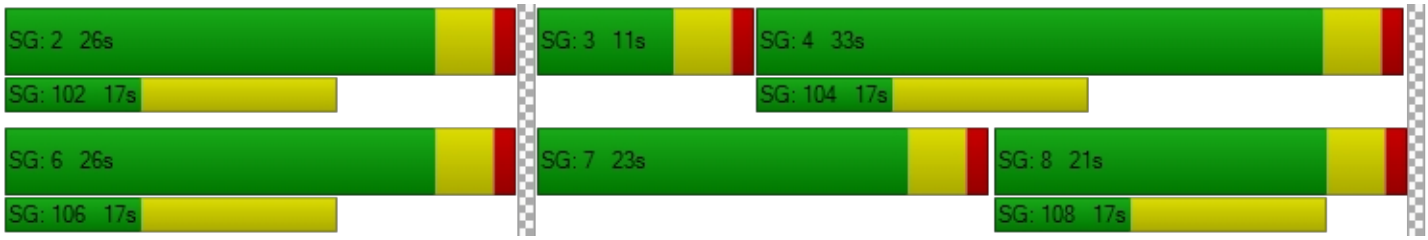
d_M, Delay for Movement [s/veh]	36.39	36.39	36.39	16.59	16.59	16.59	36.32	16.85	14.72	36.45	27.61	10.10
Movement LOS	D	D	D	B	B	B	D	B	B	D	C	B
d_A, Approach Delay [s/veh]	36.39			16.59			16.98			27.94		
Approach LOS	D			B			B			C		
d_I, Intersection Delay [s/veh]	25.52											
Intersection LOS	C											
Intersection V/C	0.893											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	24.86	24.86	24.86	24.86
l_p,int, Pedestrian LOS Score for Intersection	2.110	1.727	3.847	2.973
Crosswalk LOS	B	A	D	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	629	629	486	829
d_b, Bicycle Delay [s]	16.46	16.46	20.06	12.01
l_b,int, Bicycle LOS Score for Intersection	2.434	1.568	2.475	2.836
Bicycle LOS	B	A	B	C

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Dudley St (NS) at Vejar St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	21.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.189

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]	30.00			30.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	10	408	32	35	152	8	8	0	15	52	1	79
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	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]	10	408	32	35	152	8	8	0	15	52	1	79
Peak Hour Factor	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010
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]	3	113	9	10	42	2	2	0	4	14	0	22
Total Analysis Volume [veh/h]	11	453	36	39	169	9	9	0	17	58	1	88
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
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	0.01	0.00	0.00	0.04	0.00	0.00	0.04	0.00	0.02	0.19	0.00	0.15
d_M, Delay for Movement [s/veh]	7.60	0.00	0.00	8.48	0.00	0.00	19.75	16.79	9.59	20.96	20.38	15.31
Movement LOS	A	A	A	A	A	A	C	C	A	C	C	C
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.02	0.10	0.10	0.10	0.18	0.18	0.18	1.49	1.49	1.49
95th-Percentile Queue Length [ft/ln]	0.54	0.54	0.54	2.52	2.52	2.52	4.38	4.38	4.38	37.14	37.14	37.14
d_A, Approach Delay [s/veh]	0.17			1.52			13.10			17.57		
Approach LOS	A			A			B			C		
d_I, Intersection Delay [s/veh]	3.75											
Intersection LOS	C											

Pomona Mission 71

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

Scenario 1 Existing Evening Peak Hour
2/19/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Curran Pl (NS) at Vejar St (EW)	Two-way stop	HCM 6th Edition	WB Thru	0.007	10.0	B
2	Dudley St (NS) at Mission Blvd (EW)	Signalized	HCM 6th Edition	EB Left	0.682	14.7	B
3	Dudley St (NS) at Vejar St (EW)	Two-way stop	HCM 6th Edition	EB Left	0.061	18.9	C

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: Curran Pl (NS) at Vejar St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	10.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.007

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]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	4	27	5	17	58	12	3	4	1	2	5	12
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	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]	4	27	5	17	58	12	3	4	1	2	5	12
Peak Hour Factor	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150
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	7	1	5	16	3	1	1	0	1	1	3
Total Analysis Volume [veh/h]	4	30	5	19	63	13	3	4	1	2	5	13
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
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	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.01
d_M, Delay for Movement [s/veh]	7.37	0.00	0.00	7.31	0.00	0.00	9.63	9.98	8.67	9.57	10.05	8.55
Movement LOS	A	A	A	A	A	A	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.01	0.03	0.03	0.03	0.03	0.03	0.03	0.07	0.07	0.07
95th-Percentile Queue Length [ft/ln]	0.20	0.20	0.20	0.82	0.82	0.82	0.78	0.78	0.78	1.68	1.68	1.68
d_A, Approach Delay [s/veh]	0.76			1.46			9.69			9.02		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	2.63											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 2: Dudley St (NS) at Mission Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	14.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.682

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	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	100.00	100.00	100.00
Speed [mph]	30.00			30.00			45.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	179	0	81	8	2	23	7	1089	336	100	761	2
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	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
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	179	0	81	8	2	23	7	1089	336	100	761	2
Peak Hour Factor	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150
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]	49	0	22	2	1	6	2	298	92	27	208	1
Total Analysis Volume [veh/h]	196	0	89	9	2	25	8	1190	367	109	832	2
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	0	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	130	0	0	130	0	130	130	0	130	130	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	21	0	0	21	0	18	28	0	11	21	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering 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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	L	C	R
C, Cycle Length [s]	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	13	1	29	29	6	34	34
g / C, Green / Cycle	0.22	0.22	0.01	0.48	0.48	0.10	0.56	0.56
(v / s)_i Volume / Saturation Flow Rate	0.19	0.02	0.01	0.35	0.24	0.07	0.25	0.00
s, saturation flow rate [veh/h]	1480	1607	1593	3373	1506	1593	3373	1506
c, Capacity [veh/h]	430	432	24	1621	724	155	1899	848
d1, Uniform Delay [s]	22.27	18.60	29.28	12.52	10.71	26.27	7.62	5.75
k, delay calibration	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.76	0.08	7.75	2.99	2.53	5.68	0.74	0.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.66	0.08	0.33	0.73	0.51	0.70	0.44	0.00
d, Delay for Lane Group [s/veh]	24.03	18.68	37.03	15.51	13.24	31.95	8.36	5.75
Lane Group LOS	C	B	D	B	B	C	A	A
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.76	0.38	0.16	5.34	2.97	1.62	2.36	0.01
50th-Percentile Queue Length [ft/ln]	93.97	9.56	3.89	133.58	74.34	40.38	59.10	0.23
95th-Percentile Queue Length [veh/ln]	6.77	0.69	0.28	9.13	5.35	2.91	4.25	0.02
95th-Percentile Queue Length [ft/ln]	169.14	17.20	7.00	228.36	133.82	72.68	106.37	0.41

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	24.03	24.03	24.03	18.68	18.68	18.68	37.03	15.51	13.24	31.95	8.36	5.75
Movement LOS	C	C	C	B	B	B	D	B	B	C	A	A
d_A, Approach Delay [s/veh]	24.03			18.68			15.09			11.08		
Approach LOS	C			B			B			B		
d_I, Intersection Delay [s/veh]	14.70											
Intersection LOS	B											
Intersection V/C	0.682											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	20.01	20.01	20.01	20.01
l_p,int, Pedestrian LOS Score for Intersection	2.064	1.715	3.347	2.927
Crosswalk LOS	B	A	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	567	567	800	567
d_b, Bicycle Delay [s]	15.41	15.41	10.80	15.41
l_b,int, Bicycle LOS Score for Intersection	2.030	1.619	2.851	2.338
Bicycle LOS	B	A	C	B

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Dudley St (NS) at Vejar St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	18.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.061

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]	30.00			30.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	10	190	41	62	329	6	15	3	3	27	2	34
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	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]	10	190	41	62	329	6	15	3	3	27	2	34
Peak Hour Factor	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030
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]	3	53	11	17	91	2	4	1	1	7	1	9
Total Analysis Volume [veh/h]	11	210	45	69	364	7	17	3	3	30	2	38
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
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	0.01	0.00	0.00	0.05	0.00	0.00	0.06	0.01	0.00	0.10	0.01	0.05
d_M, Delay for Movement [s/veh]	8.06	0.00	0.00	7.90	0.00	0.00	18.85	17.93	11.27	18.49	18.11	10.90
Movement LOS	A	A	A	A	A	A	C	C	B	C	C	B
95th-Percentile Queue Length [veh/ln]	0.03	0.03	0.03	0.15	0.15	0.15	0.24	0.24	0.24	0.54	0.54	0.54
95th-Percentile Queue Length [ft/ln]	0.64	0.64	0.64	3.72	3.72	3.72	6.07	6.07	6.07	13.51	13.51	13.51
d_A, Approach Delay [s/veh]	0.33			1.24			17.74			14.36		
Approach LOS	A			A			C			B		
d_I, Intersection Delay [s/veh]	2.56											
Intersection LOS	C											

EXISTING PLUS PROJECT

Pomona Mission 71

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

Scenario 2 Existing Plus Project Morning Peak Hour
2/19/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Curran Pl (NS) at Vejar St (EW)	Two-way stop	HCM 6th Edition	EB Thru	0.019	10.8	B
2	Dudley St (NS) at Mission Blvd (EW)	Signalized	HCM 6th Edition	NB Left	0.910	26.0	C
3	Dudley St (NS) at Vejar St (EW)	Two-way stop	HCM 6th Edition	WB Left	0.191	21.2	C

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: Curran Pl (NS) at Vejar St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	10.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.019

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]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	2	79	0	13	31	6	26	9	4	1	3	15
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	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	4	0	0	0	0	0	0	0	1
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	79	0	17	31	6	26	9	4	1	3	16
Peak Hour Factor	0.7050	0.7050	0.7050	0.7050	0.7050	0.7050	0.7050	0.7050	0.7050	0.7050	0.7050	0.7050
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	28	0	6	11	2	9	3	1	0	1	6
Total Analysis Volume [veh/h]	3	112	0	24	44	9	37	13	6	1	4	23
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
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	0.00	0.00	0.00	0.02	0.00	0.00	0.05	0.02	0.01	0.00	0.01	0.02
d_M, Delay for Movement [s/veh]	7.32	0.00	0.00	7.48	0.00	0.00	10.60	10.80	8.96	10.23	10.54	8.96
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.03	0.03	0.03	0.25	0.25	0.25	0.10	0.10	0.10
95th-Percentile Queue Length [ft/ln]	0.10	0.10	0.10	0.87	0.87	0.87	6.36	6.36	6.36	2.47	2.47	2.47
d_A, Approach Delay [s/veh]	0.19			2.33			10.47			9.23		
Approach LOS	A			A			B			A		
d_I, Intersection Delay [s/veh]	3.79											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 2: Dudley St (NS) at Mission Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	26.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.910

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	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	100.00	100.00	100.00
Speed [mph]	30.00			30.00			45.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	424	4	51	1	0	4	29	770	202	76	1309	12
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	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]	3	0	2	0	0	0	0	0	1	1	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
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	427	4	53	1	0	4	29	770	203	77	1309	12
Peak Hour Factor	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030
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]	118	1	15	0	0	1	8	213	56	21	362	3
Total Analysis Volume [veh/h]	473	4	59	1	0	4	32	853	225	85	1450	13
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	0	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	130	0	0	130	0	130	130	0	130	130	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	22	0	0	22	0	11	27	0	11	27	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering 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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	L	C	R
C, Cycle Length [s]	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	18	18	3	25	25	5	27	27
g / C, Green / Cycle	0.30	0.30	0.05	0.41	0.41	0.09	0.45	0.45
(v / s)_i Volume / Saturation Flow Rate	0.37	0.00	0.02	0.25	0.15	0.05	0.43	0.01
s, saturation flow rate [veh/h]	1453	1659	1593	3373	1506	1593	3373	1506
c, Capacity [veh/h]	549	570	78	1392	621	140	1523	680
d1, Uniform Delay [s]	22.61	14.79	27.77	13.89	12.20	26.45	15.88	9.13
k, delay calibration	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.18	0.01	3.42	2.02	1.63	4.21	14.18	0.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.98	0.01	0.41	0.61	0.36	0.61	0.95	0.02
d, Delay for Lane Group [s/veh]	35.79	14.79	31.18	15.91	13.83	30.66	30.06	9.18
Lane Group LOS	D	B	C	B	B	C	C	A
Critical Lane Group	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	9.41	0.05	0.48	3.96	1.93	1.23	10.39	0.09
50th-Percentile Queue Length [ft/ln]	235.22	1.13	11.90	98.92	48.36	30.76	259.86	2.15
95th-Percentile Queue Length [veh/ln]	14.44	0.08	0.86	7.12	3.48	2.21	15.68	0.15
95th-Percentile Queue Length [ft/ln]	360.98	2.03	21.43	178.06	87.05	55.37	392.04	3.87

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	35.79	35.79	35.79	14.79	14.79	14.79	31.18	15.91	13.83	30.66	30.06	9.18
Movement LOS	D	D	D	B	B	B	C	B	B	C	C	A
d_A, Approach Delay [s/veh]	35.79			14.79			15.93			29.91		
Approach LOS	D			B			B			C		
d_I, Intersection Delay [s/veh]	26.02											
Intersection LOS	C											
Intersection V/C	0.910											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	20.01	20.01	20.01	20.01
l_p,int, Pedestrian LOS Score for Intersection	2.105	1.719	3.843	2.965
Crosswalk LOS	B	A	D	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	600	767	767
d_b, Bicycle Delay [s]	14.70	14.70	11.41	11.41
l_b,int, Bicycle LOS Score for Intersection	2.444	1.568	2.475	2.837
Bicycle LOS	B	A	B	C

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Dudley St (NS) at Vejar St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	21.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.191

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]	30.00			30.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	10	408	32	35	152	8	8	0	15	52	1	79
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	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]	1	0	0	0	0	0	0	0	4	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]	11	408	32	35	152	8	8	0	19	52	1	79
Peak Hour Factor	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010
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]	3	113	9	10	42	2	2	0	5	14	0	22
Total Analysis Volume [veh/h]	12	453	36	39	169	9	9	0	21	58	1	88
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
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	0.01	0.00	0.00	0.04	0.00	0.00	0.04	0.00	0.02	0.19	0.00	0.15
d_M, Delay for Movement [s/veh]	7.60	0.00	0.00	8.48	0.00	0.00	19.81	16.84	9.60	21.16	20.49	15.38
Movement LOS	A	A	A	A	A	A	C	C	A	C	C	C
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.02	0.10	0.10	0.10	0.19	0.19	0.19	1.50	1.50	1.50
95th-Percentile Queue Length [ft/ln]	0.59	0.59	0.59	2.52	2.52	2.52	4.77	4.77	4.77	37.48	37.48	37.48
d_A, Approach Delay [s/veh]	0.18			1.52			12.66			17.70		
Approach LOS	A			A			B			C		
d_I, Intersection Delay [s/veh]	3.80											
Intersection LOS	C											

Pomona Mission 71

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

Scenario 2 Existing Plus Project Evening Peak Hour
2/19/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Curran Pl (NS) at Vejar St (EW)	Two-way stop	HCM 6th Edition	WB Thru	0.007	10.1	B
2	Dudley St (NS) at Mission Blvd (EW)	Signalized	HCM 6th Edition	EB Left	0.686	14.9	B
3	Dudley St (NS) at Vejar St (EW)	Two-way stop	HCM 6th Edition	EB Left	0.062	19.0	C

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: Curran Pl (NS) at Vejar St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	10.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.007

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]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	4	27	5	17	58	12	3	4	1	2	5	12
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	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	2	0	0	0	0	0	0	0	3
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]	4	27	5	19	58	12	3	4	1	2	5	15
Peak Hour Factor	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150
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	7	1	5	16	3	1	1	0	1	1	4
Total Analysis Volume [veh/h]	4	30	5	21	63	13	3	4	1	2	5	16
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
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	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.02
d_M, Delay for Movement [s/veh]	7.37	0.00	0.00	7.31	0.00	0.00	9.69	10.01	8.67	9.61	10.09	8.56
Movement LOS	A	A	A	A	A	A	A	B	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.01	0.04	0.04	0.04	0.03	0.03	0.03	0.08	0.08	0.08
95th-Percentile Queue Length [ft/ln]	0.20	0.20	0.20	0.91	0.91	0.91	0.79	0.79	0.79	1.91	1.91	1.91
d_A, Approach Delay [s/veh]	0.76			1.58			9.72			8.98		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	2.80											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 2: Dudley St (NS) at Mission Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	14.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.686

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	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	100.00	100.00	100.00
Speed [mph]	30.00			30.00			45.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	179	0	81	8	2	23	7	1089	336	100	761	2
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	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]	2	0	1	0	0	0	0	0	3	2	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
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	181	0	82	8	2	23	7	1089	339	102	761	2
Peak Hour Factor	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150
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]	49	0	22	2	1	6	2	298	93	28	208	1
Total Analysis Volume [veh/h]	198	0	90	9	2	25	8	1190	370	111	832	2
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	0	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	130	0	0	130	0	130	130	0	130	130	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	21	0	0	21	0	18	28	0	11	21	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering 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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	L	C	R
C, Cycle Length [s]	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	13	1	29	29	6	34	34
g / C, Green / Cycle	0.22	0.22	0.01	0.48	0.48	0.10	0.56	0.56
(v / s)_i Volume / Saturation Flow Rate	0.19	0.02	0.01	0.35	0.25	0.07	0.25	0.00
s, saturation flow rate [veh/h]	1479	1606	1593	3373	1506	1593	3373	1506
c, Capacity [veh/h]	433	435	24	1612	720	156	1892	844
d1, Uniform Delay [s]	22.21	18.50	29.28	12.65	10.85	26.27	7.69	5.80
k, delay calibration	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.77	0.08	7.75	3.07	2.61	5.87	0.74	0.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.67	0.08	0.33	0.74	0.51	0.71	0.44	0.00
d, Delay for Lane Group [s/veh]	23.97	18.58	37.03	15.71	13.46	32.14	8.44	5.81
Lane Group LOS	C	B	D	B	B	C	A	A
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.80	0.38	0.16	5.40	3.04	1.65	2.38	0.01
50th-Percentile Queue Length [ft/ln]	94.89	9.52	3.89	134.95	75.91	41.27	59.60	0.23
95th-Percentile Queue Length [veh/ln]	6.83	0.69	0.28	9.21	5.47	2.97	4.29	0.02
95th-Percentile Queue Length [ft/ln]	170.80	17.14	7.00	230.20	136.64	74.28	107.29	0.41

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	23.97	23.97	23.97	18.58	18.58	18.58	37.03	15.71	13.46	32.14	8.44	5.81
Movement LOS	C	C	C	B	B	B	D	B	B	C	A	A
d_A, Approach Delay [s/veh]	23.97			18.58			15.29			11.22		
Approach LOS	C			B			B			B		
d_I, Intersection Delay [s/veh]	14.86											
Intersection LOS	B											
Intersection V/C	0.686											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	20.01	20.01	20.01	20.01
l_p,int, Pedestrian LOS Score for Intersection	2.068	1.715	3.351	2.927
Crosswalk LOS	B	A	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	567	567	800	567
d_b, Bicycle Delay [s]	15.41	15.41	10.80	15.41
l_b,int, Bicycle LOS Score for Intersection	2.035	1.619	2.853	2.339
Bicycle LOS	B	A	C	B

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Dudley St (NS) at Vejar St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	19.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.062

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]	30.00			30.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	10	190	41	62	329	6	15	3	3	27	2	34
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	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]	3	0	0	0	0	0	0	0	2	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]	13	190	41	62	329	6	15	3	5	27	2	34
Peak Hour Factor	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030
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]	4	53	11	17	91	2	4	1	1	7	1	9
Total Analysis Volume [veh/h]	14	210	45	69	364	7	17	3	6	30	2	38
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
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	0.01	0.00	0.00	0.05	0.00	0.00	0.06	0.01	0.01	0.10	0.01	0.05
d_M, Delay for Movement [s/veh]	8.07	0.00	0.00	7.90	0.00	0.00	19.02	18.08	11.29	18.76	18.28	10.94
Movement LOS	A	A	A	A	A	A	C	C	B	C	C	B
95th-Percentile Queue Length [veh/ln]	0.03	0.03	0.03	0.15	0.15	0.15	0.26	0.26	0.26	0.55	0.55	0.55
95th-Percentile Queue Length [ft/ln]	0.83	0.83	0.83	3.72	3.72	3.72	6.52	6.52	6.52	13.70	13.70	13.70
d_A, Approach Delay [s/veh]	0.42			1.24			17.13			14.50		
Approach LOS	A			A			C			B		
d_I, Intersection Delay [s/veh]	2.63											
Intersection LOS	C											

OPENING YEAR (2020) WITHOUT PROJECT

Pomona Mission 71

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

Scenario 3 Opening Year (2020) Without Project Morning Peak Hour

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

2/19/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Curran Pl (NS) at Vejar St (EW)	Two-way stop	HCM 6th Edition	EB Thru	0.019	10.8	B
2	Dudley St (NS) at Mission Blvd (EW)	Signalized	HCM 6th Edition	NB Left	0.933	29.5	C
3	Dudley St (NS) at Vejar St (EW)	Two-way stop	HCM 6th Edition	WB Left	0.204	22.1	C

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: Curran Pl (NS) at Vejar St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	10.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.019

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]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	2	79	0	13	31	6	26	9	4	1	3	15
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
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	82	0	14	32	6	27	9	4	1	3	16
Peak Hour Factor	0.7050	0.7050	0.7050	0.7050	0.7050	0.7050	0.7050	0.7050	0.7050	0.7050	0.7050	0.7050
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	29	0	5	11	2	10	3	1	0	1	6
Total Analysis Volume [veh/h]	3	116	0	20	45	9	38	13	6	1	4	23
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
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	0.00	0.00	0.00	0.01	0.00	0.00	0.05	0.02	0.01	0.00	0.01	0.02
d_M, Delay for Movement [s/veh]	7.33	0.00	0.00	7.48	0.00	0.00	10.57	10.77	8.97	10.20	10.50	8.98
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.03	0.03	0.03	0.26	0.26	0.26	0.10	0.10	0.10
95th-Percentile Queue Length [ft/ln]	0.10	0.10	0.10	0.72	0.72	0.72	6.45	6.45	6.45	2.47	2.47	2.47
d_A, Approach Delay [s/veh]	0.18			2.02			10.45			9.24		
Approach LOS	A			A			B			A		
d_I, Intersection Delay [s/veh]	3.69											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 2: Dudley St (NS) at Mission Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	29.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.933

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	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	100.00	100.00	100.00
Speed [mph]	30.00			30.00			45.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	424	4	51	1	0	4	29	770	202	76	1309	12
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
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
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	441	4	53	1	0	4	30	801	210	79	1361	12
Peak Hour Factor	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030
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]	122	1	15	0	0	1	8	222	58	22	377	3
Total Analysis Volume [veh/h]	488	4	59	1	0	4	33	887	233	87	1507	13
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	65
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	0	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	130	0	0	130	0	130	130	0	130	130	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	24	0	0	24	0	11	30	0	11	30	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering 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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	L	C	R
C, Cycle Length [s]	65	65	65	65	65	65	65	65
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	20	20	3	28	28	6	30	30
g / C, Green / Cycle	0.31	0.31	0.05	0.42	0.42	0.08	0.46	0.46
(v / s)_i Volume / Saturation Flow Rate	0.38	0.00	0.02	0.26	0.15	0.05	0.45	0.01
s, saturation flow rate [veh/h]	1450	1665	1593	3373	1506	1593	3373	1506
c, Capacity [veh/h]	550	579	78	1429	638	135	1549	691
d1, Uniform Delay [s]	24.32	15.66	30.09	14.69	12.81	28.89	17.23	9.61
k, delay calibration	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	18.05	0.01	3.60	2.04	1.61	5.11	17.31	0.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.00	0.01	0.42	0.62	0.37	0.65	0.97	0.02
d, Delay for Lane Group [s/veh]	42.37	15.67	33.69	16.72	14.42	34.00	34.53	9.66
Lane Group LOS	F	B	C	B	B	C	C	A
Critical Lane Group	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	11.12	0.05	0.54	4.54	2.18	1.41	12.49	0.09
50th-Percentile Queue Length [ft/ln]	278.11	1.23	13.44	113.41	54.48	35.16	312.31	2.35
95th-Percentile Queue Length [veh/ln]	16.60	0.09	0.97	8.03	3.92	2.53	18.29	0.17
95th-Percentile Queue Length [ft/ln]	415.10	2.22	24.18	200.74	98.06	63.28	457.23	4.23

Movement, Approach, & Intersection Results

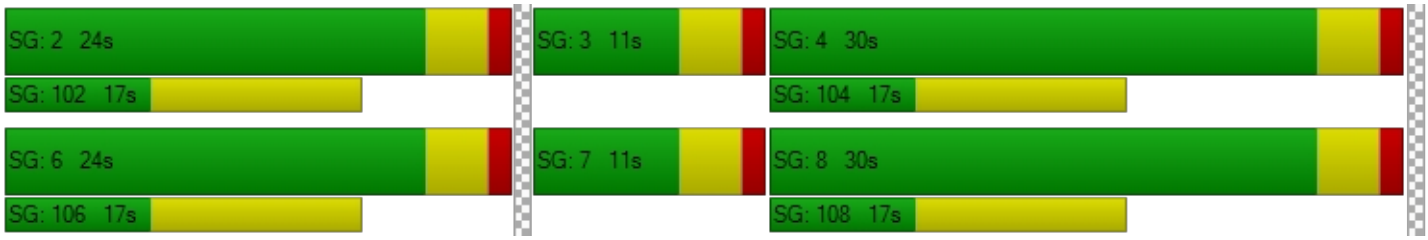
d_M, Delay for Movement [s/veh]	42.37	42.37	42.37	15.67	15.67	15.67	33.69	16.72	14.42	34.00	34.53	9.66
Movement LOS	D	D	D	B	B	B	C	B	B	C	C	A
d_A, Approach Delay [s/veh]	42.37			15.67			16.74			34.30		
Approach LOS	D			B			B			C		
d_I, Intersection Delay [s/veh]	29.51											
Intersection LOS	C											
Intersection V/C	0.933											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	22.43	22.43	22.43	22.43
l_p,int, Pedestrian LOS Score for Intersection	2.122	1.724	3.897	2.990
Crosswalk LOS	B	A	D	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	615	615	800	800
d_b, Bicycle Delay [s]	15.58	15.58	11.70	11.70
l_b,int, Bicycle LOS Score for Intersection	2.469	1.568	2.511	2.885
Bicycle LOS	B	A	B	C

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Dudley St (NS) at Vejar St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	22.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.204

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]	30.00			30.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	10	408	32	35	152	8	8	0	15	52	1	79
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
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]	10	424	33	36	158	8	8	0	16	54	1	82
Peak Hour Factor	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010
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]	3	118	9	10	44	2	2	0	4	15	0	23
Total Analysis Volume [veh/h]	11	471	37	40	175	9	9	0	18	60	1	91
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
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	0.01	0.00	0.00	0.04	0.00	0.00	0.04	0.00	0.02	0.20	0.00	0.16
d_M, Delay for Movement [s/veh]	7.61	0.00	0.00	8.54	0.00	0.00	20.60	17.27	9.66	22.13	21.44	16.10
Movement LOS	A	A	A	A	A	A	C	C	A	C	C	C
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.02	0.11	0.11	0.11	0.19	0.19	0.19	1.64	1.64	1.64
95th-Percentile Queue Length [ft/ln]	0.54	0.54	0.54	2.64	2.64	2.64	4.66	4.66	4.66	41.02	41.02	41.02
d_A, Approach Delay [s/veh]	0.16			1.53			13.30			18.51		
Approach LOS	A			A			B			C		
d_I, Intersection Delay [s/veh]	3.90											
Intersection LOS	C											

Pomona Mission 71

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Scenario 3 Openng Year (2020) Without Project Evening Peak Hour

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2/19/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Curran Pl (NS) at Vejar St (EW)	Two-way stop	HCM 6th Edition	WB Thru	0.007	10.1	B
2	Dudley St (NS) at Mission Blvd (EW)	Signalized	HCM 6th Edition	EB Left	0.703	15.5	B
3	Dudley St (NS) at Vejar St (EW)	Two-way stop	HCM 6th Edition	EB Left	0.068	19.7	C

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: Curran Pl (NS) at Vejar St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	10.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.007

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]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	4	27	5	17	58	12	3	4	1	2	5	12
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
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]	4	28	5	18	60	12	3	4	1	2	5	12
Peak Hour Factor	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150
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	8	1	5	16	3	1	1	0	1	1	3
Total Analysis Volume [veh/h]	4	31	5	20	66	13	3	4	1	2	5	13
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
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	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.01
d_M, Delay for Movement [s/veh]	7.38	0.00	0.00	7.32	0.00	0.00	9.68	10.02	8.69	9.61	10.09	8.55
Movement LOS	A	A	A	A	A	A	A	B	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.01	0.03	0.03	0.03	0.03	0.03	0.03	0.07	0.07	0.07
95th-Percentile Queue Length [ft/ln]	0.20	0.20	0.20	0.87	0.87	0.87	0.79	0.79	0.79	1.68	1.68	1.68
d_A, Approach Delay [s/veh]	0.74			1.48			9.73			9.04		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	2.60											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 2: Dudley St (NS) at Mission Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	15.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.703

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	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	100.00	100.00	100.00
Speed [mph]	30.00			30.00			45.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	179	0	81	8	2	23	7	1089	336	100	761	2
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
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
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	186	0	84	8	2	24	7	1133	349	104	791	2
Peak Hour Factor	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150
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]	51	0	23	2	1	7	2	310	95	28	216	1
Total Analysis Volume [veh/h]	203	0	92	9	2	26	8	1238	381	114	864	2
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	65
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	0	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	130	0	0	130	0	130	130	0	130	130	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	21	0	0	21	0	20	33	0	11	24	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering 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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	L	C	R
C, Cycle Length [s]	65	65	65	65	65	65	65	65
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	15	15	1	32	32	6	37	37
g / C, Green / Cycle	0.23	0.23	0.01	0.50	0.50	0.09	0.58	0.58
(v / s)_i Volume / Saturation Flow Rate	0.20	0.02	0.01	0.37	0.25	0.07	0.26	0.00
s, saturation flow rate [veh/h]	1476	1602	1593	3373	1506	1593	3373	1506
c, Capacity [veh/h]	428	432	24	1672	747	149	1936	864
d1, Uniform Delay [s]	24.08	19.94	31.73	13.07	11.08	28.81	7.94	5.91
k, delay calibration	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.99	0.08	7.87	2.99	2.48	7.98	0.75	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.69	0.09	0.33	0.74	0.51	0.77	0.45	0.00
d, Delay for Lane Group [s/veh]	26.07	20.02	39.60	16.06	13.56	36.79	8.68	5.92
Lane Group LOS	C	C	D	B	B	D	A	A
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.31	0.43	0.17	6.11	3.34	1.93	2.72	0.01
50th-Percentile Queue Length [ft/ln]	107.81	10.78	4.18	152.64	83.44	48.26	67.97	0.25
95th-Percentile Queue Length [veh/ln]	7.72	0.78	0.30	10.16	6.01	3.47	4.89	0.02
95th-Percentile Queue Length [ft/ln]	192.96	19.40	7.52	253.95	150.19	86.87	122.34	0.44

Movement, Approach, & Intersection Results

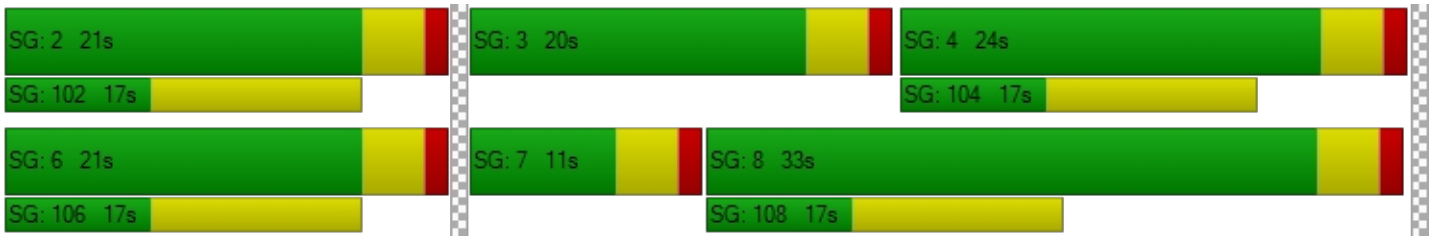
d_M, Delay for Movement [s/veh]	26.07	26.07	26.07	20.02	20.02	20.02	39.60	16.06	13.56	36.79	8.68	5.92
Movement LOS	C	C	C	C	C	C	D	B	B	D	A	A
d_A, Approach Delay [s/veh]	26.07			20.02			15.59			11.95		
Approach LOS	C			C			B			B		
d_I, Intersection Delay [s/veh]	15.48											
Intersection LOS	B											
Intersection V/C	0.703											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	22.43	22.43	22.43	22.43
l_p,int, Pedestrian LOS Score for Intersection	2.083	1.720	3.387	2.950
Crosswalk LOS	B	A	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	523	523	892	615
d_b, Bicycle Delay [s]	17.72	17.72	9.97	15.58
l_b,int, Bicycle LOS Score for Intersection	2.046	1.621	2.902	2.368
Bicycle LOS	B	A	C	B

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Dudley St (NS) at Vejar St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	19.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.068

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]	30.00			30.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	10	190	41	62	329	6	15	3	3	27	2	34
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
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]	10	198	43	64	342	6	16	3	3	28	2	35
Peak Hour Factor	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030
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]	3	55	12	18	95	2	4	1	1	8	1	10
Total Analysis Volume [veh/h]	11	219	48	71	379	7	18	3	3	31	2	39
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
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	0.01	0.00	0.00	0.05	0.00	0.00	0.07	0.01	0.00	0.11	0.01	0.05
d_M, Delay for Movement [s/veh]	8.10	0.00	0.00	7.94	0.00	0.00	19.70	18.64	11.53	19.28	18.81	11.14
Movement LOS	A	A	A	A	A	A	C	C	B	C	C	B
95th-Percentile Queue Length [veh/ln]	0.03	0.03	0.03	0.16	0.16	0.16	0.27	0.27	0.27	0.58	0.58	0.58
95th-Percentile Queue Length [ft/ln]	0.65	0.65	0.65	3.89	3.89	3.89	6.72	6.72	6.72	14.61	14.61	14.61
d_A, Approach Delay [s/veh]	0.32			1.23			18.55			14.86		
Approach LOS	A			A			C			B		
d_I, Intersection Delay [s/veh]	2.61											
Intersection LOS	C											

OPENING YEAR (2020) WITH PROJECT

Pomona Mission 71

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

Scenario 4 Opening Year (2020) With Project Morning Peak Hour

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

2/19/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Curran Pl (NS) at Vejar St (EW)	Two-way stop	HCM 6th Edition	EB Thru	0.020	10.9	B
2	Dudley St (NS) at Mission Blvd (EW)	Signalized	HCM 6th Edition	WB Left	0.915	30.6	C
3	Dudley St (NS) at Vejar St (EW)	Two-way stop	HCM 6th Edition	WB Left	0.207	22.4	C

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: Curran Pl (NS) at Vejar St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	10.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.020

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]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	2	79	0	13	31	6	26	9	4	1	3	15
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
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	4	0	0	0	0	0	0	0	1
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	82	0	18	32	6	27	9	4	1	3	17
Peak Hour Factor	0.7050	0.7050	0.7050	0.7050	0.7050	0.7050	0.7050	0.7050	0.7050	0.7050	0.7050	0.7050
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	29	0	6	11	2	10	3	1	0	1	6
Total Analysis Volume [veh/h]	3	116	0	26	45	9	38	13	6	1	4	24
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
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	0.00	0.00	0.00	0.02	0.00	0.00	0.06	0.02	0.01	0.00	0.01	0.03
d_M, Delay for Movement [s/veh]	7.33	0.00	0.00	7.49	0.00	0.00	10.71	10.89	8.98	10.31	10.61	8.99
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.04	0.04	0.04	0.26	0.26	0.26	0.10	0.10	0.10
95th-Percentile Queue Length [ft/ln]	0.10	0.10	0.10	0.93	0.93	0.93	6.59	6.59	6.59	2.57	2.57	2.57
d_A, Approach Delay [s/veh]	0.18			2.43			10.57			9.26		
Approach LOS	A			A			B			A		
d_I, Intersection Delay [s/veh]	3.82											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 2: Dudley St (NS) at Mission Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	30.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.915

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	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	100.00	100.00	100.00
Speed [mph]	30.00			30.00			45.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	424	4	51	1	0	4	29	770	202	76	1309	12
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	0	2	0	0	0	0	0	1	1	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
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	444	4	55	1	0	4	30	801	211	80	1361	12
Peak Hour Factor	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030
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]	123	1	15	0	0	1	8	222	58	22	377	3
Total Analysis Volume [veh/h]	492	4	61	1	0	4	33	887	234	89	1507	13
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	0	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	130	0	0	130	0	130	130	0	130	130	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	34	0	0	34	0	23	21	0	35	33	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering 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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	30	30	4	42	42	6	44	44
g / C, Green / Cycle	0.33	0.33	0.04	0.46	0.46	0.07	0.49	0.49
(v / s)_i Volume / Saturation Flow Rate	0.39	0.00	0.02	0.26	0.16	0.06	0.45	0.01
s, saturation flow rate [veh/h]	1441	1681	1593	3373	1506	1593	3373	1506
c, Capacity [veh/h]	555	608	72	1557	695	115	1648	736
d1, Uniform Delay [s]	31.99	20.14	42.03	17.77	15.50	41.15	21.35	11.91
k, delay calibration	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	18.46	0.01	4.47	1.52	1.31	10.36	9.39	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.00	0.01	0.46	0.57	0.34	0.77	0.91	0.02
d, Delay for Lane Group [s/veh]	50.45	20.14	46.50	19.29	16.81	51.51	30.73	11.96
Lane Group LOS	F	C	D	B	B	D	C	B
Critical Lane Group	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	15.15	0.07	0.78	6.29	3.00	2.21	15.03	0.13
50th-Percentile Queue Length [ft/ln]	378.83	1.75	19.39	157.22	74.92	55.23	375.73	3.33
95th-Percentile Queue Length [veh/ln]	21.58	0.13	1.40	10.40	5.39	3.98	21.39	0.24
95th-Percentile Queue Length [ft/ln]	539.49	3.16	34.91	260.04	134.86	99.41	534.68	5.99

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	50.45	50.45	50.45	20.14	20.14	20.14	46.50	19.29	16.81	51.51	30.73	11.96
Movement LOS	D	D	D	C	C	C	D	B	B	D	C	B
d_A, Approach Delay [s/veh]	50.45			20.14			19.56			31.73		
Approach LOS	D			C			B			C		
d_I, Intersection Delay [s/veh]	30.63											
Intersection LOS	C											
Intersection V/C	0.915											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
l_p,int, Pedestrian LOS Score for Intersection	2.143	1.741	3.922	3.008
Crosswalk LOS	B	A	D	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	667	378	644
d_b, Bicycle Delay [s]	20.00	20.00	29.61	20.67
l_b,int, Bicycle LOS Score for Intersection	2.479	1.568	2.512	2.887
Bicycle LOS	B	A	B	C

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Dudley St (NS) at Vejar St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	22.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.207

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]	30.00			30.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	10	408	32	35	152	8	8	0	15	52	1	79
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	0	0	0	0	0	0	0	4	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]	11	424	33	36	158	8	8	0	20	54	1	82
Peak Hour Factor	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010	0.9010
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]	3	118	9	10	44	2	2	0	6	15	0	23
Total Analysis Volume [veh/h]	12	471	37	40	175	9	9	0	22	60	1	91
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
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	0.01	0.00	0.00	0.04	0.00	0.00	0.04	0.00	0.03	0.21	0.00	0.16
d_M, Delay for Movement [s/veh]	7.61	0.00	0.00	8.54	0.00	0.00	20.67	17.32	9.67	22.36	21.56	16.18
Movement LOS	A	A	A	A	A	A	C	C	A	C	C	C
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.02	0.11	0.11	0.11	0.20	0.20	0.20	1.66	1.66	1.66
95th-Percentile Queue Length [ft/ln]	0.60	0.60	0.60	2.64	2.64	2.64	5.06	5.06	5.06	41.41	41.41	41.41
d_A, Approach Delay [s/veh]	0.18			1.53			12.86			18.65		
Approach LOS	A			A			B			C		
d_I, Intersection Delay [s/veh]	3.96											
Intersection LOS	C											

Pomona Mission 71

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Scenario 4 Openng Year (2020) With Project Evening Peak Hour

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2/19/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Curran Pl (NS) at Vejar St (EW)	Two-way stop	HCM 6th Edition	WB Thru	0.007	10.1	B
2	Dudley St (NS) at Mission Blvd (EW)	Signalized	HCM 6th Edition	EB Left	0.707	15.7	B
3	Dudley St (NS) at Vejar St (EW)	Two-way stop	HCM 6th Edition	EB Left	0.069	19.9	C

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: Curran Pl (NS) at Vejar St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	10.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.007

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]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	4	27	5	17	58	12	3	4	1	2	5	12
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
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	2	0	0	0	0	0	0	0	3
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]	4	28	5	20	60	12	3	4	1	2	5	15
Peak Hour Factor	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150
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	8	1	5	16	3	1	1	0	1	1	4
Total Analysis Volume [veh/h]	4	31	5	22	66	13	3	4	1	2	5	16
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
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	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.02
d_M, Delay for Movement [s/veh]	7.38	0.00	0.00	7.32	0.00	0.00	9.73	10.06	8.69	9.66	10.13	8.56
Movement LOS	A	A	A	A	A	A	A	B	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.01	0.04	0.04	0.04	0.03	0.03	0.03	0.08	0.08	0.08
95th-Percentile Queue Length [ft/ln]	0.20	0.20	0.20	0.96	0.96	0.96	0.79	0.79	0.79	1.91	1.91	1.91
d_A, Approach Delay [s/veh]	0.74			1.59			9.76			9.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	2.76											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 2: Dudley St (NS) at Mission Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	15.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.707

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	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	100.00	100.00	100.00
Speed [mph]	30.00			30.00			45.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	179	0	81	8	2	23	7	1089	336	100	761	2
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	0	1	0	0	0	0	0	3	2	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
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	188	0	85	8	2	24	7	1133	352	106	791	2
Peak Hour Factor	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150	0.9150
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]	51	0	23	2	1	7	2	310	96	29	216	1
Total Analysis Volume [veh/h]	205	0	93	9	2	26	8	1238	385	116	864	2
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	65
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	0	0	7	0	7	7	0	7	7	0
Maximum Green [s]	0	130	0	0	130	0	130	130	0	130	130	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	21	0	0	21	0	20	33	0	11	24	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering 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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	L	C	R
C, Cycle Length [s]	65	65	65	65	65	65	65	65
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	15	15	1	32	32	6	37	37
g / C, Green / Cycle	0.23	0.23	0.01	0.49	0.49	0.09	0.57	0.57
(v / s)_i Volume / Saturation Flow Rate	0.20	0.02	0.01	0.37	0.26	0.07	0.26	0.00
s, saturation flow rate [veh/h]	1476	1602	1593	3373	1506	1593	3373	1506
c, Capacity [veh/h]	431	435	24	1664	743	149	1930	861
d1, Uniform Delay [s]	24.01	19.83	31.73	13.20	11.22	28.82	8.01	5.97
k, delay calibration	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.00	0.08	7.87	3.06	2.58	8.34	0.75	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.69	0.09	0.33	0.74	0.52	0.78	0.45	0.00
d, Delay for Lane Group [s/veh]	26.01	19.92	39.60	16.26	13.80	37.16	8.77	5.97
Lane Group LOS	C	B	D	B	B	D	A	A
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.35	0.43	0.17	6.16	3.42	1.98	2.74	0.01
50th-Percentile Queue Length [ft/ln]	108.85	10.74	4.18	154.05	85.41	49.40	68.52	0.25
95th-Percentile Queue Length [veh/ln]	7.78	0.77	0.30	10.23	6.15	3.56	4.93	0.02
95th-Percentile Queue Length [ft/ln]	194.40	19.33	7.52	255.83	153.74	88.93	123.34	0.45

Movement, Approach, & Intersection Results

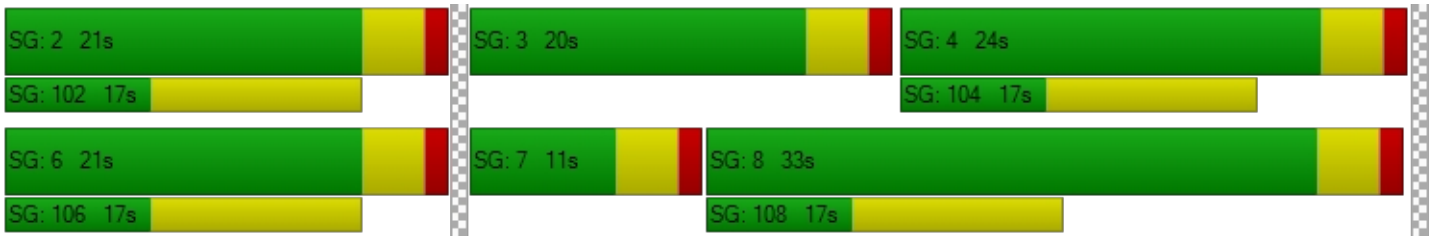
d_M, Delay for Movement [s/veh]	26.01	26.01	26.01	19.92	19.92	19.92	39.60	16.26	13.80	37.16	8.77	5.97
Movement LOS	C	C	C	B	B	B	D	B	B	D	A	A
d_A, Approach Delay [s/veh]	26.01			19.92			15.79			12.11		
Approach LOS	C			B			B			B		
d_I, Intersection Delay [s/veh]	15.65											
Intersection LOS	B											
Intersection V/C	0.707											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	22.43	22.43	22.43	22.43
l_p,int, Pedestrian LOS Score for Intersection	2.087	1.720	3.391	2.951
Crosswalk LOS	B	A	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	523	523	892	615
d_b, Bicycle Delay [s]	17.72	17.72	9.97	15.58
l_b,int, Bicycle LOS Score for Intersection	2.051	1.621	2.905	2.370
Bicycle LOS	B	A	C	B

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Dudley St (NS) at Vejar St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	19.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.069

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]	30.00			30.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	10	190	41	62	329	6	15	3	3	27	2	34
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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	0	0	0	0	0	0	0	2	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]	13	198	43	64	342	6	16	3	5	28	2	35
Peak Hour Factor	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030
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]	4	55	12	18	95	2	4	1	1	8	1	10
Total Analysis Volume [veh/h]	14	219	48	71	379	7	18	3	6	31	2	39
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
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	0.01	0.00	0.00	0.05	0.00	0.00	0.07	0.01	0.01	0.11	0.01	0.05
d_M, Delay for Movement [s/veh]	8.11	0.00	0.00	7.94	0.00	0.00	19.88	18.80	11.55	19.56	18.99	11.19
Movement LOS	A	A	A	A	A	A	C	C	B	C	C	B
95th-Percentile Queue Length [veh/ln]	0.03	0.03	0.03	0.16	0.16	0.16	0.29	0.29	0.29	0.59	0.59	0.59
95th-Percentile Queue Length [ft/ln]	0.84	0.84	0.84	3.89	3.89	3.89	7.20	7.20	7.20	14.83	14.83	14.83
d_A, Approach Delay [s/veh]	0.40			1.23			17.91			15.01		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	2.68											
Intersection LOS	C											

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