WHITTIER BOULEVARD BUSINESS PARK TRAFFIC IMPACT ANALYSIS

City of Whittier

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prepared by
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Project No. 19391

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EXECUTIVE SUMMARY

The 13.49-acre project site is located at 12352 Whittier Boulevard in the City of Whittier, California. The project site is currently developed with a 213,430 square foot industrial building formerly used for manufacturing. The previous manufacturing use that once occupied the existing building is no longer in operation.

The proposed project involves demolition of the existing building and construction of a new building for industrial and warehousing uses totaling 294,800 square feet of floor area ["Project"]. Vehicular access is proposed at the Whittier Boulevard frontage road via two project driveways. The north project driveway will be for automobiles only and the south project driveway will service both passenger cars and trucks. For purposes of this analysis, the proposed Project is anticipated to be constructed and fully operational by year 2023.

Existing Conditions

The study intersections currently operate at Levels of Service (LOS) B or better during the peak hours for existing conditions, except for the following study area intersection that currently operates at LOS E/F during the peak hours:

- Whittier Boulevard at Whittier Boulevard Frontage Road – #2 (AM–LOS E; PM–LOS F)

Project Trip Generation

The proposed project is forecast to generate a total of approximately 1,266 daily PCE trips, including 144 PCE trips during the AM peak hour and 140 PCE trips during the PM peak hour.

Future Levels of Service/Operational Effects

The study intersections are forecast to operate at Level of Service D or better during the peak hours for Existing Plus Ambient Growth Plus Project conditions, except for the following study intersection that is forecast to degrade to LOS F during the AM peak hour and continue operating at LOS F during the PM peak hours:

- Whittier Boulevard at Whittier Boulevard Frontage Road – #2 (Both peak hours – LOS F)

The project-related change in ICU would not exceed the City-established thresholds for adverse operational effects during the peak hours for Existing Plus Ambient Growth Plus Project conditions; therefore, no operational improvements are required.

For the Existing Plus Ambient Growth Plus Project - Alternative with Mar Vista Street Extension conditions, the following study intersection is forecast to continue operating at Level of Service E/F during the peak hours:

- Whittier Boulevard at Whittier Boulevard Frontage Road – #2 (AM–LOS E; PM–LOS F)

The project-related change in ICU would not exceed the City-established thresholds for adverse operational effects during the peak hours for Existing Plus Ambient Growth Plus Project – Alternative with Mar Vista Street Extension conditions, except at the intersection of Whittier Boulevard/Mar Vista Street (#3). Since the existing (no project) condition does not include the proposed extension, the ICU increase is primarily associated with the proposed extension of Mar Vista Street to the Whittier Boulevard frontage road. Additionally, the intersection is forecast to operate at LOS C, which is generally considered acceptable; therefore, no operational improvements are required.

The study intersections are forecast to operate at Level of Service D or better during the peak hours for Existing Plus Ambient Growth Plus Project Plus Cumulative conditions, both without and with the Mar Vista Street Extension, except for the following study intersection that is forecast to operate at Level of Service F during the peak hours:

- Whittier Boulevard at Whittier Boulevard Frontage Road – #2 (Both peak hours – LOS F)

The project-related change in ICU would not exceed the City-established thresholds for adverse operational effects during the peak hours for Existing Plus Ambient Growth Plus Project Plus Cumulative conditions, both without and with the Mar Vista Street Extension; therefore, no operational improvements are required.

Signal Warrant Evaluation

The need for a traffic control signal at the currently unsignalized study intersection of Whittier Boulevard/Whittier Boulevard Frontage Road (#2) was evaluated for each of the above analysis scenarios using the California Department of Transportation peak hour traffic signal warrant graphs (Warrant 3) in accordance with the California Manual on Uniform Traffic Control Devices (2014, Revision 6) ["CA MUTCD"]. The study intersection is not forecast to be warranted for installation of a traffic signal based on the CA MUTCD peak hour volume warrant.

The LOS E/F condition at the study intersection of Whittier Boulevard/Whittier Boulevard Frontage Road (#2) is based on the eastbound left turn movement onto Whittier Boulevard; through movements along Whittier Boulevard are uncontrolled and would continue to operate at LOS A. The LOS deficiency may be corrected by prohibiting the eastbound left turn movement at this intersection; however, motorists are likely to naturally adapt to this delay and use alternative routes such as Pacific Place (which appears to be reflected in the traffic counts).

Non-CEQA Improvements

The project-related change in Intersection Capacity Utilization (ICU) at the study intersections would not exceed the City-established thresholds for adverse operational effects during the peak hours for the evaluated analysis scenarios; therefore, no operational improvements are required.

Since the intersection is not warranted for installation of a traffic signal and motorists are likely to adopt alternative routes, installation of a traffic signal at the intersection of Whittier Boulevard/Whittier Boulevard Frontage Road (#2) is not recommended and the need for improvements may be considered optional. The City may consider prohibiting the eastbound left turn movement during the AM and PM peak periods (7-9 AM, 4-6 PM) at the Whittier Boulevard/Whittier Boulevard Frontage Road (#2).

Site Access and Circulation

The proposed project shall construct the following improvements as project design features to provide project site access:

Whittier Boulevard Frontage Road (NS) at Project North Driveway (EW)

- Construct the project driveway to provide one inbound lane and one outbound lane with eastbound stop-control and the following lane configurations:
  - Northbound: one shared left/through lane
  - Southbound: one shared through/right turn lane
  - Eastbound: one shared left/right turn lane.

Whittier Boulevard Frontage Road (NS) at Project South Driveway (EW)

- Construct the project driveway to provide one inbound lane and one outbound lane with eastbound stop-control and the following lane configurations:
  - Northbound: one shared left/through lane
  - Southbound: one shared through/right turn lane
  - Eastbound: one shared left/right turn lane.

Congestion Management Program

The proposed project would result in no operational CMP impact as it does not meet the County-established thresholds requiring preparation of a traffic impact analysis for CMP purposes. A transit impact review was conducted for compliance with the CMP requirements and found that the proposed project is forecast to have a nominal impact on transit service.

Vehicle Miles Traveled Analysis

The proposed project satisfies the City-established screening criteria for small projects that generate 110 or fewer daily passenger car trips and may be presumed to result in a less than significant VMT impact.

Mitigation Measures

The proposed project would result in no significant transportation impacts; therefore, no mitigation measures are required.

1. INTRODUCTION

This section describes the purpose of this traffic impact analysis, project location, proposed development, and study area.

PURPOSE AND OBJECTIVES

The purpose of this report is to provide an assessment of potential transportation impacts forecast to result from development of the proposed project both in the context of operational performance standards established by the City of Whittier and the California Environmental Quality Act (CEQA). 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.

This study was prepared in consultation with City of Whittier staff and in accordance with the procedures and methodologies for assessing transportation impacts established by the City of Whittier. To assess the project's conformance with local operational standards, this study evaluates the project's effect on traffic operations and, if necessary, identifies recommended improvements or corrective measures to alleviate operational deficiencies substantially caused or worsened by the proposed project. For CEQA purposes, this study also evaluates the significance of project-related transportation impacts as measured by vehicle miles traveled (VMT) relative to thresholds established by the City of Whittier as the lead agency and, if necessary, identifies any feasible mitigation measures to mitigate any significant impact(s).

PROJECT DESCRIPTION

The 13.49-acre project site is located at 12352 Whittier Boulevard in the City of Whittier, California. The project site is currently developed with a 213,430 square foot industrial building formerly used for manufacturing. The previous manufacturing use that once occupied the existing building is no longer in operation. Figure 1 shows the project location map.

The proposed project involves demolition of the existing building and construction of a new building for industrial and warehousing uses totaling 294,800 square feet of floor area ["Project"]. Vehicular access is proposed at the Whittier Boulevard frontage road via two project driveways. The north project driveway will be for automobiles only and the south project driveway will service both automobiles and trucks. For purposes of this analysis, the proposed Project is anticipated to be constructed and fully operational by year 2023. Figure 2 illustrates the project site plan.

STUDY AREA

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

Study Intersections[1]	Jurisdiction
1. Whittier Boulevard Frontage Road (NS) at Mar Vista Street (EW)	City of Whittier
2. Whittier Boulevard (NS) at Whittier Boulevard Frontage Road (EW)	City of Whittier
3. Whittier Boulevard (NS) at Mar Vista Street (EW)	City of Whittier
4. Whittier Boulevard (NS) at Pacific Place (EW)	City of Whittier
5. Whittier Boulevard (NS) at Washington Blvd/Pickering Ave/Santa Fe Springs Rd (EW)	City of Whittier

[1] (NS) = north-south roadway; (EW) = east-west roadway

Although Whittier Boulevard is also known as State Route 72 under the jurisdiction of the California Department of Transportation (Caltrans), Caltrans' focus in the intergovernmental review of the environmental impact associated with development projects has generally shifted from operational performance measures to VMT, in accordance with CEQA requirements. Therefore, the study intersections are identified as within the jurisdiction of City of Whittier and evaluated accordingly.

ANALYSIS SCENARIOS

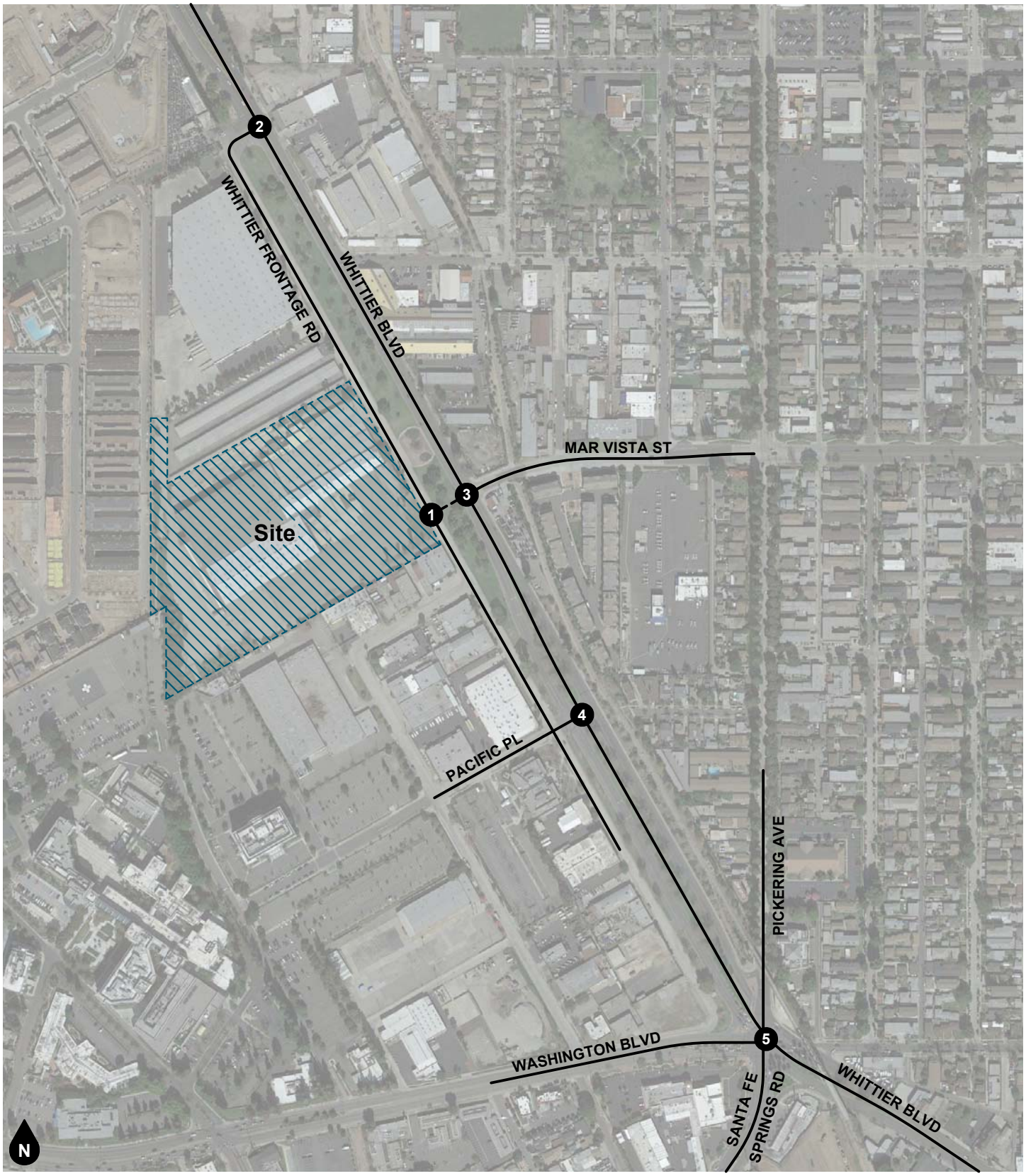
This study includes the following analysis scenarios for the weekday AM and PM peak hour conditions:

a) Existing;
b) Existing Plus Ambient Growth Plus Project;
c) Existing Plus Ambient Growth Plus Project Plus Cumulative;

The future analysis scenarios are evaluated for two alternatives:

- Alternative 1 analyzes the surrounding roadway network as currently constructed with the main access from Whittier Boulevard Frontage Road to Whittier Boulevard being Pacific Place which is south of the project site.

- Alternative 2 considers that Mar Vista Street will be extended from Whittier Boulevard Frontage Road to Whittier Boulevard with the south project driveway aligning with the newly formed intersection of Whittier Boulevard Frontage Road at Mar Vista Street.



Legend

(#) Study Intersection

- - - Mar Vista Street Extension - Alternative

Figure 1
Project Location Map

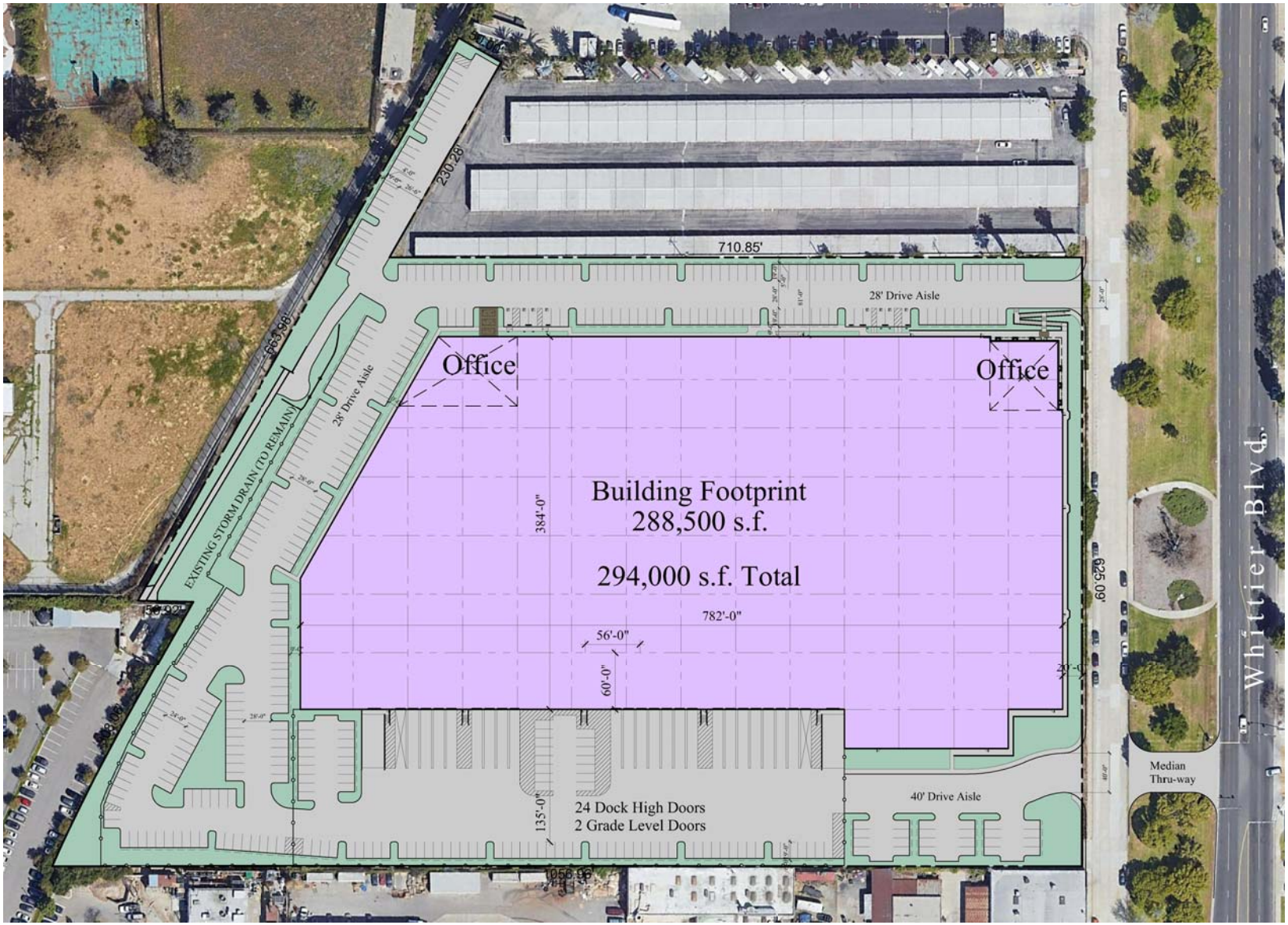


Figure 2
Site Plan

2. METHODOLOGY

This section discusses the analysis methodologies used to assess transportation facility performance as adopted by the respective jurisdictional agencies. This traffic impact analysis has been prepared in accordance with guidance provided in the City of Whittier *Vehicle Miles Traveled (VMT) Transportation Study Guidelines* (October 2021) ["the City guidelines"].

Potential transportation impacts forecast to result from development of the proposed project are analyzed both in the context of operational performance standards established by the City of Whittier and CEQA. Operational improvements are identified where necessary to alleviate a project-related substantial adverse effect as defined by the City of Whittier under its discretionary authority and police powers to protect the public welfare. A substantial effect and related operational improvements are differentiated from significant impacts and mitigation measures in the context of CEQA.

LEVEL OF SERVICE ANALYSIS METHODOLOGY (NON-CEQA)

Level of Service analysis is performed for assessing General Plan conformance in accordance with the performance standards established by the City of Whittier. In accordance with CEQA provisions, Level of Service deficiencies, if any, would not constitute a significant impact under CEQA.

Signalized Intersections - Intersection Capacity Utilization

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

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

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

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). ICU analysis was performed using the Vistro software. Consistent with City of Whittier guidelines, this analysis uses the following input parameters for the ICU analysis: 1,600 vehicles per hour per lane for through and turn lanes, 2,880 vehicles per hour for dual left-turn lanes, and a total clearance time of 10 percent.

Unsignalized Intersections - Intersection Delay Methodology

To assess the operational performance of an unsignalized study intersection, the City of Whittier uses the intersection delay method based on procedures contained in the *Highway Capacity Manual* (Transportation Research Board, 6th Edition). The methodology considers the traffic volume and distribution of movements,

traffic composition, geometric characteristics, and signalization details to calculate the average control delay per vehicle and corresponding Level of Service. Control delay is defined as the portion of delay attributed to the intersection traffic control (such as a traffic signal or stop sign) and includes initial deceleration, queue move-up time, stopped delay, and final acceleration delay. The intersection control delay is then correlated to Level of Service based on the following scale:

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

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

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

Performance Standards

In accordance with the City guidelines, a project is defined to have a substantial adverse operational effect if the project-related increase in ICU equals or exceeds the thresholds shown below:

Operational Deficiency Thresholds for Intersections		
Level of Service (Pre-Project)	ICU	Project ICU Increase
C	0.71-0.80	0.04 or more
D	0.81-0.90	0.02 or more
E/F	0.91 - more	0.01 or more

If roadway improvements are proposed to address operational deficiencies, the analysis shall include an estimate of the project's share of traffic relative to the cumulative share of new traffic.

VEHICLE MILES TRAVELED ANALYSIS METHODOLOGY (CEQA)

The methodology used to evaluate the impact of land use and transportation projects under CEQA is known as Vehicle Miles Traveled (VMT). In general terms, VMT quantifies the amount and distance of automobile travel attributable to a project or region. Additional information and a project assessment are provided in the Vehicle Miles Traveled section of this report.

3. EXISTING CONDITIONS

EXISTING ROADWAY SYSTEM

Figure 3 identifies the lane geometry and intersection traffic controls for Existing conditions based on a field survey of the study area. Regional access to the project area is provided by the I-605 Freeway west of the project site, The key north-south roadways providing local circulation are Whittier Boulevard, Pickering Avenue, and Santa Fe Springs Road. The key east-west roadways providing local circulation are Mar Vista Street and Washington Boulevard.

Whittier Boulevard is a 4-lane to 5-lane divided roadway in the study area. Whittier Boulevard is classified as a Major Arterial in the City of Whittier Circulation Element. On-street parking is prohibited in the project area. No bicycle facilities are provided in the study area. Sidewalks are provided on the east side of the roadway north of Washington Boulevard and on both sides of the roadway south of Whittier Boulevard.

Pickering Avenue is a 2-lane undivided roadway in the study area. Pickering Avenue is classified as a Secondary Street - Augmented in the City of Whittier Circulation Element. On-street parking is generally provided in the project area. No bicycle facilities are provided in the study area. Sidewalks are provided on both sides of the roadway.

Santa Fe Springs Road is a 4-lane divided roadway in the study area. Santa Fe Springs Road is classified as a Minor Arterial in the City of El Monte Circulation Element. On-street parking is prohibited in the project area. Bicycle facilities are provided in the study area. Sidewalks are provided on both sides of the roadway.

Mar Vista Street is a 3-lane divided roadway in the study area. Mar Vista Street is classified as a Secondary Street in the City of Whittier Circulation Element. On-street parking is prohibited in the project area. Bicycle facilities are provided in the study area. Sidewalks are provided on the south side of the roadway.

Washington Boulevard is a 4-lane divided roadway in the study area. Washington Boulevard is classified as a Minor Arterial in the City of Whittier Circulation Element. On-street parking is prohibited 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. As shown on Figure 4, sidewalks are currently provided along the project site frontage and in the immediate project vicinity.

BICYCLE ROUTES

The City of Whittier Existing Bicycle & Pedestrian Facilities Map is depicted on Figure 5. Whittier Boulevard is classified as an existing Class I Bike Path in the project area. Mar Vista Street is classified as an existing Class II Bike Path in the project area. Washington Boulevard and Santa Fe Springs Road is classified as a proposed Class II Bike Path.

TRANSIT FACILITIES

Figure 6 shows the existing transit routes available in the project vicinity provided by Los Angeles County Metropolitan Transportation Authority (METRO).

GENERAL PLAN CONTEXT

Figure 7 shows the City of Whittier General Plan Circulation Element 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 Whittier standard roadway cross-sections are illustrated on Figure 8.

EXISTING TRAFFIC VOLUMES

Existing peak hour volumes are based upon AM peak period and PM peak period intersection turning movement counts obtained in September 2021 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; these periods generally capture the peak times of commuter traffic when the roadway system is typically experiencing peak demand. The actual peak hour within the peak period is the four consecutive 15-minute periods with the greatest total volume. For example, the PM peak hour at one intersection may be 4:45 PM to 5:45 PM if those four consecutive 15-minute periods have the greatest total volume and may vary from one intersection to another. Intersection turning movement count worksheets are provided in Appendix C. Figure 9 and Figure 10 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 are shown in Table 1. Detailed Level of Service calculation worksheets are provided in Appendix D.

As shown in Table 1, the study intersections currently operate at Levels of Service D or better during the peak hours for existing conditions, except for the following study area intersection that currently operates at LOS E/F during the peak hours:

- Whittier Boulevard at Whittier Boulevard Frontage Road – #2 (AM–LOS E; PM–LOS F)

Table 1
Existing Intersection Level of Service

ID	Study Intersection	Traffic Control[1]	AM Peak Hour		PM Peak Hour	
			ICU[2] or [Delay][3]	LOS[4]	ICU[2] or [Delay][3]	LOS[4]
1.	Whittier Blvd Frontage Rd at Mar Vista St	--	Alternative Future Intersection			
2.	Whittier Blvd at Whittier Blvd Frontage Rd	CSS	[37.3]	E	[51.6]	F
3.	Whittier Blvd at Mar Vista St	TS	0.620	B	0.550	A
4.	Whittier Blvd at Pacific Pl	TS	0.418	A	0.534	A
5.	Whittier Blvd at Pickering Ave/ Santa Fe Springs Rd/Washington Blvd	TS	0.725	C	0.823	D

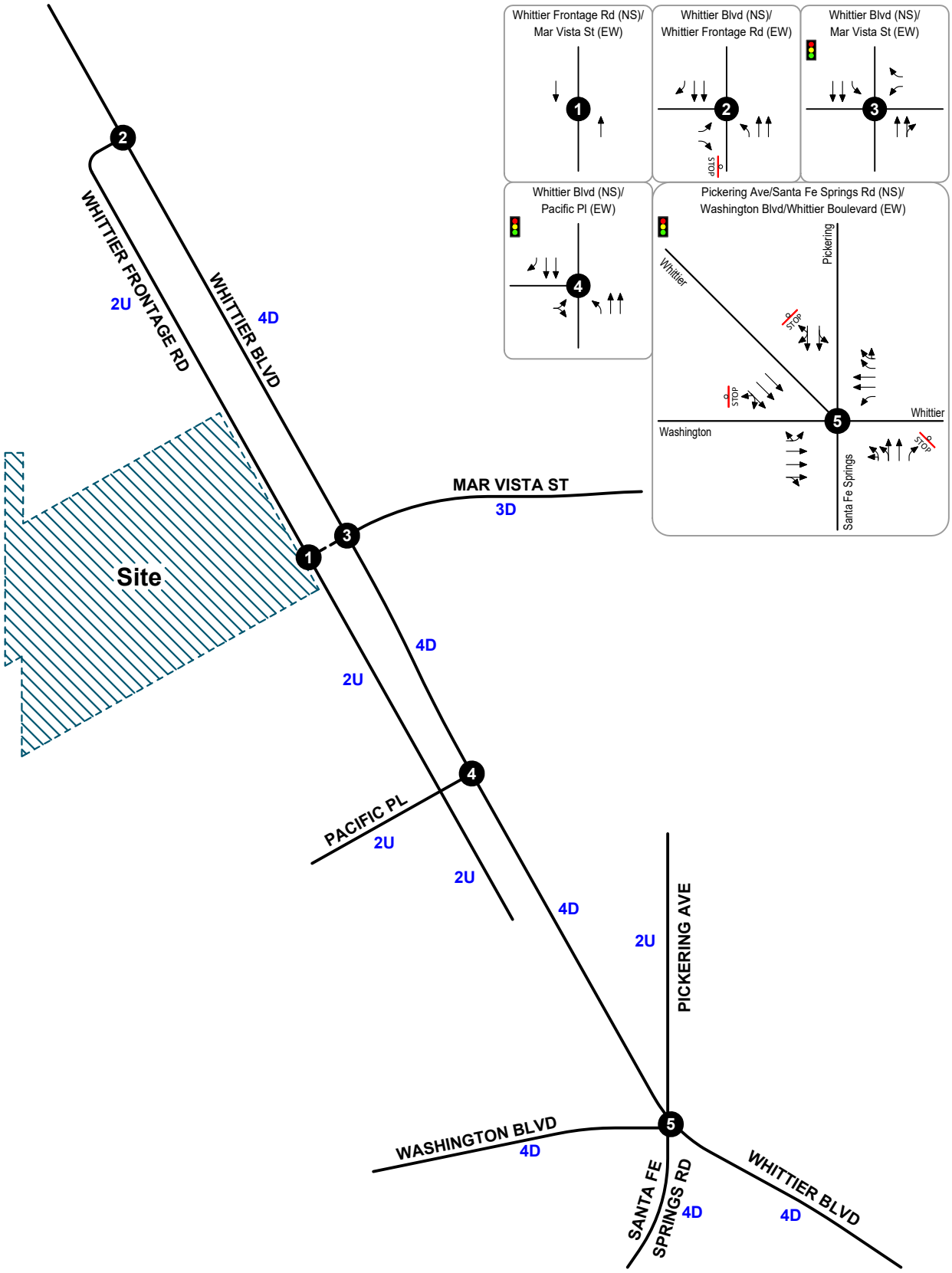
Notes:

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

(2) ICU = Intersection Capacity Utilization.

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

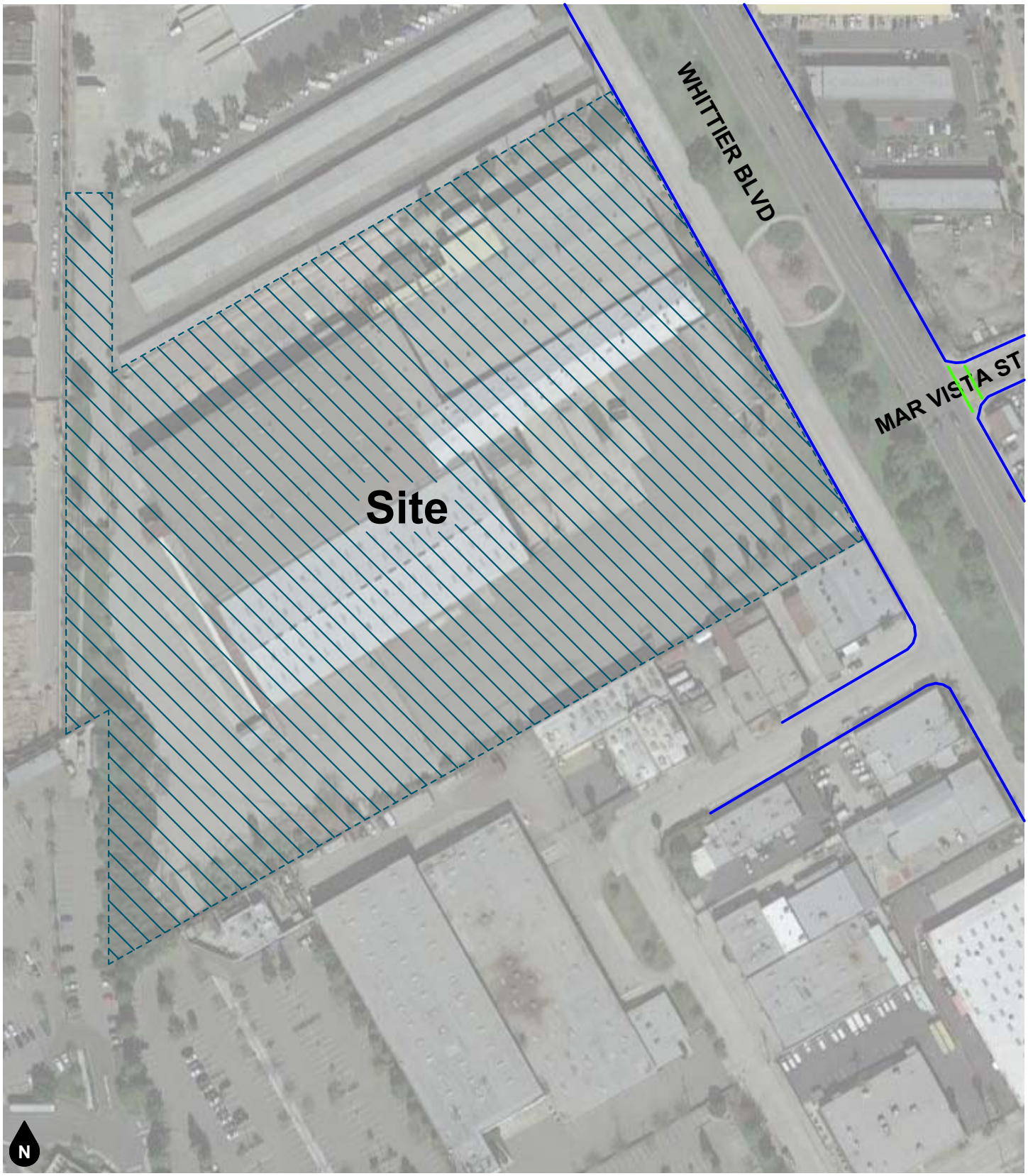
(4) LOS = Level of Service



N

Legend
- Traffic Signal
- Stop Sign
- #D #-Lane Divided Roadway
- #U #-Lane Undivided Roadway
- Existing Lane

Figure 3
Existing Lane Geometry and Intersection Traffic Controls



Legend
- Sidewalk
- Cross Walk

Figure 4
Existing Pedestrian Facilities

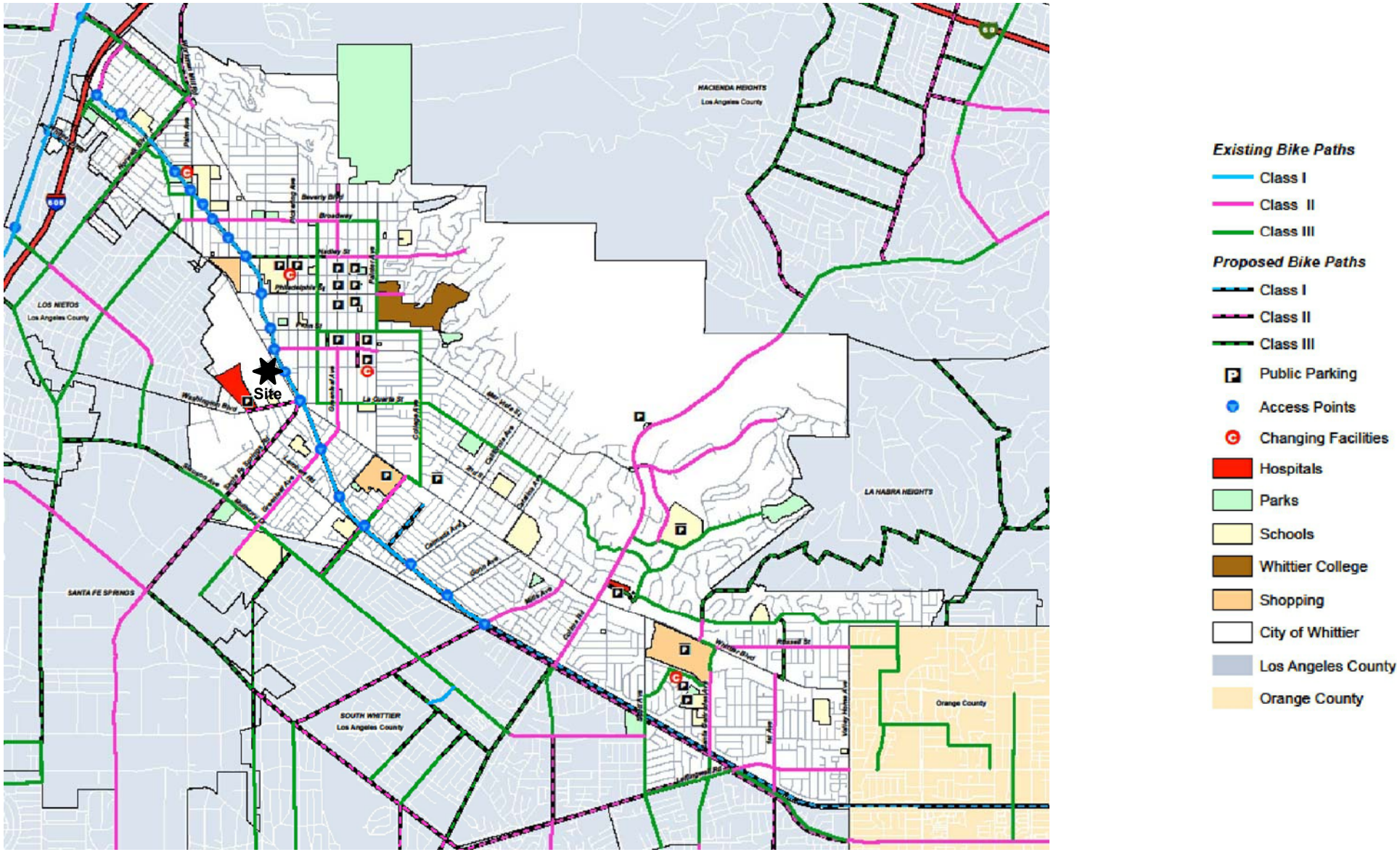
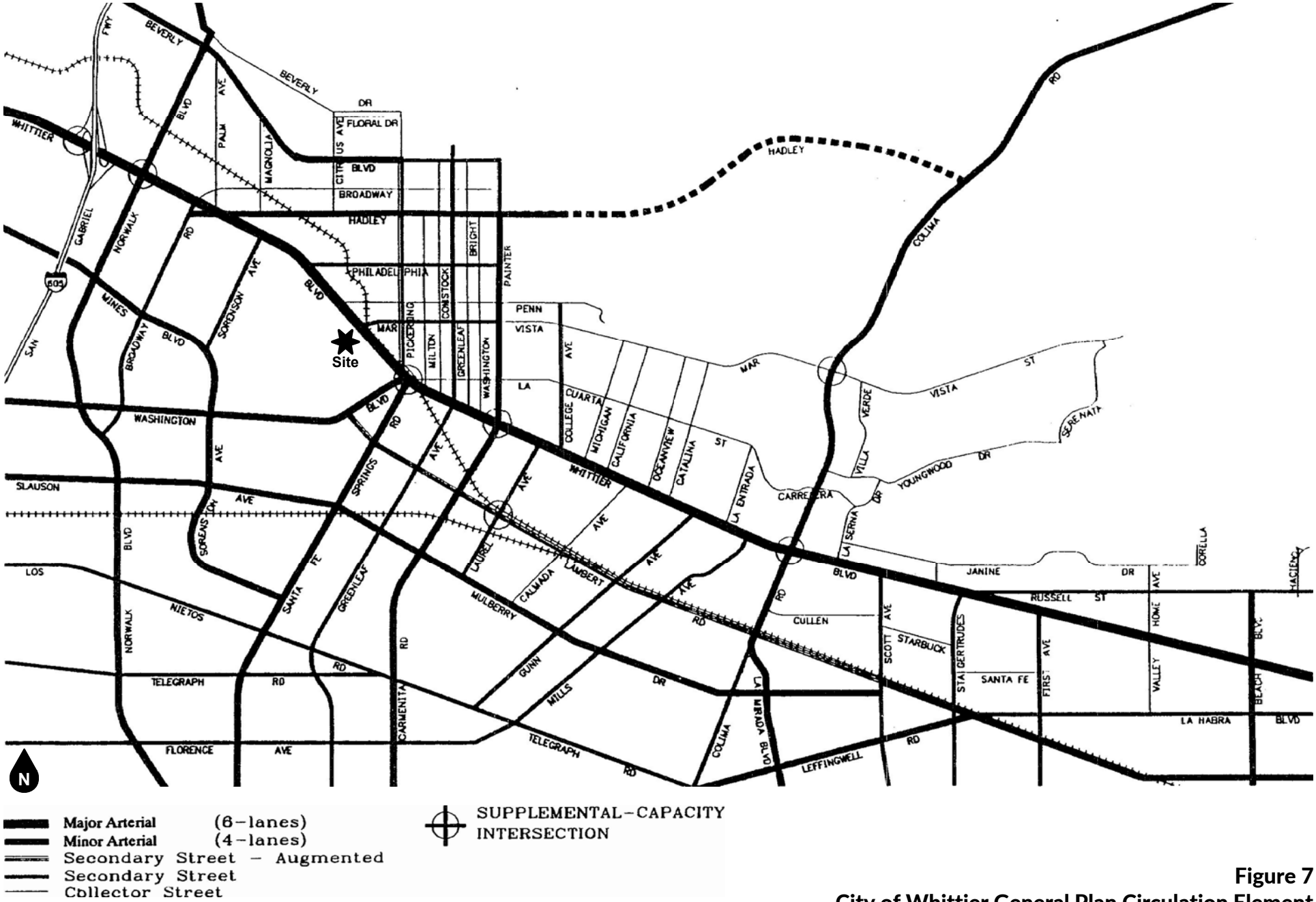


Figure 5
City of Whittier Existing Bicycles & Pedestrian Facilities Map

Source: City of Whittier

Figure 6
Los Angeles Metro System Map

Source: L.A. Metro



Source: City of Whittier

Figure 7
City of Whittier General Plan Circulation Element

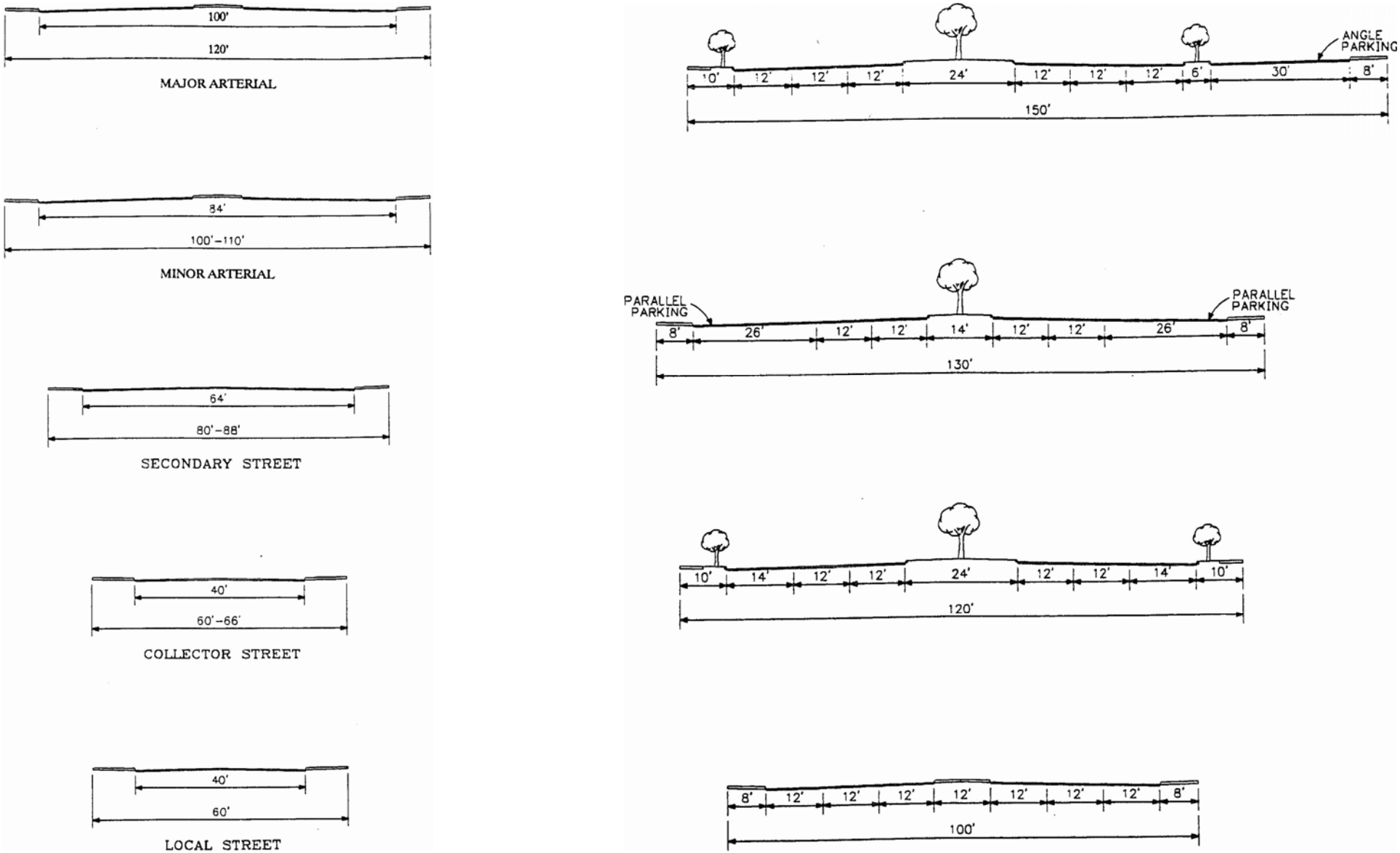


Figure 8
City of Whittier General Plan Roadway Cross-Sections

Source: City of Whittier

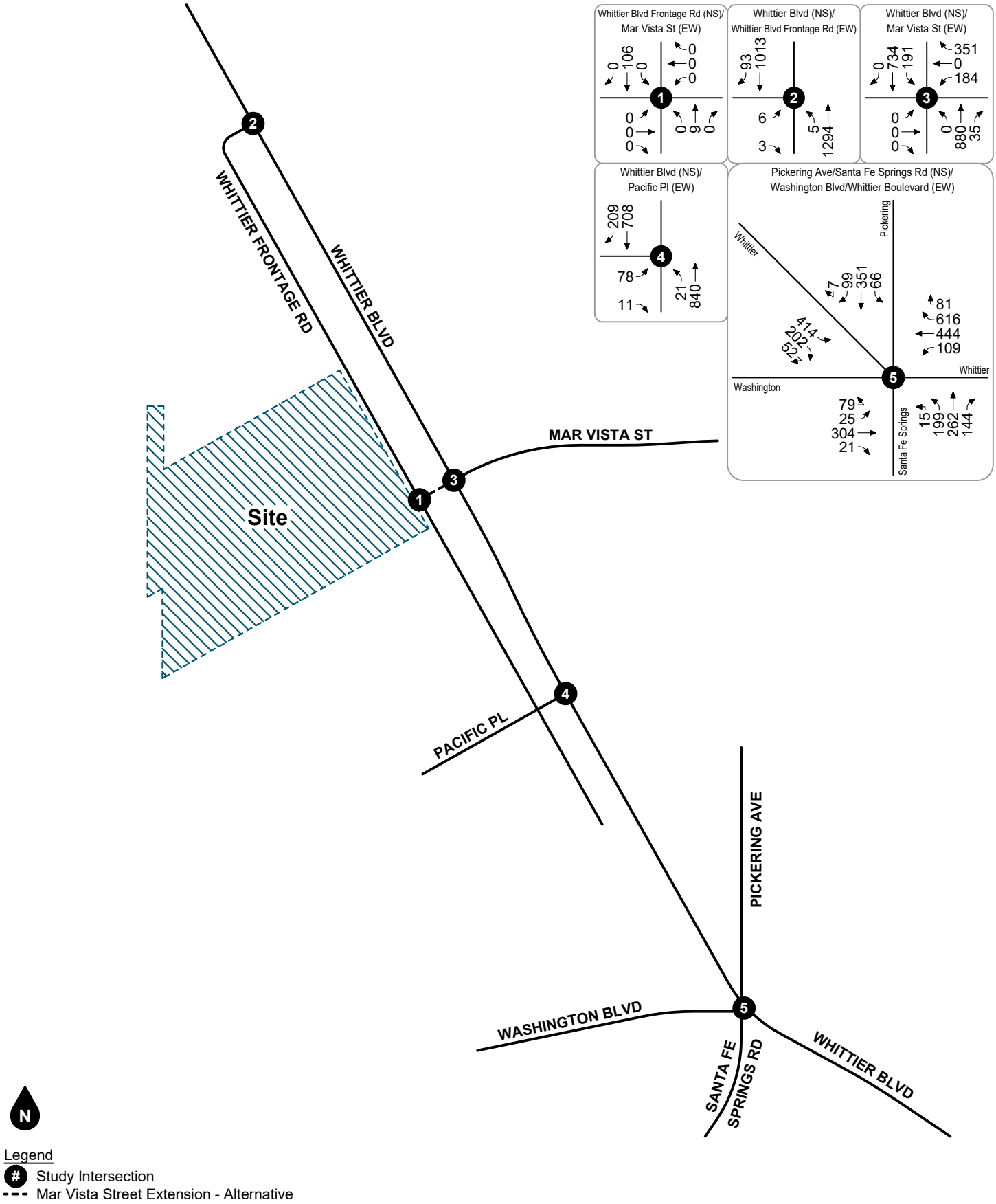


Figure 9
Existing AM Peak Hour Intersection Turning Movement Volumes

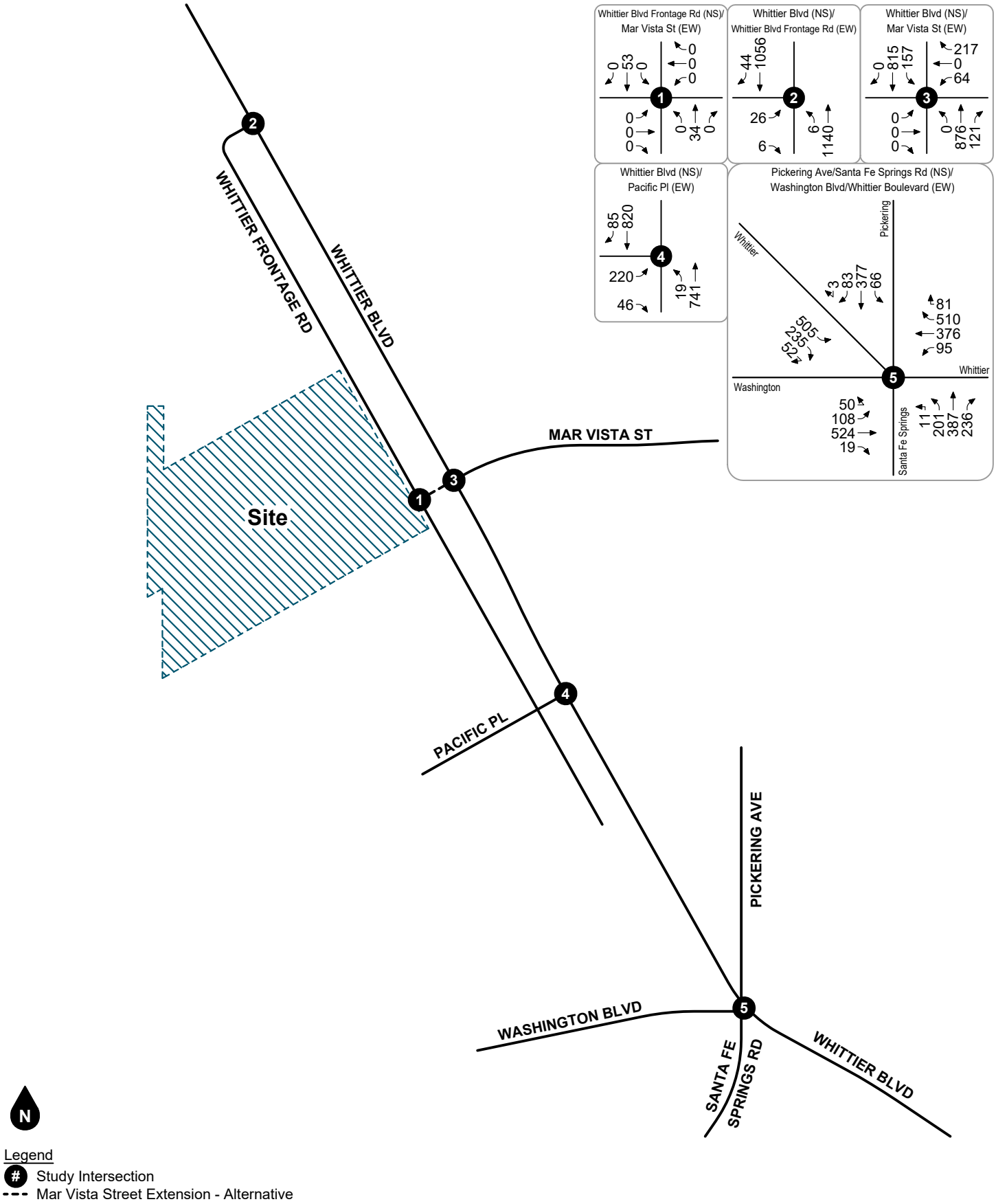


Figure 10
Existing PM Peak Hour Intersection Turning Movement Volumes

4. PROJECT TRIP FORECASTS

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

PROJECT TRIP GENERATION

Table 2 shows the proposed project trip generation forecast based on trip generation rates obtained from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (10th Edition, 2017). The project trip generation forecast is determined by multiplying the trip generation rates by the land use quantity. Trip generation rates for Industrial Park (Land Use Code 130) were used for the proposed project.

Due to zoning restrictions, the proposed industrial buildings are limited to a maximum of 50 percent warehousing use. As currently proposed, the proposed project would include 12,000 square feet of office, 138,500 square feet of light industrial land use, and 144,300 square feet of warehousing land use. Preliminary project trip generation estimates also considered analyzing the Project trip generation based on the sum of trip generation calculations for ITE 110 – Light Industrial and ITE 150 – Warehousing. While the results were comparable, use of ITE 130 – Industrial Park was determined to provide a slightly more conservative scenario in terms of peak hour and daily trip generation. Thus, the Project was analyzed using 294,800 square feet of industrial park land use as the trip rates encapsulate the proposed mixture of industrial uses for the site while providing a conservative trip generation forecast.

In accordance with industry practice for land uses that generate an appreciable number of truck trips, the Project trip generation was also calculated in terms of Passenger Car Equivalent (PCE) trips. The percentage of truck trips was obtained from the ITE *Trip Generation Manual Supplement* (February 2020). The breakdown of truck mix by axle type was obtained from the City of Fontana *Truck Trip Generation Study* (August 2003). The City of Whittier *Draft Transportation Study Guidelines for VMT* (January 2021) ["the City guidelines"] does not specify PCE adjustment factors; therefore, truck trips were converted to PCE trips based on the following factors used in San Bernardino County where truck-related projects are analyzed more regularly: 1.5 for 2-axle trucks, 2.0 for 3-axle trucks, and 3.0 for trucks with four or more axles.

As shown in Table 2, the proposed project is forecast to generate a total of approximately 1,266 daily PCE trips, including 144 PCE trips during the AM peak hour and 140 PCE trips during the PM peak hour.

Trip Generation for VMT Assessment

While the gross project trip generation in terms of PCE trips is used to evaluate the project's effect on local roadway operations, the net increase relative to the previous use was calculated for VMT assessment purposes. A more detailed explanation is included in the following Vehicle Miles Traveled section of this report.

Table 3 shows the previous use trip generation estimate based on trip generation rates obtained from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (10th Edition, 2017). Trip generation for the proposed used was calculated using the same methodology as for the proposed use except based on trip generation rates for Manufacturing (Land Use Code 140).

As shown in Table 3, the previous use is forecast to generate a total of approximately 838 daily vehicle trips, including 755 daily passenger cars.

Table 4 shows a comparison of the number of passenger cars generated by the proposed project compared to the previous use. As shown in Table 4, the proposed project is forecast to result in a net increase of approximately 90 net new passenger car trips per day, including a net reduction of 18 fewer passenger car trips during the AM peak hour and 27 fewer passenger car trips during the PM peak hour.

The previous use trip generation (Table 3) and project trip generation comparison (Table 4) are only presented for VMT assessment purposes and were not used for the operational/LOS analysis.

Project Trip Distribution and Assignment

Figure 11 to Figure 18 shows the forecast directional distribution patterns for the project generated passenger car and truck trips, without and with the alternative Mar Vista Street extension. The project trip distribution patterns were developed in consultation with City of Whittier staff based on engineering judgment and review of existing volume data, surrounding land uses, and the local and regional roadway facilities in the project vicinity.

The project-generated AM and PM peak hour intersection turning movement volumes are shown on Figure 19 and Figure 20 based on the existing roadway network. The project-generated AM and PM peak hour intersection turning movement volumes for the alternative with Mar Vista Street extension are shown on Figure 21 and Figure 22.

Table 2
Project Trip Generation

Land Use: Industrial Park
Size: 294.800 TSF

TRIP GENERATION RATES PER TSF[1]								
		AM Peak Hour			PM Peak Hour			Daily
Vehicle Type	Source[2]	In	Out	Rate	In	Out	Rate	Rate
All Vehicles	ITE 130	81%	19%	0.400	21%	79%	0.400	3.370
Passenger Cars (88.0% AM, 90.0% PM, 85.0% Daily)	TGMS 130	0.285	0.067	0.352	0.076	0.284	0.360	2.865
Trucks (12.0% AM, 10.0% PM, 15.0% Daily)	TGMS 130	0.039	0.009	0.048	0.008	0.032	0.040	0.506
Truck Mix:	Fontana							
2-Axle Trucks (7.9%)		0.003	0.001	0.004	0.001	0.002	0.003	0.040
3-Axle Trucks (7.1%)		0.003	0.001	0.004	0.001	0.002	0.003	0.036
4+ Axle Trucks (85.0%)		0.033	0.008	0.041	0.007	0.027	0.034	0.430

VEHICLE TRIPS GENERATED							
	AM Peak Hour			PM Peak Hour			
Vehicle Type	In	Out	Total	In	Out	Total	Daily
Passenger Cars	84	20	104	22	84	106	845
Trucks							
2-Axle Trucks	1	0	1	0	1	1	12
3-Axle Trucks	1	0	1	0	1	1	11
4+ Axle Trucks	10	2	12	2	8	10	127
Subtotal	12	2	14	2	10	12	150
Total Vehicle Trips Generated	**96**	**22**	**118**	**24**	**94**	**118**	**995**

PCE[3] TRIPS GENERATED								
		AM Peak Hour			PM Peak Hour			
Vehicle Type	PCE Factor	In	Out	Total	In	Out	Total	Daily
Passenger Cars	1.0	84	20	104	22	84	106	845
Trucks								
2-Axle Trucks	1.5	2	0	2	0	2	2	18
3-Axle Trucks	2.0	2	0	2	0	2	2	22
4+ Axle Trucks	3.0	30	6	36	6	24	30	381
Subtotal		34	6	40	6	28	34	421
Total PCE Trips Generated		**118**	**26**	**144**	**28**	**112**	**140**	**1,266**

Notes:
(1) TSF = Thousand Square Feet

(2) ITE = Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017); ### = ITE Land Use Code.
TGMS = ITE Trip Generation Manual Supplement (10th Edition, 2020); ### = ITE Land Use Code.
Fontana = City of Fontana Truck Trip Generation Study (August 2003); recommended truck mix for Industrial Park classification.

(3) PCE = Passenger Car Equivalent

Table 3
Previous Use Trip Generation (for VMT Assessment)

Land Use: Manufacturing
Size: 213.430 TSF

TRIP GENERATION RATES PER TSF[1]								
		AM Peak Hour			PM Peak Hour			Daily
Vehicle Type	Source[2]	In	Out	Rate	In	Out	Rate	Rate
All Vehicles	ITE 140	77%	23%	0.620	31%	69%	0.670	3.930
Passenger Cars (92.0% AM, 93.0% PM, 90.0% Daily)	TGMS 140	0.439	0.131	0.570	0.193	0.430	0.623	3.537
Trucks (8.0% AM, 7.0% PM, 10.0% Daily)	TGMS 140	0.038	0.011	0.049	0.015	0.032	0.047	0.393
Truck Mix:	Fontana							
2-Axle Trucks (11.0%)		0.004	0.001	0.005	0.002	0.004	0.006	0.043
3-Axle Trucks (36.0%)		0.014	0.004	0.018	0.005	0.012	0.017	0.141
4+ Axle Trucks (53.0%)		0.020	0.006	0.026	0.008	0.017	0.025	0.208

VEHICLE TRIPS GENERATED							
	AM Peak Hour			PM Peak Hour			
Vehicle Type	In	Out	Total	In	Out	Total	Daily
Passenger Cars	94	28	122	41	92	133	755
Trucks							
2-Axle Trucks	1	0	1	0	1	1	9
3-Axle Trucks	3	1	4	1	3	4	30
4+ Axle Trucks	4	1	5	2	4	6	44
Subtotal	8	2	10	3	8	11	83
Total Vehicle Trips Generated	**102**	**30**	**132**	**44**	**100**	**144**	**838**

Notes:
(1) TSF = Thousand Square Feet

(2) ITE = Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017); ### = ITE Land Use Code.
TGMS = ITE Trip Generation Manual Supplement (10th Edition, 2020); ### = ITE Land Use Code.
Fontana = City of Fontana Truck Trip Generation Study (August 2003); recommended truck mix for Heavy Industrial classification.

Table 4
Passenger Car Trip Generation Comparison for VMT Assessment

Land Use	Passenger Car Trips Generated						
	AM Peak Hour			PM Peak Hour			Daily
	Inbound	Outbound	Total	Inbound	Outbound	Total	
Previous Use[1]	94	28	122	41	92	133	755
Proposed Project[2]	84	20	104	22	84	106	845
Difference	**-10**	**-8**	**-18**	**-19**	**-8**	**-27**	**+90**

Notes:
(1) See Table 3.
(2) See Table 2.

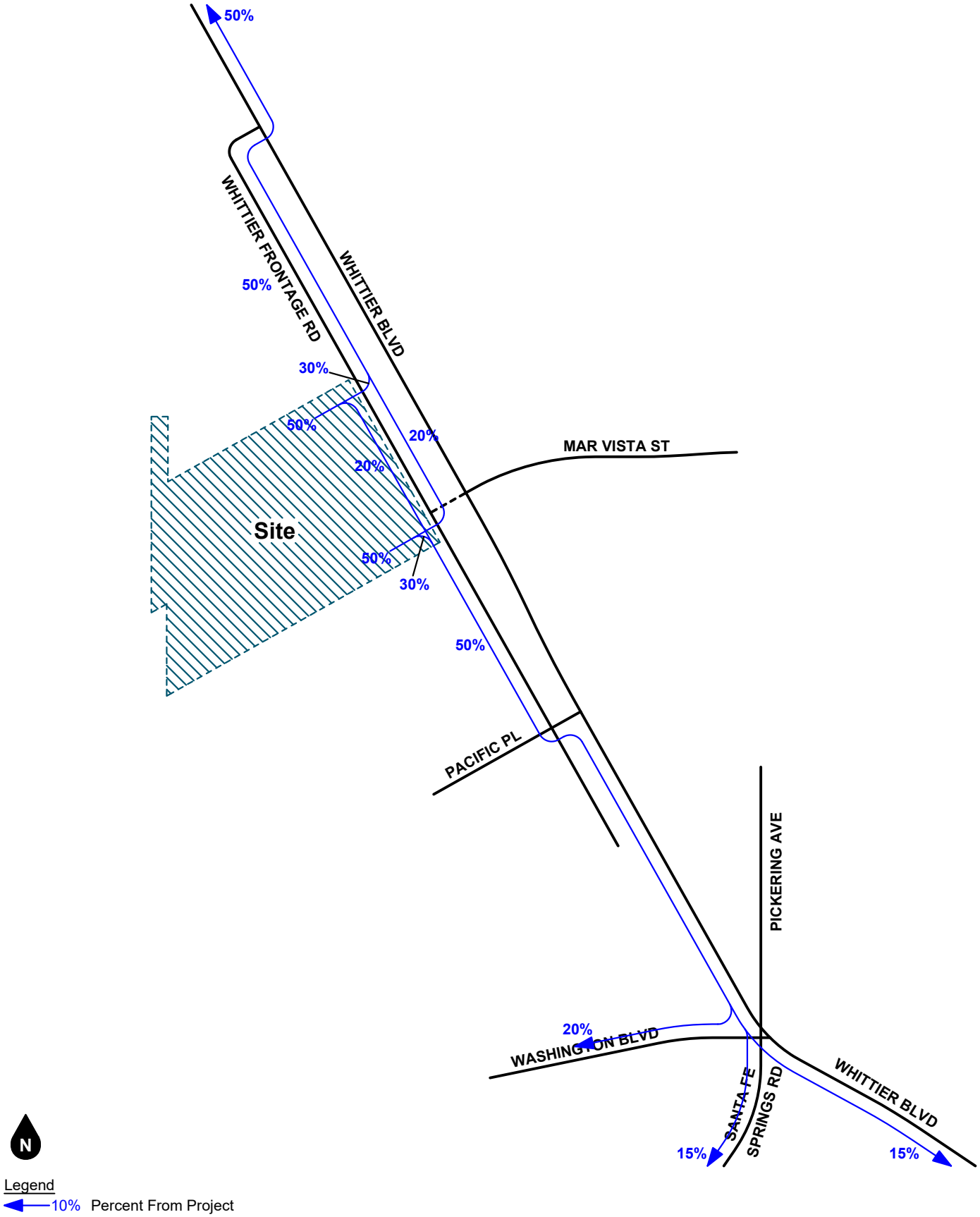


Figure 11
Project Outbound Trip Distribution - Cars

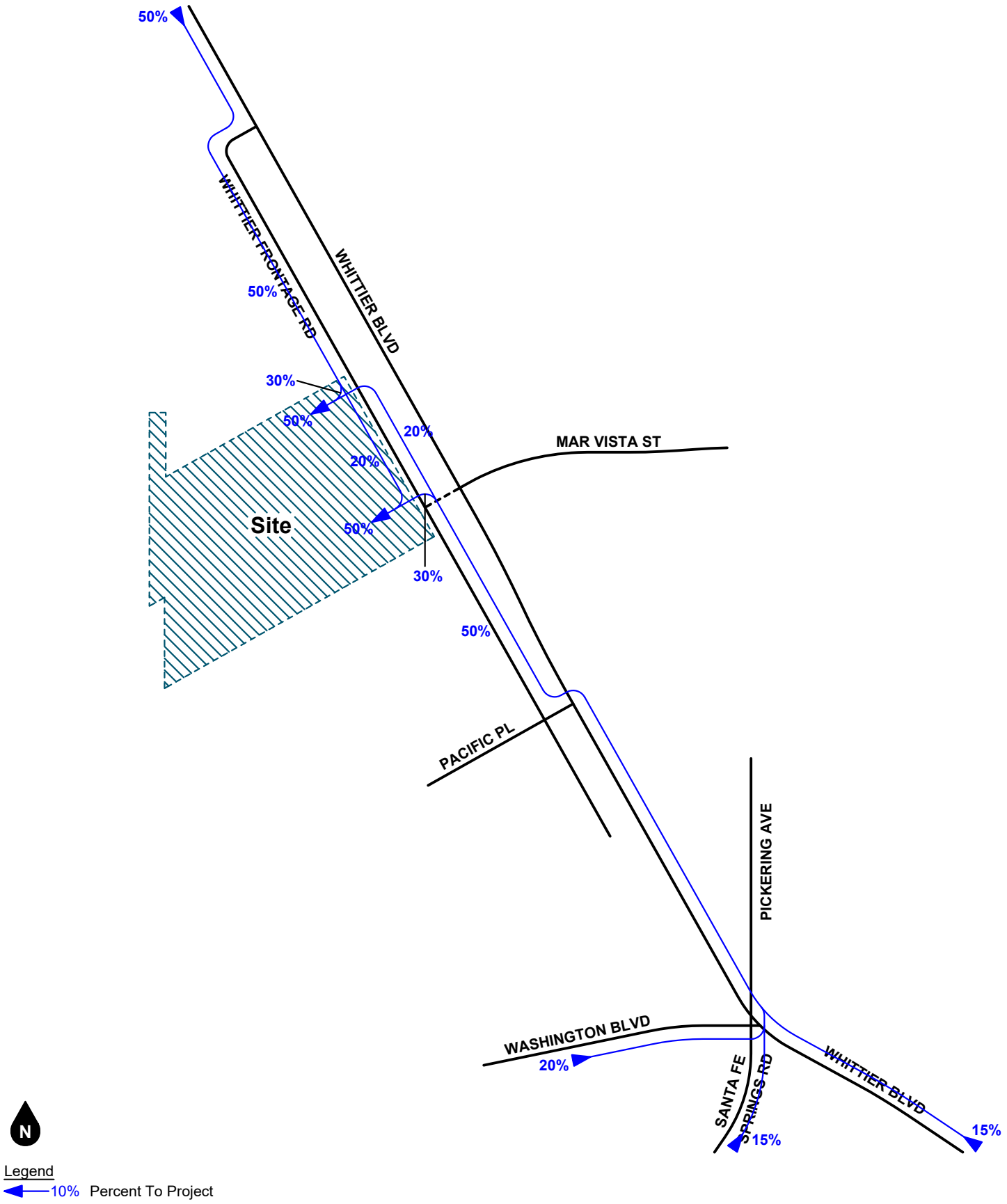


Figure 12
Project Inbound Trip Distribution - Cars

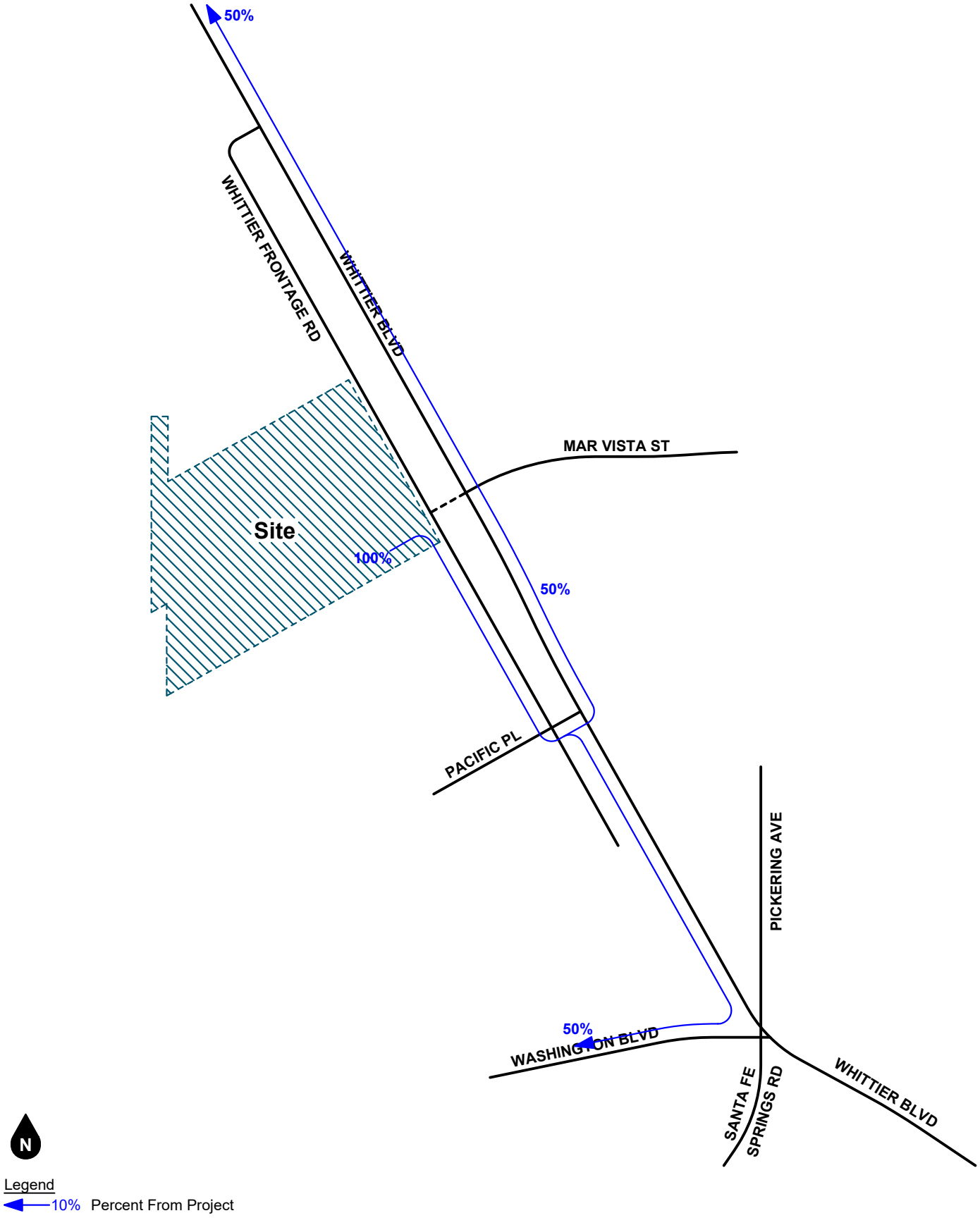


Figure 13
Project Outbound Trip Distribution - Trucks

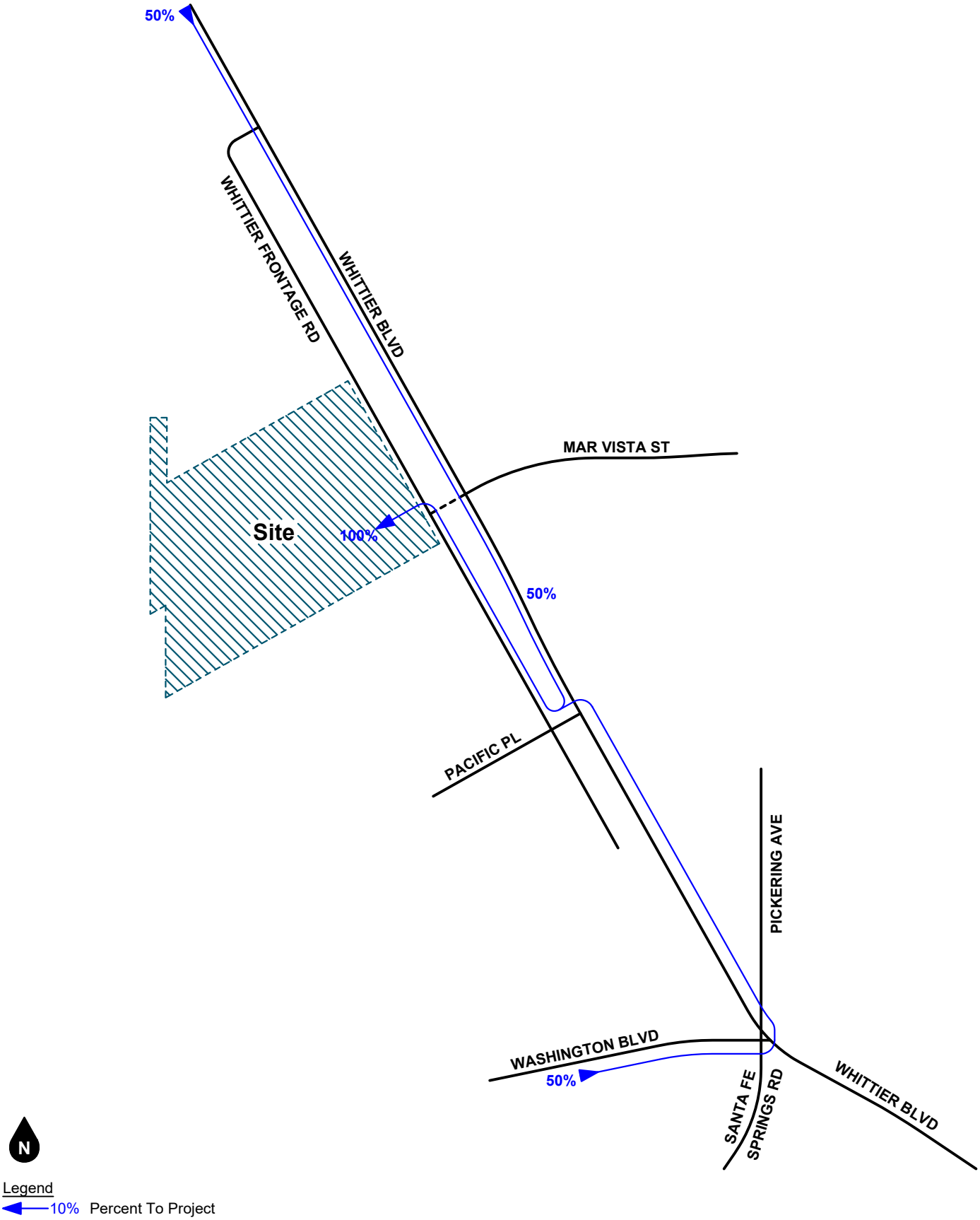


Figure 14
Project Inbound Trip Distribution - Trucks

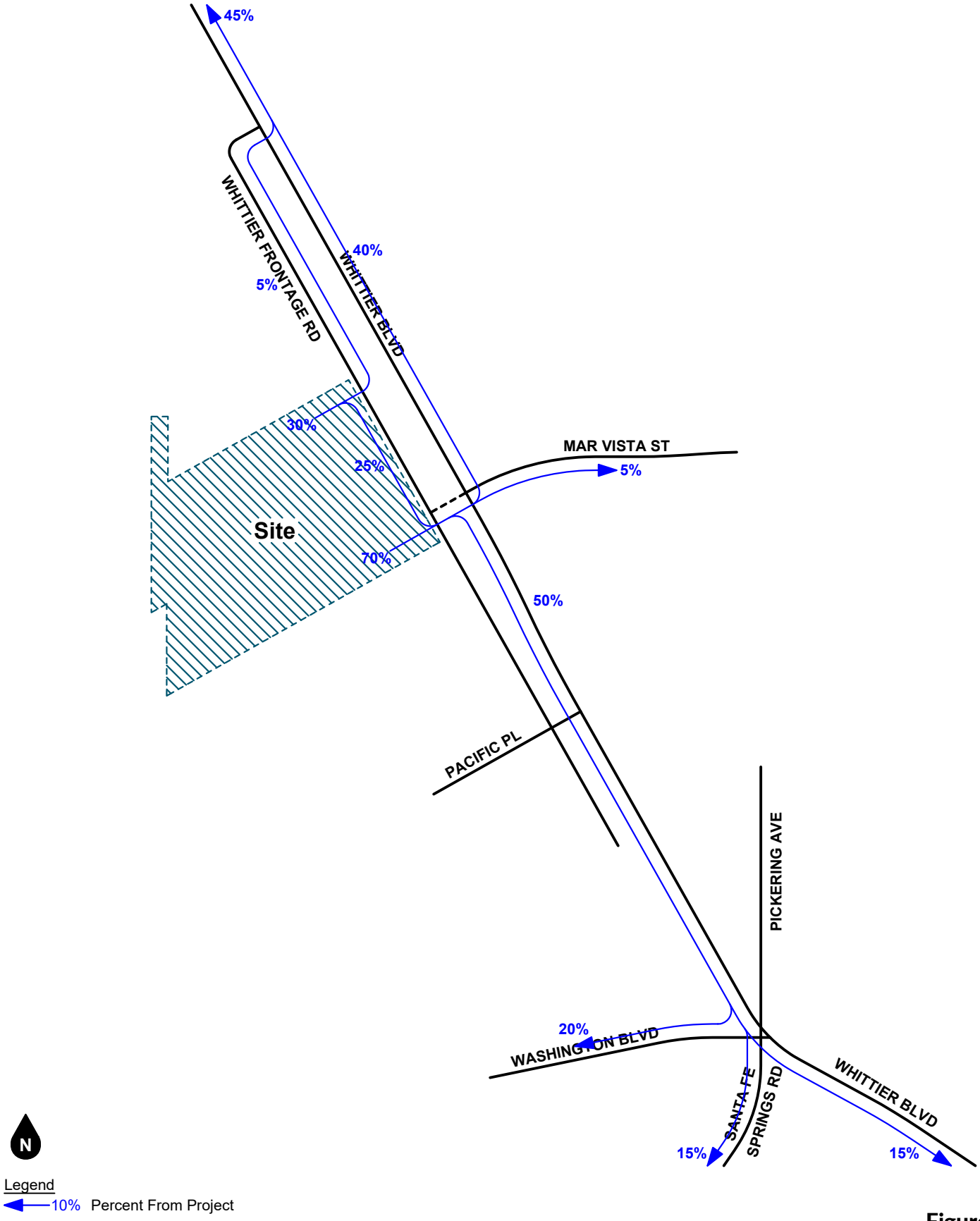


Figure 15
Project Outbound Trip Distribution - Cars - Alternative With Mar Vista Street Extension

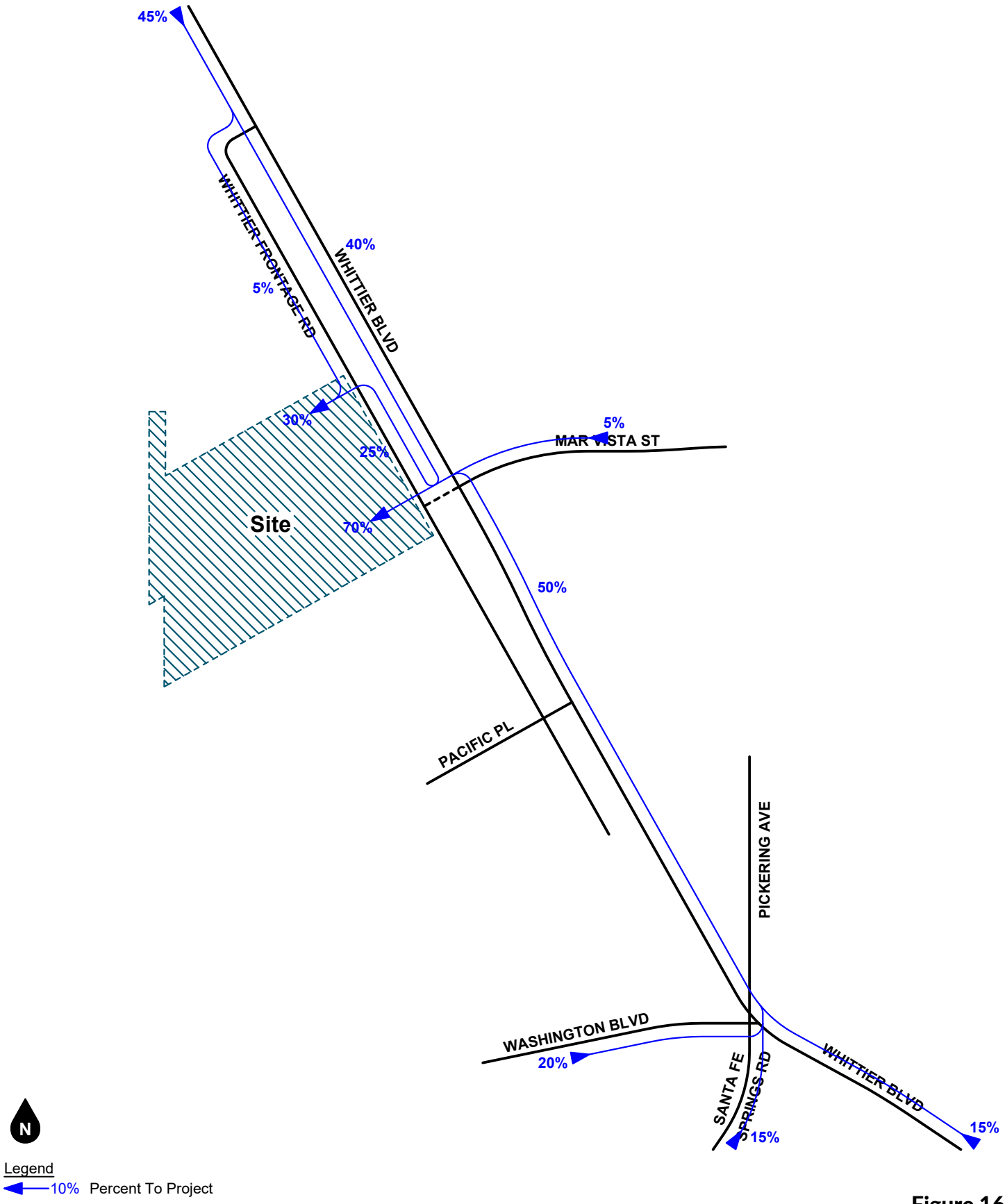


Figure 16
Project Inbound Trip Distribution - Cars - Alternative With Mar Vista Street Extension

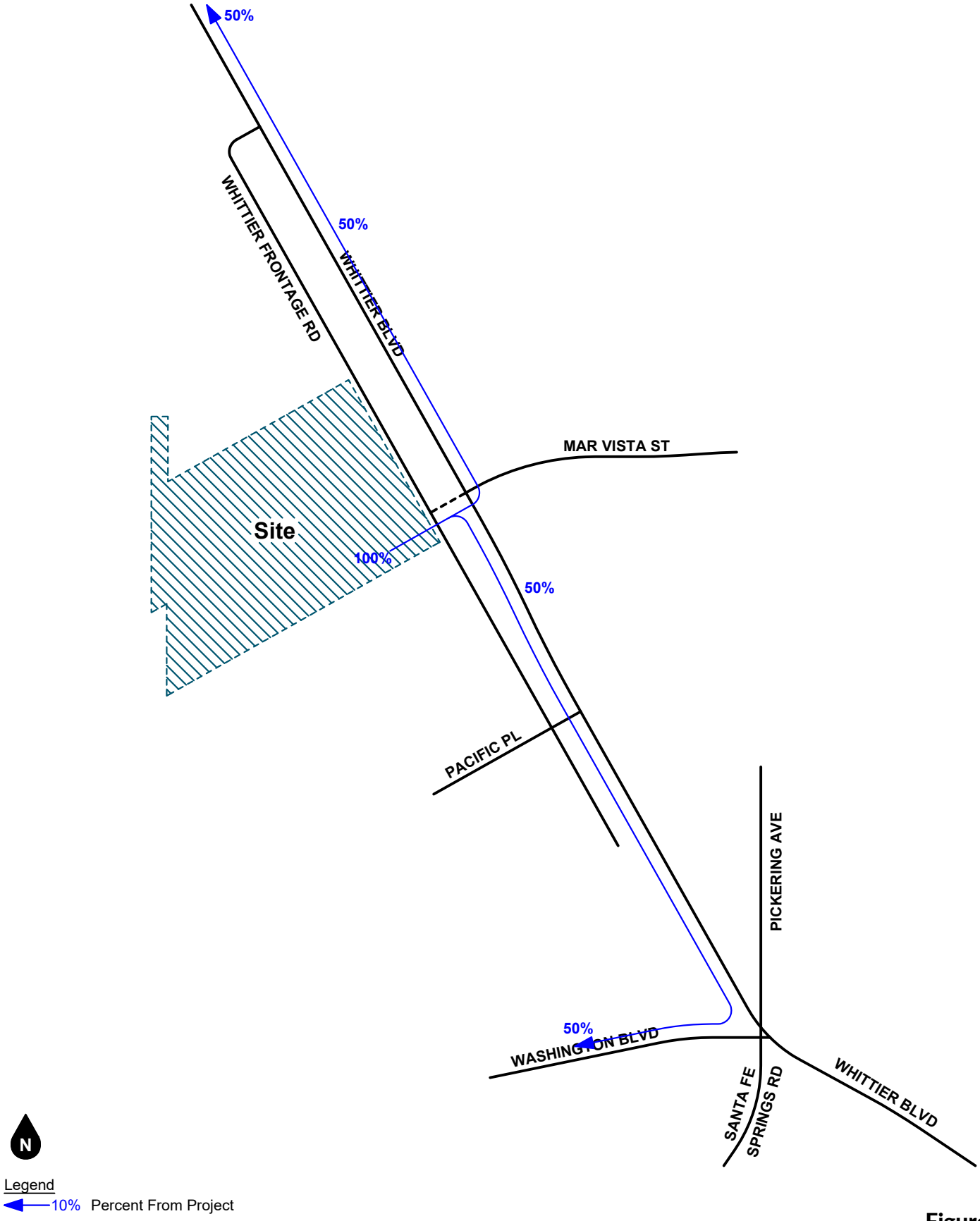


Figure 17
Project Outbound Trip Distribution - Trucks - Alternative With Mar Vista Street Extension

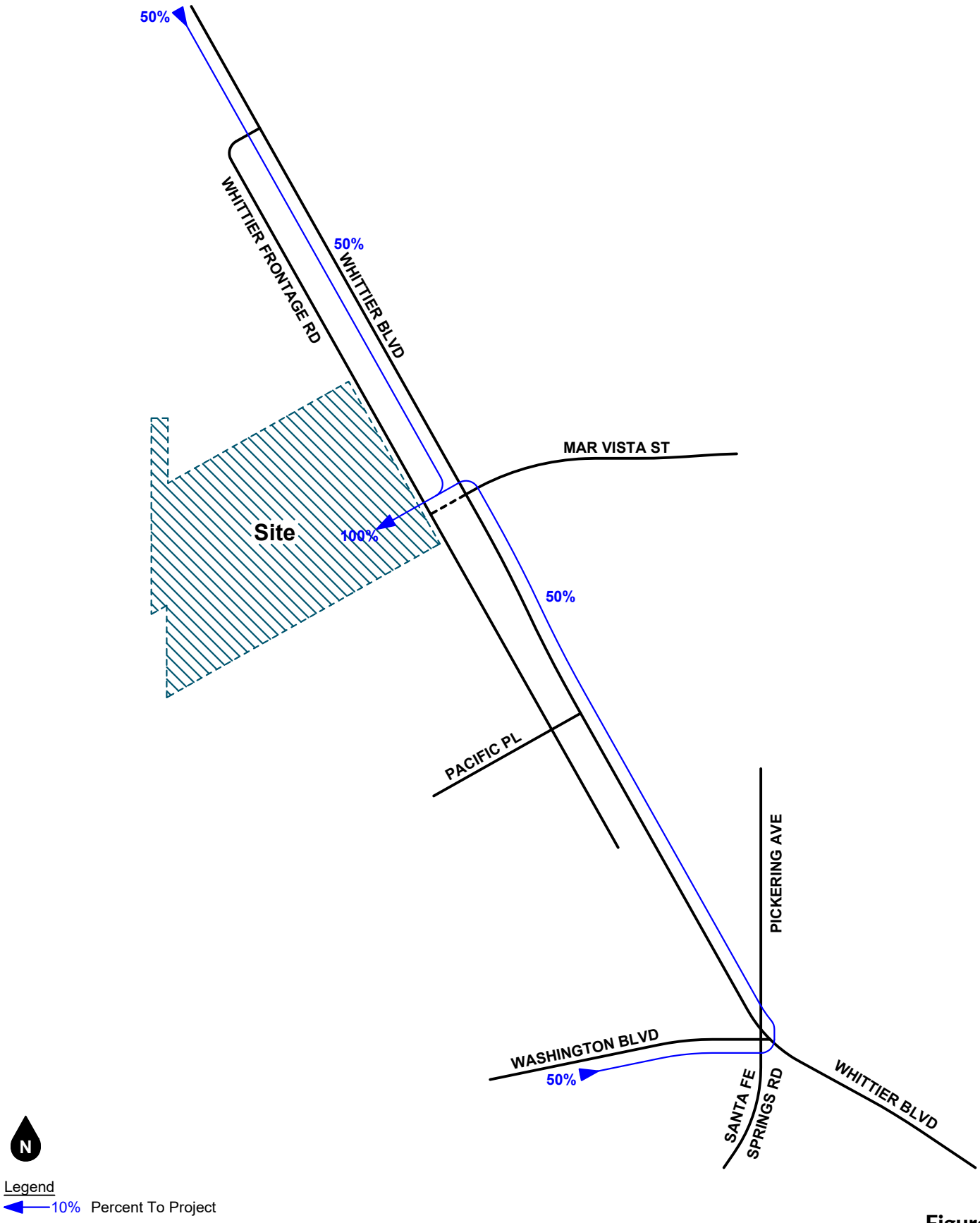


Figure 18
Project Inbound Trip Distribution - Trucks - Alternative With Mar Vista Street Extension

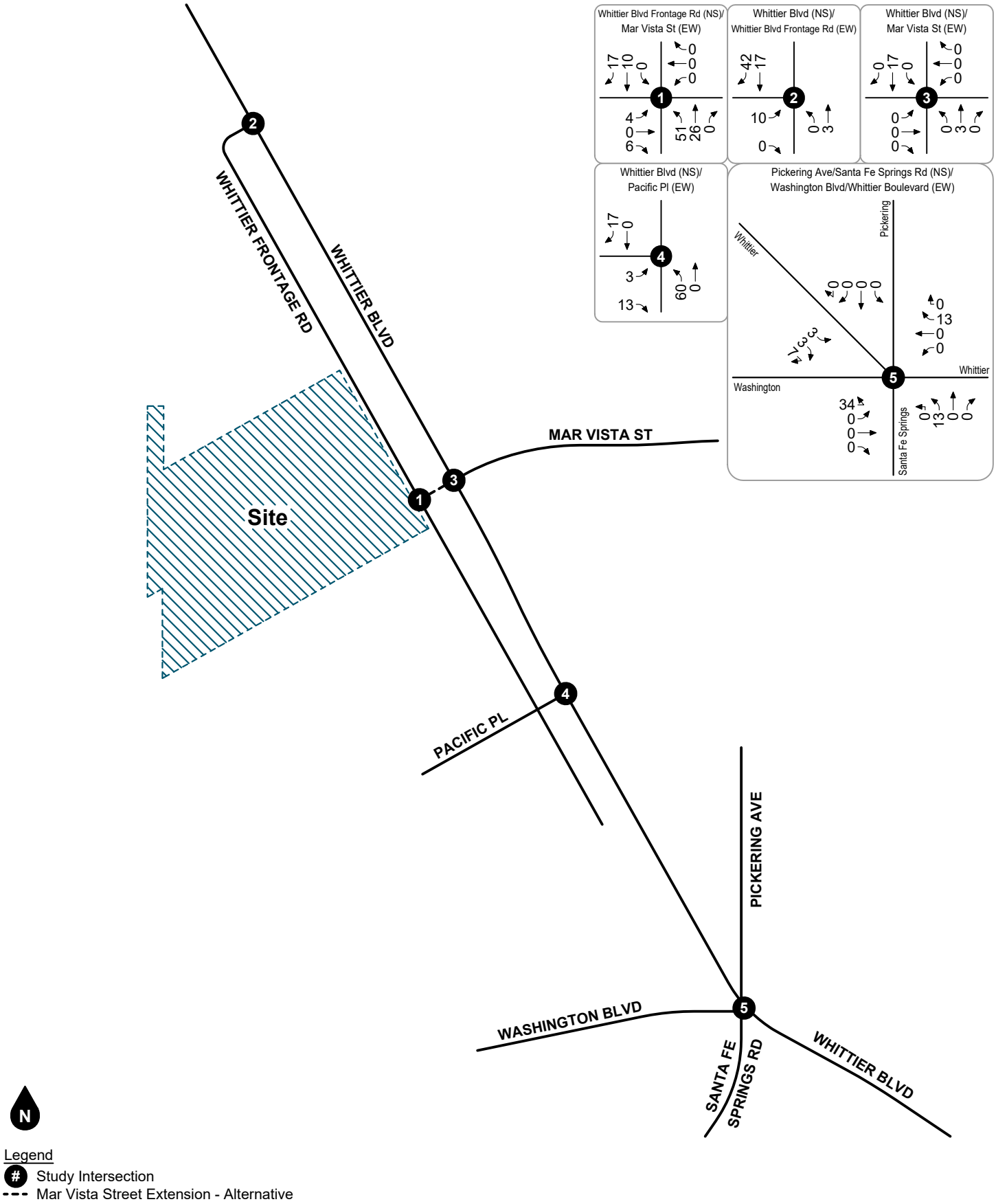


Figure 19
Project AM Peak Hour Intersection Turning Movement Volumes

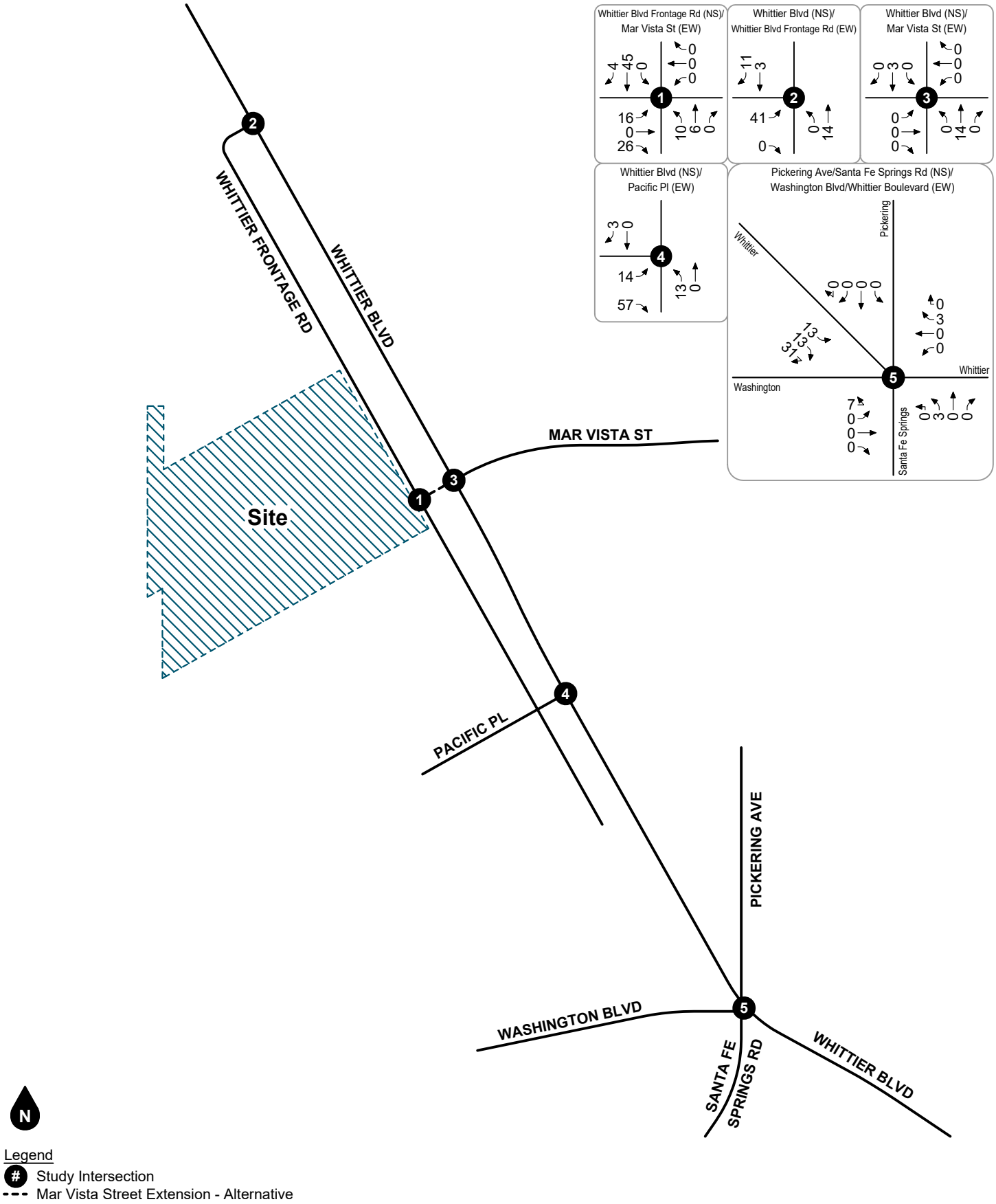


Figure 20
Project PM Peak Hour Intersection Turning Movement Volumes

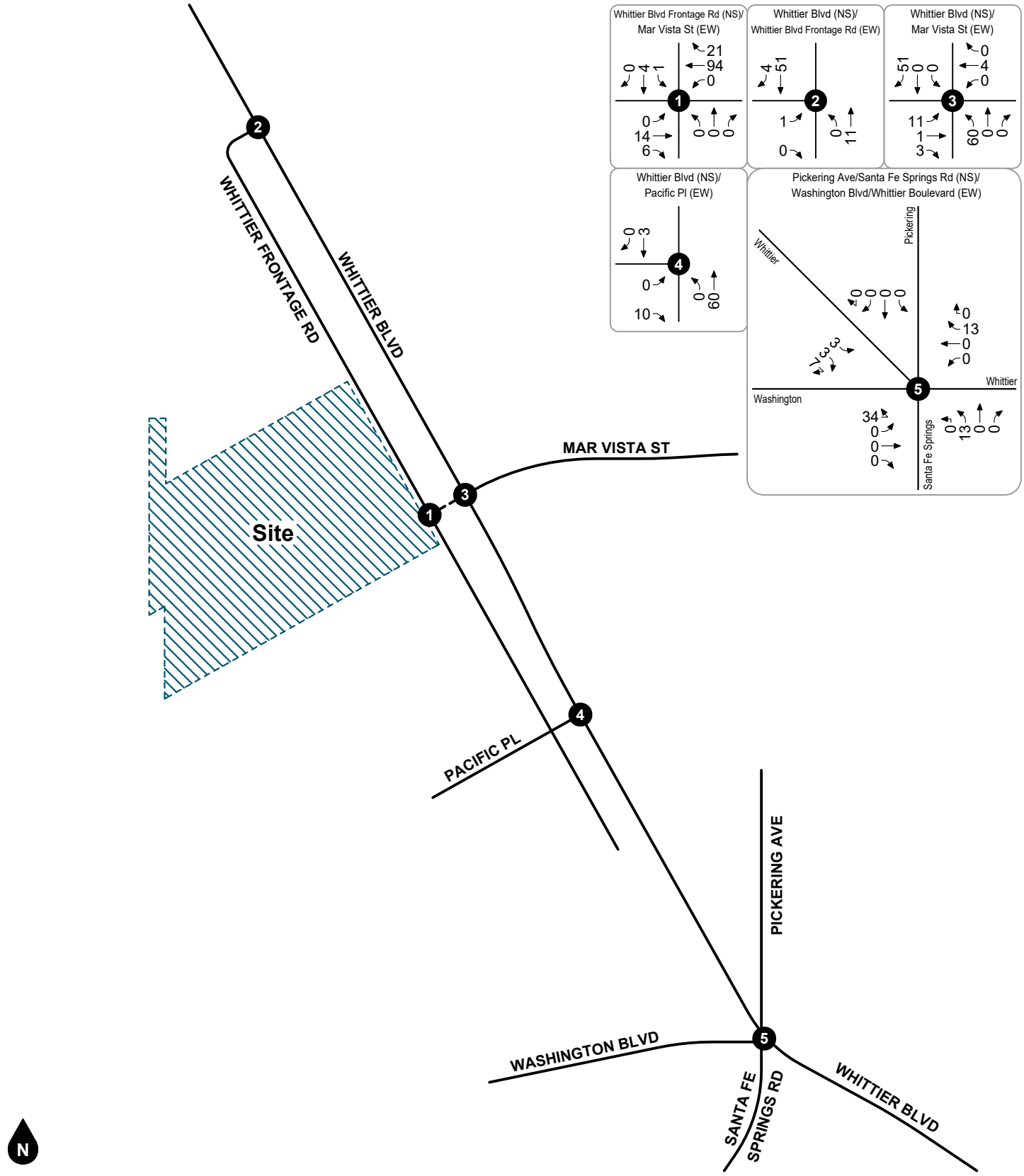
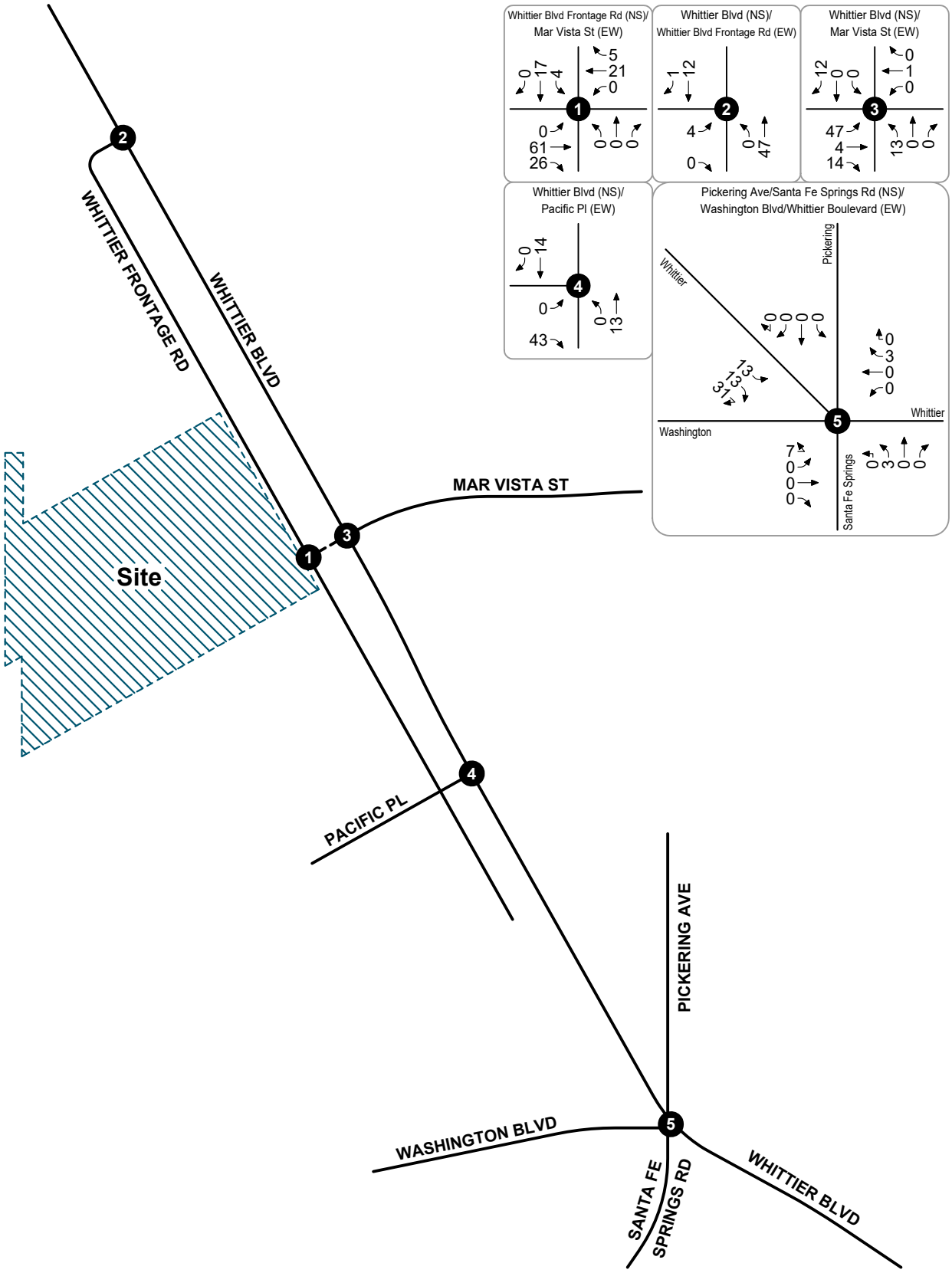


Figure 21
Project AM Peak Hour Intersection Turning Movement Volumes - Alternative With Mar Vista Street Extension



Legend

Study Intersection

--- Mar Vista Street Extension - Alternative

Figure 22
Project PM Peak Hour Intersection Turning Movement Volumes - Alternative With Mar Vista Street Extension

5. FUTURE VOLUME FORECASTS

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

CUMULATIVE TRIPS

Ambient Growth

To account for ambient growth on roadways, existing roadway volumes were increased by a growth rate of 0.56% per year over a two-year period for Opening Year (2023) conditions. This equates to a total growth factor of approximately 1.01. The ambient growth rate was conservatively applied to all movements at the study intersections.

Other Development

Other development provided by the City of Whittier Planning Department was applied for Opening Year conditions. Table 5 contains the other development trip generation. The Other Development Location Map is shown on Figure 23. Other Development AM and PM peak hour intersection turning movement volumes are shown on Figure 24 and Figure 25.

ANALYSIS SCENARIO VOLUME FORECASTS

Existing Plus Ambient Growth Plus Project

Existing Plus Ambient Growth Plus Project volume forecasts were developed by adding the project-generated trips to existing volumes and ambient growth. Existing Plus Ambient Growth Plus Project AM and PM peak hour intersection turning movement volumes are shown on Figure 26 and Figure 27. Existing Plus Ambient Growth Plus Project – Alternative with Mar Vista Street Extension AM and PM peak hour intersection turning movement volumes are shown on Figure 28 and Figure 29.

Existing Plus Ambient Growth Plus Project Plus Cumulative

Existing Plus Ambient Growth Plus Project Plus Cumulative volume forecasts were developed by adding other development to Existing Plus Ambient Growth Plus Project volumes. Existing Plus Ambient Growth Plus Project Plus Cumulative AM and PM peak hour intersection turning movement volumes are shown on Figure 30 and Figure 31. Existing Plus Ambient Growth Plus Project – Alternative with Mar Vista Street Extension AM and PM peak hour intersection turning movement volumes are shown on Figure 32 and Figure 33.

Table 5
Other Development Trip Generation

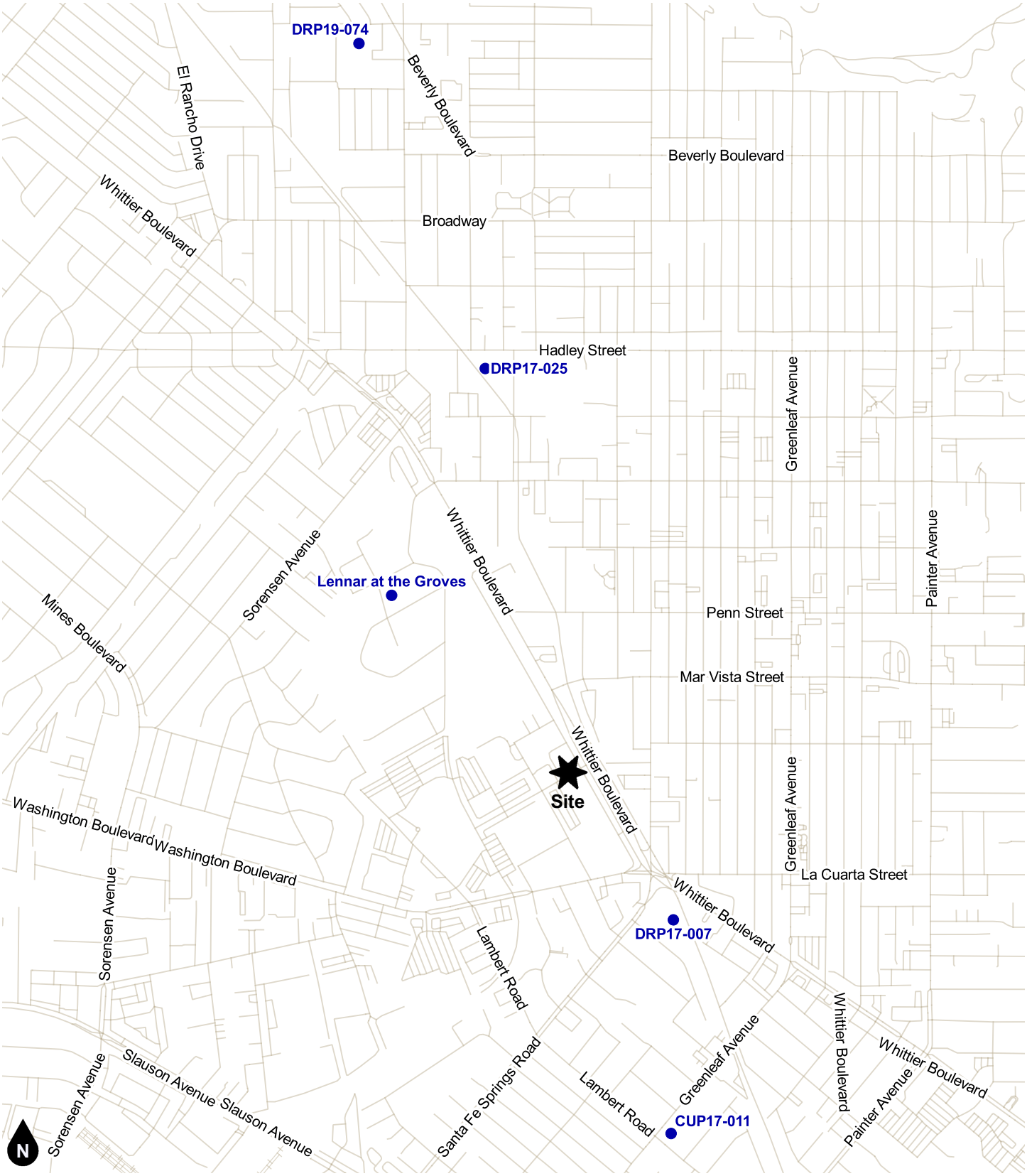
Project Name	Address	Land Use	Quantity	Units[1]	Source[2]	AM Peak Hour			PM Peak Hour			Daily
						In	Out	Total	In	Out	Total	
Lennar at the Groves	11850 Whittier Blvd	Apartments	189	DU	ITE 220	18	57	75	61	36	97	1,274
		Condominiums/Townhomes	106	DU	ITE 220	10	32	42	34	20	54	714
		Single-Family Detached Residential	32	DU	ITE 210	6	17	23	19	11	30	302
		Commercial Retail	97.515	TSF	ITE 821	213	131	344	423	458	881	9,214
		-Pass-By Reduction (40% PM)				--	--	--	-169	-183	-352	-352
		- Internal Capture (16% PM, 15% Daily)[3]				--	--	--	-86	-84	-170	-1,726
		Subtotal				247	237	484	282	258	540	9,426
CUP17-011	13001 Lambert Road	Automated Car Wash	1	Site	SANDAG	18	18	36	41	41	82	900
DRP17-025	12110 Hadley Street	Manufacturing	24.420	TSF	ITE 140	13	4	17	6	12	18	116
DRP17-007	8016 Santa Fe Springs Road	Apartments	60	DU	ITE 220	6	18	24	19	11	30	404
DRP19-074	11716 Floral Drive	Condominiums	25	DU	ITE 220	2	8	10	8	5	13	169
TOTAL OTHER DEVELOPMENT TRIPS						**39**	**48**	**87**	**74**	**69**	**143**	**1,589**

Notes:

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

(2) Based on trip generation from:
Institute of Transportation Engineers, Trip Generation Manual, 11th Edition, 2021;
San Diego Association of Governments, Brief Guide of Vehicular Traffic Generation Rates for San Diego Region, April 2002.

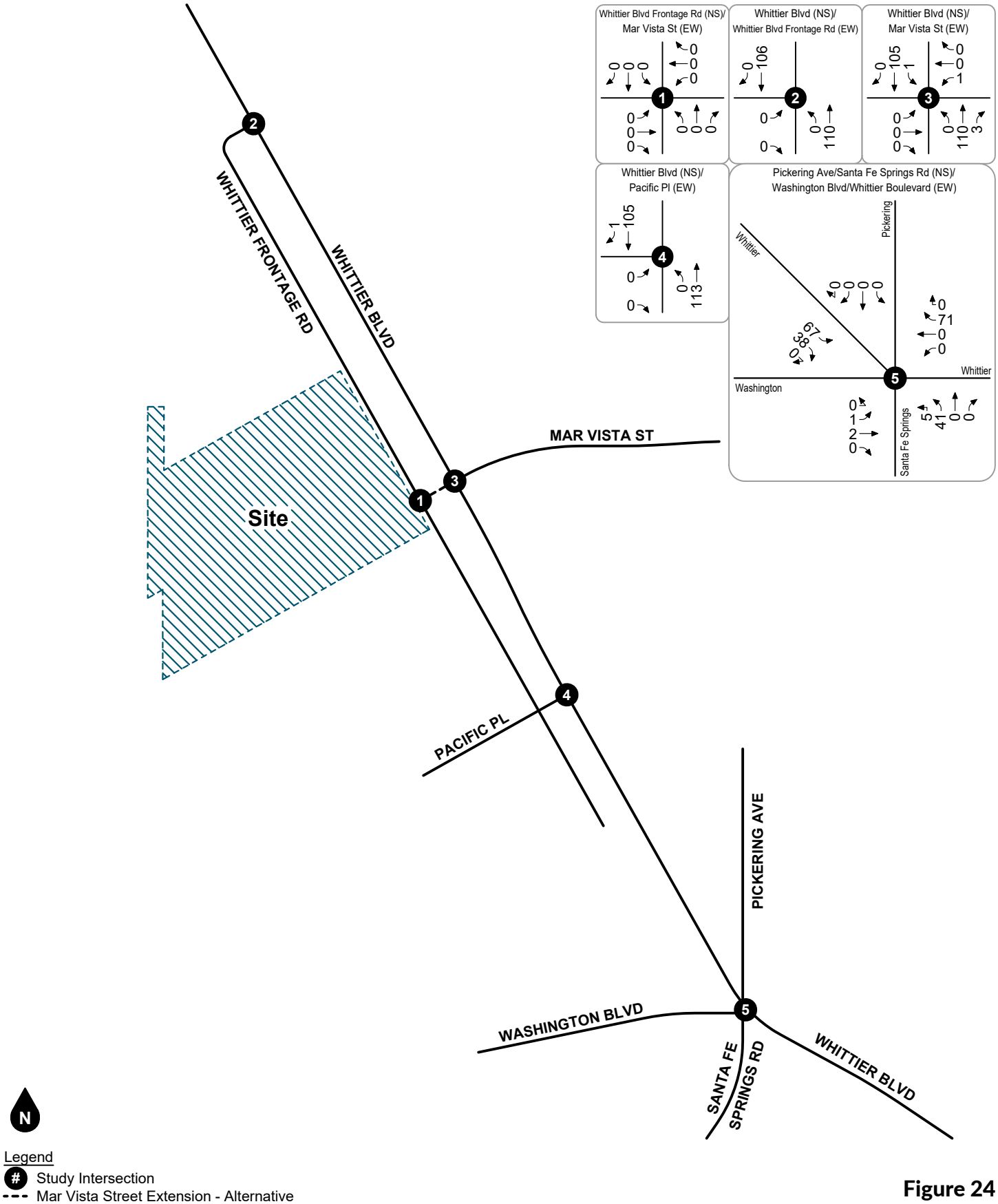
(3) Source: *Lincoln Specific Plan Traffic Impact Analysis* (RBF Consulting, October 2014)



Legend

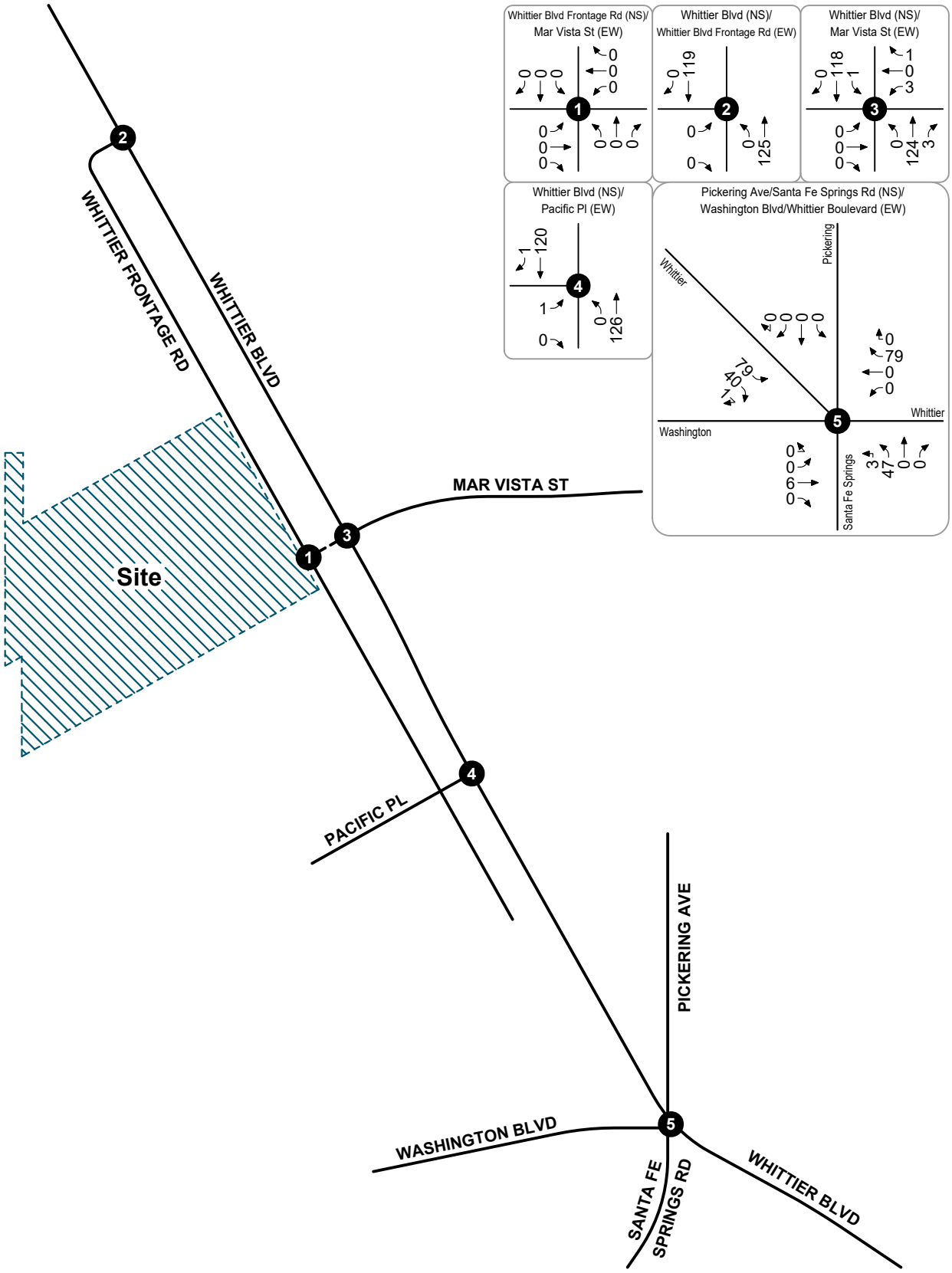
● Other Development

Figure 23
Other Development Location Map



Legend
Study Intersection
--- Mar Vista Street Extension - Alternative

Figure 24
Other Development
AM Peak Hour Intersection Turning Movement Volumes

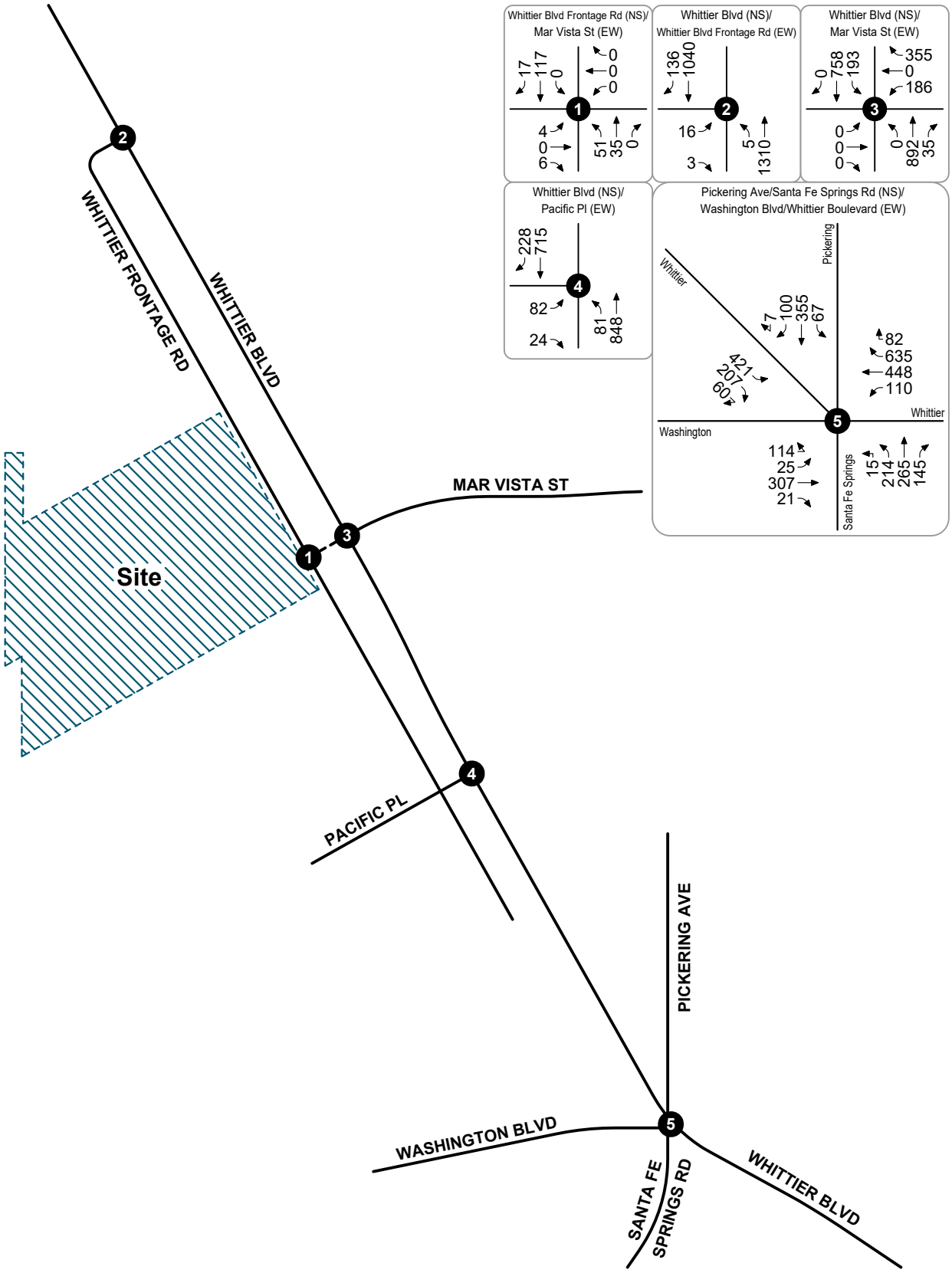


Legend

Study Intersection

- - - Mar Vista Street Extension - Alternative

Figure 25
Other Development
PM Peak Hour Intersection Turning Movement Volumes



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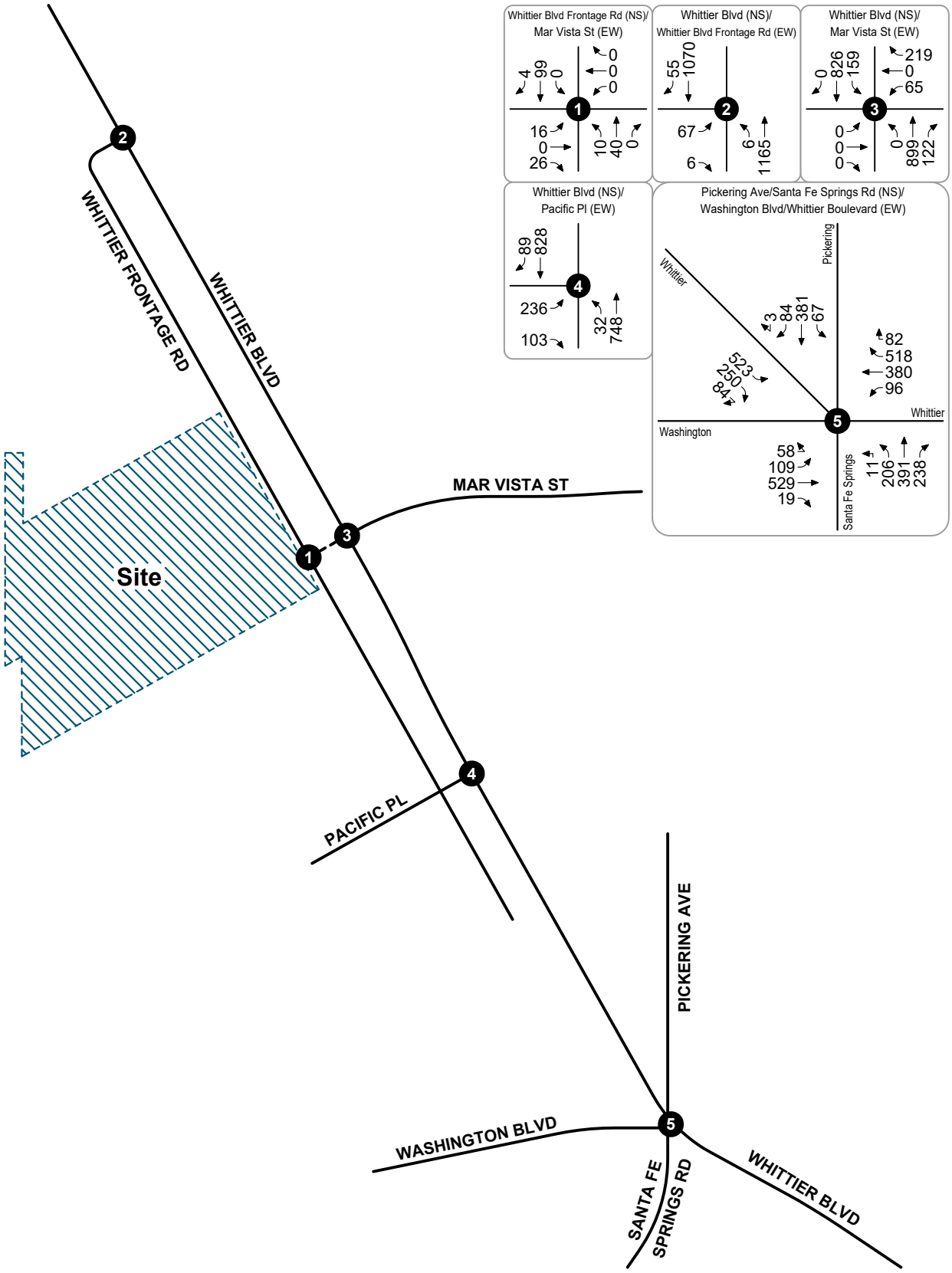
Study Intersection

--- Mar Vista Street Extension - Alternative

Figure 26
Existing Plus Ambient Growth Plus Project
AM Peak Hour Intersection Turning Movement Volumes



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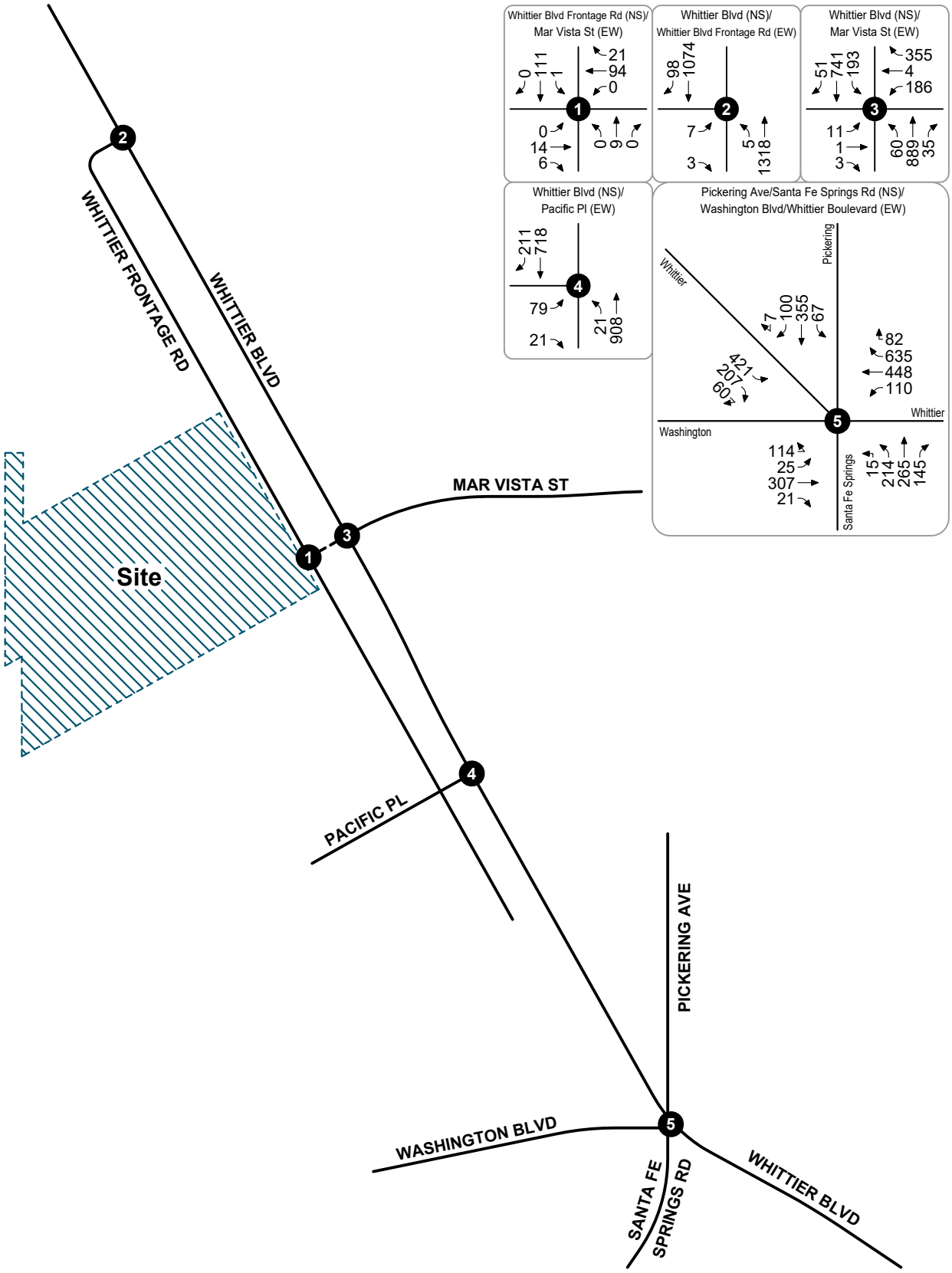
Study Intersection

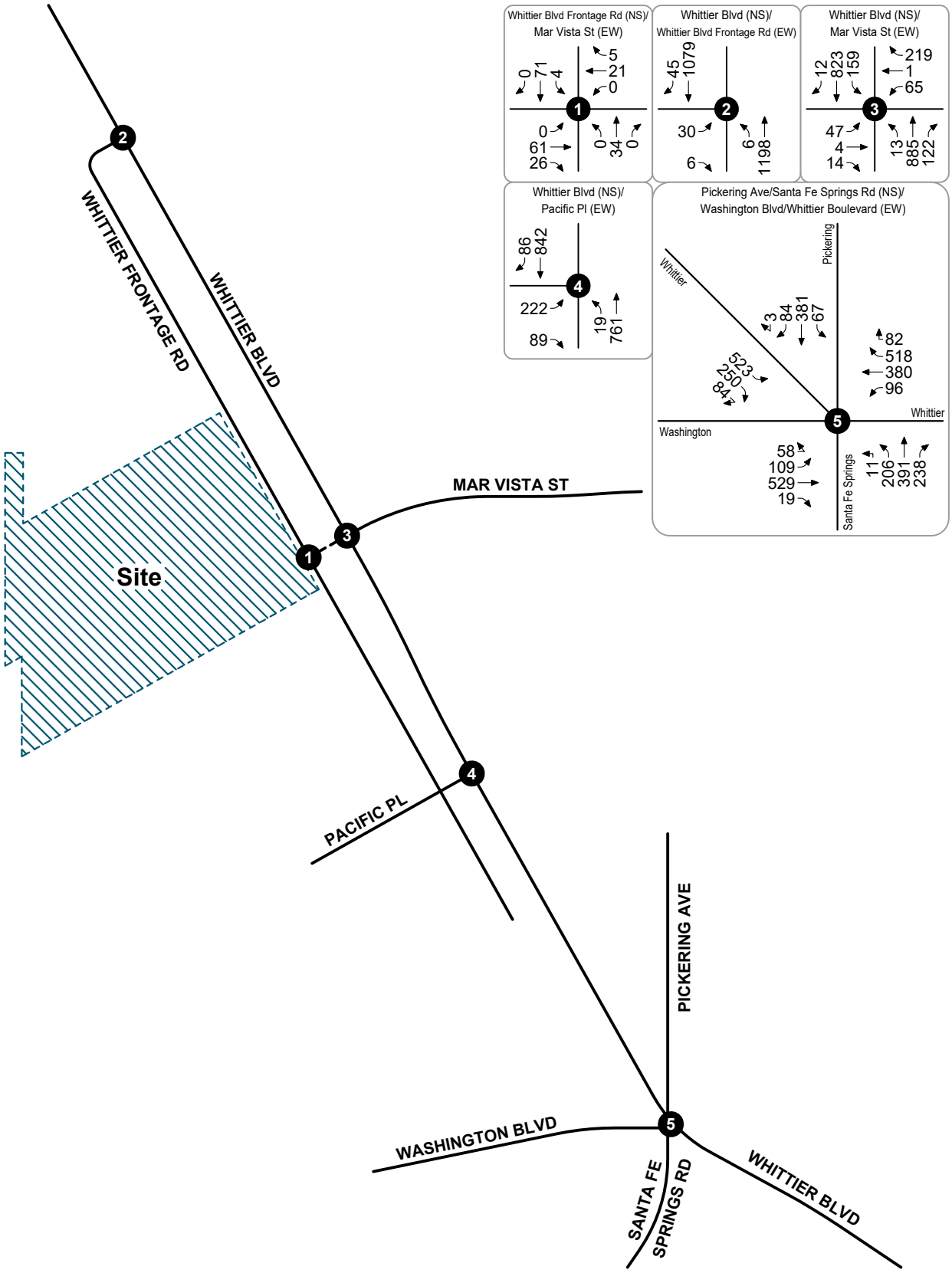
--- Mar Vista Street Extension - Alternative

Figure 27
Existing Plus Ambient Growth Plus Project
PM Peak Hour Intersection Turning Movement Volumes



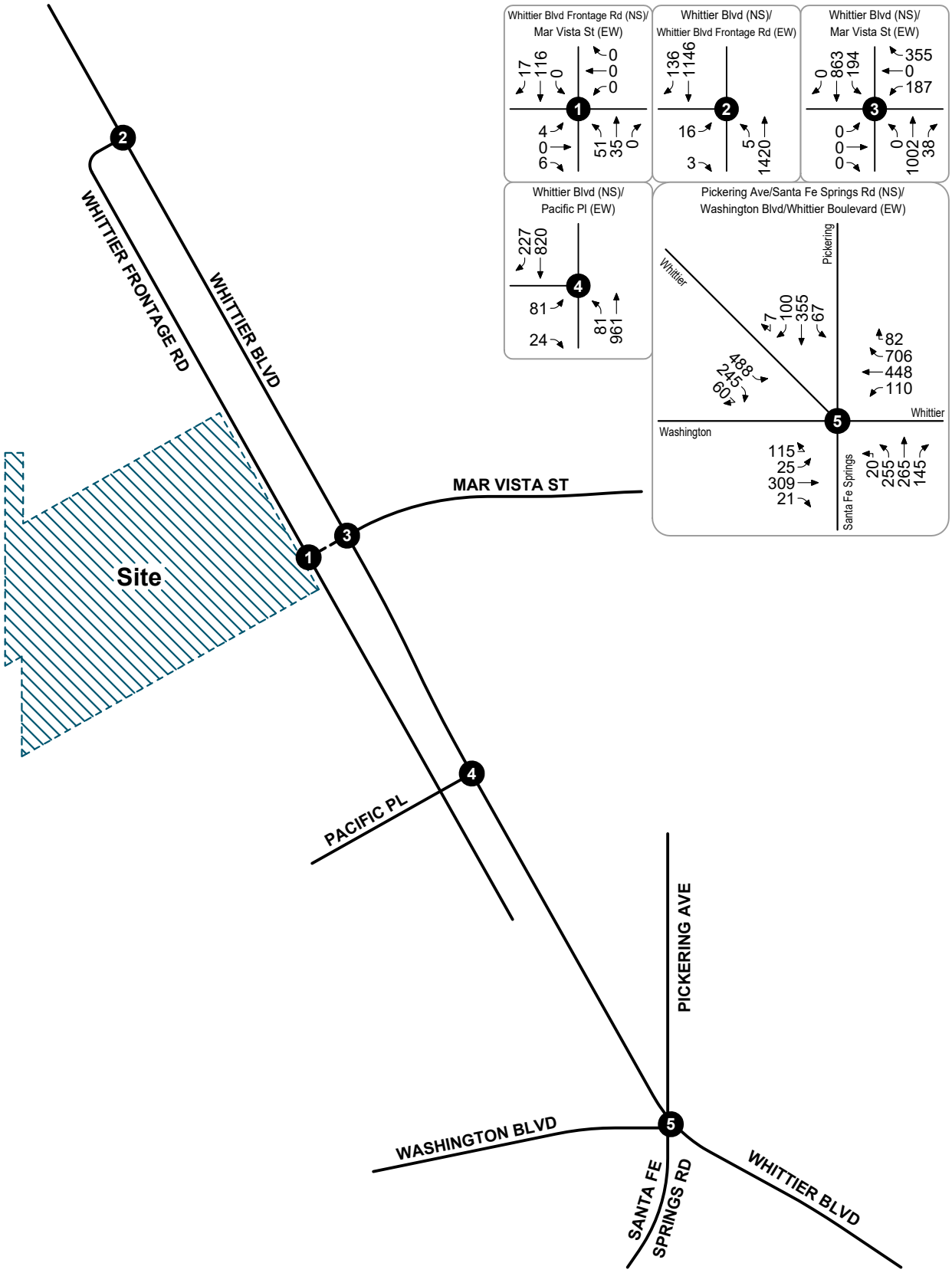
Legend
Study Intersection
--- Mar Vista Street Extension - Alternative

Figure 28
Existing Plus Ambient Growth Plus Project
AM Peak Hour Intersection Turning Movement Volumes
- Alternative With Mar Vista Street Extension



Legend
- # Study Intersection
- Mar Vista Street Extension - Alternative

Figure 29
Existing Plus Ambient Growth Plus Project
PM Peak Hour Intersection Turning Movement Volumes
- Alternative With Mar Vista Street Extension



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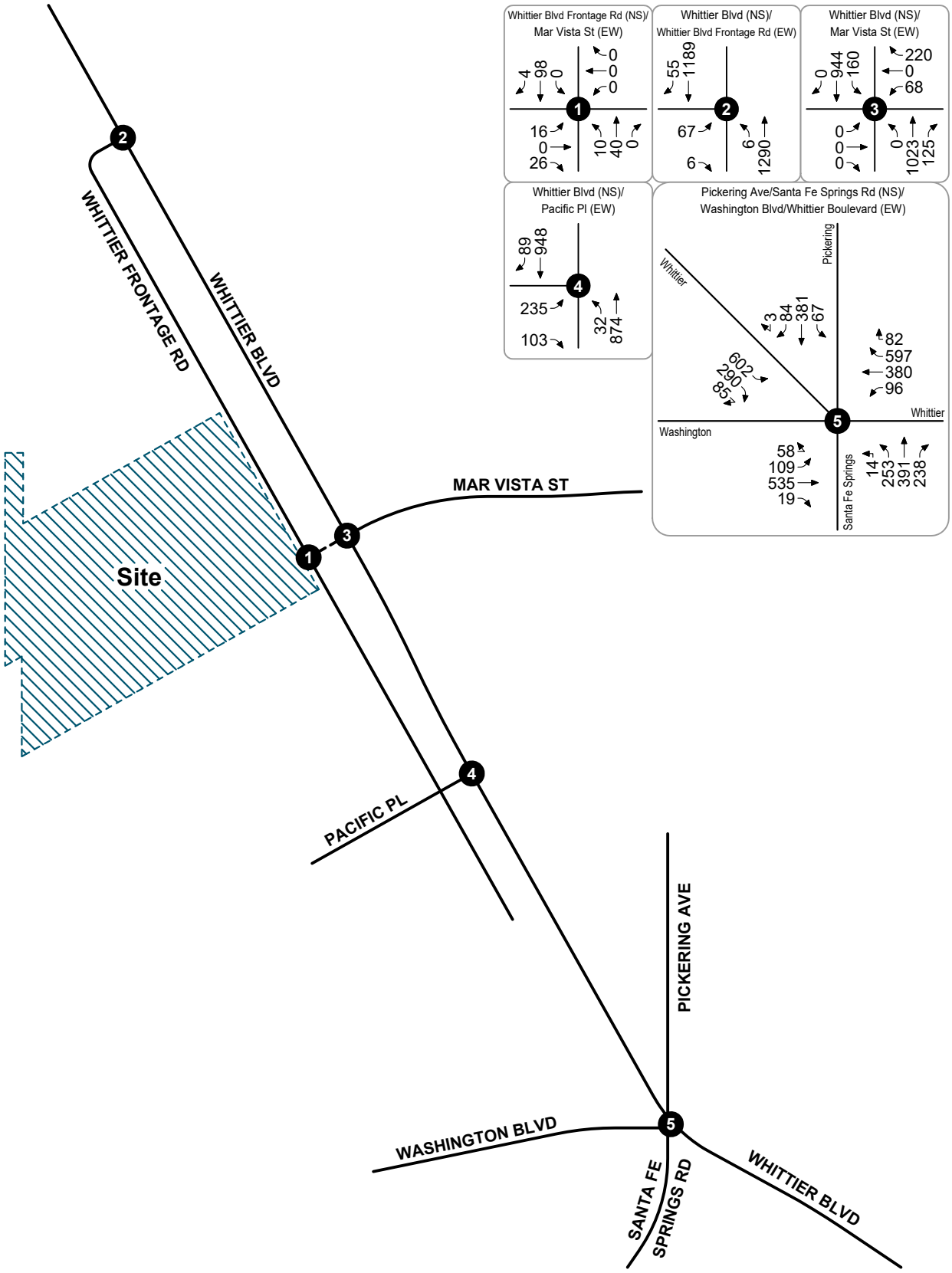
Study Intersection

--- Mar Vista Street Extension - Alternative

Figure 30
Existing Plus Ambient Growth Plus Project Plus Cumulative AM Peak Hour Intersection Turning Movement Volumes

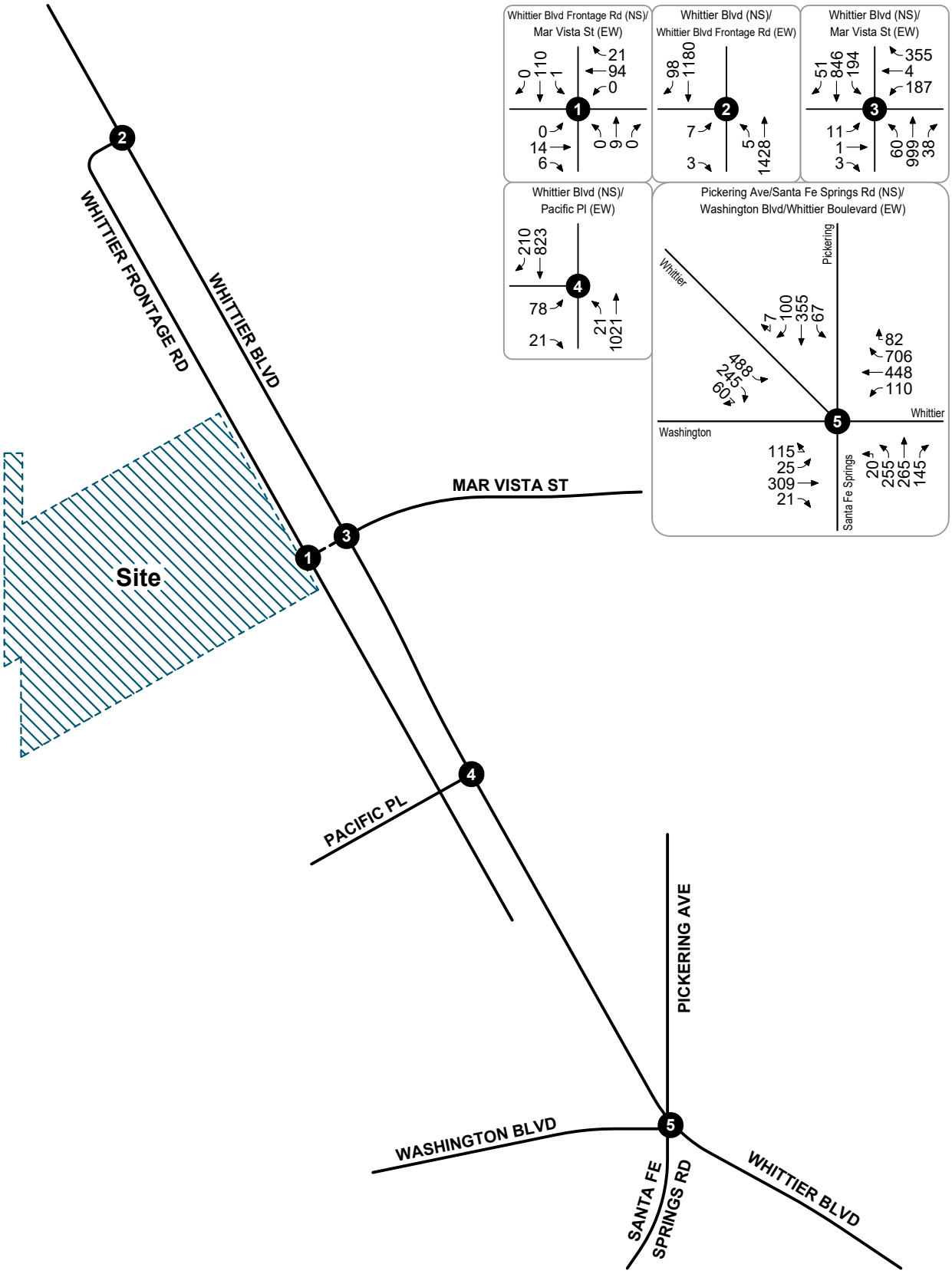


Legend

Study Intersection

--- Mar Vista Street Extension - Alternative

Figure 31
Existing Plus Ambient Growth Plus Project Plus Cumulative PM Peak Hour Intersection Turning Movement Volumes

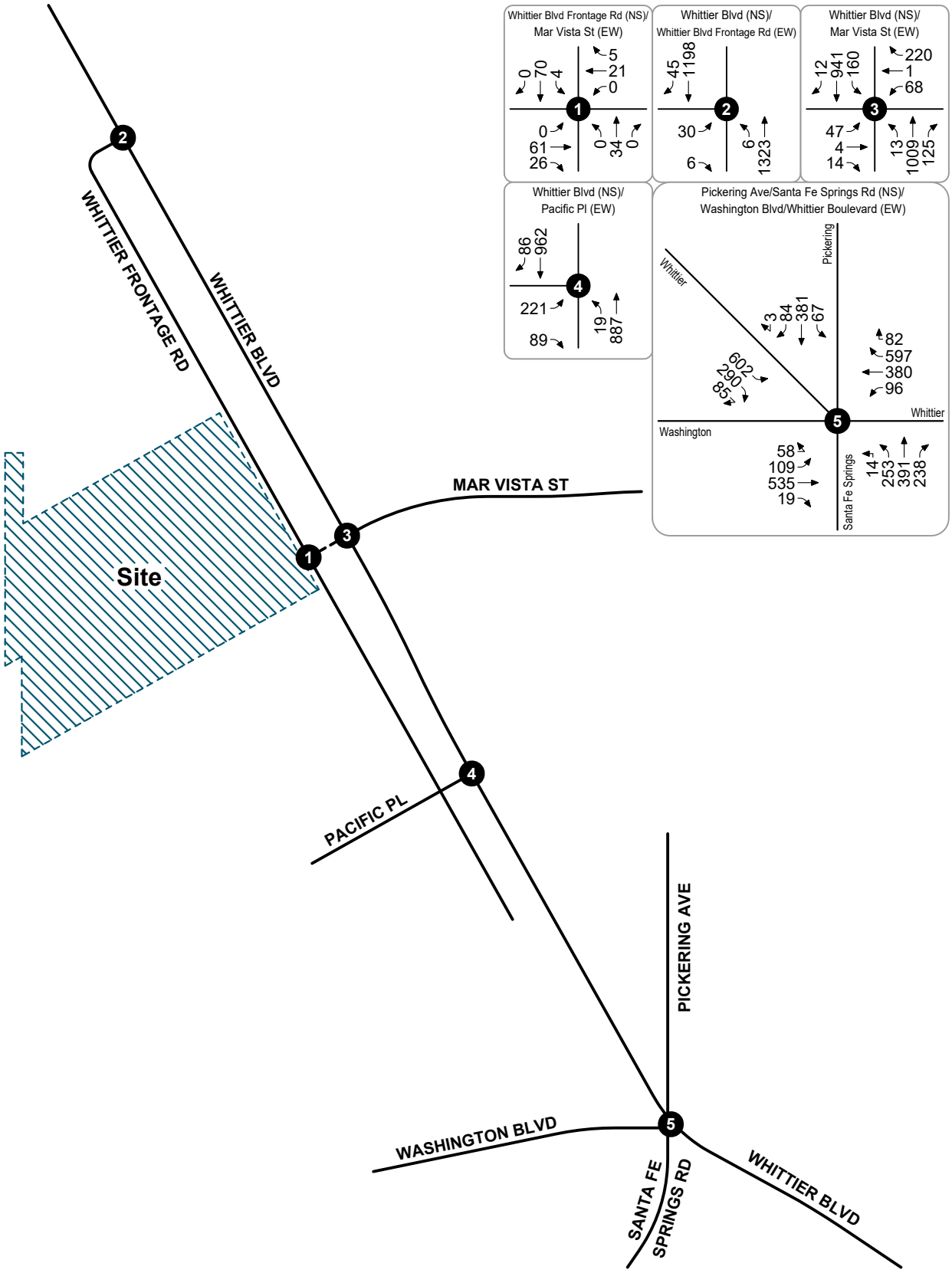


Legend

Study Intersection

--- Mar Vista Street Extension - Alternative

Figure 32
Existing Plus Ambient Growth Plus Project Plus Cumulative AM Peak Hour Intersection Turning Movement Volumes - Alternative With Mar Vista Street Extension



Legend

Study Intersection

--- Mar Vista Street Extension - Alternative

Figure 33
Existing Plus Ambient Growth Plus Project Plus Cumulative PM Peak Hour Intersection Turning Movement Volumes - Alternative With Mar Vista Street Extension

6. FUTURE LEVEL OF SERVICE ANALYSIS

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

EXISTING PLUS AMBIENT GROWTH PLUS PROJECT

The study intersection Levels of Service for Existing Plus Ambient Growth Plus Project conditions are shown in Table 6. As shown in Table 6, the study intersections are forecast to operate at Level of Service B or better during the peak hours for Existing Plus Ambient Growth Plus Project conditions, except for the following unsignalized study intersection that is forecast to operate at Level of Service F during the peak hours:

- Whittier Boulevard at Whittier Boulevard Frontage Road – #2 (Both peak hours – LOS F)

As also shown in Table 6, the project-related change in ICU would not exceed the City-established thresholds for adverse operational effects during the peak hours for Existing Plus Ambient Growth Plus Project conditions; therefore, no operational improvements are required.

EXISTING PLUS AMBIENT GROWTH PLUS PROJECT - ALTERNATIVE

The study intersection Levels of Service for Existing Plus Ambient Growth Plus Project – Alternative with Mar Vista Street Extension conditions are shown in Table 6. As shown in Table 6, the study intersections are forecast to operate at Level of Service C or better during the peak hours for Existing Plus Ambient Growth Plus Project – Alternative with Mar Vista Street Extension conditions, except for the following study intersection that is forecast to operate at Level of Service E/F during the peak hours:

- Whittier Boulevard at Whittier Boulevard Frontage Road – #2 (AM–LOS E; PM–LOS F)

As also shown in Table 6, the project-related change in ICU would not exceed the City-established thresholds for adverse operational effects during the peak hours for Existing Plus Ambient Growth Plus Project – Alternative with Mar Vista Street Extension conditions, except at the intersection of Whittier Boulevard/Mar Vista Street (#3). Since the existing (no project) condition does not include the proposed extension, the ICU increase is primarily associated with the proposed extension of Mar Vista Street to the Whittier Boulevard frontage road. Additionally, the intersection is forecast to operate at LOS C, which is generally considered acceptable; therefore, no operational improvements are required.

EXISTING PLUS AMBIENT GROWTH PLUS PROJECT PLUS CUMULATIVE

The study intersection Levels of Service for Existing Plus Ambient Growth Plus Project Plus Cumulative conditions are shown in Table 7. As shown in Table 7, the study intersections are forecast to operate at Level of Service B or better during the peak hours for Existing Plus Ambient Growth Plus Project Plus Cumulative conditions, except for the following study intersection that is forecast to operate at Level of Service F during the peak hours:

- Whittier Boulevard at Whittier Boulevard Frontage Road – #2 (Both peak hours – LOS F)

As also shown in Table 7, the project-related change in ICU would not exceed the City-established thresholds for adverse operational effects during the peak hours for Existing Plus Ambient Growth Plus Project Plus Cumulative conditions; therefore, no operational improvements are required.

EXISTING PLUS AMBIENT GROWTH PLUS PROJECT PLUS CUMULATIVE - ALTERNATIVE

The study intersection Levels of Service for Existing Plus Ambient Growth Plus Project Plus Cumulative – Alternative with Mar Vista Street Extension conditions are shown in Table 7. As shown in Table 7, the study intersections are forecast to operate at Level of Service C or better during the peak hours for Existing Plus Ambient Growth Plus Project Plus Cumulative – Alternative with Mar Vista Street Extension conditions, except for the following study intersection that is forecast to operate at Level of Service E/F during the peak hours:

- Whittier Boulevard at Whittier Boulevard Frontage Road – #2 (Both peak hours – LOS F)

As also shown in Table 7, the project-related change in ICU would not exceed the City-established thresholds for adverse operational effects during the peak hours for Existing Plus Ambient Growth Plus Project Plus Cumulative– Alternative with Mar Vista Street Extension conditions; therefore, no operational improvements are required.

SIGNAL WARRANT EVALUATION

The need for a traffic control signal at the currently unsignalized study intersection of Whittier Boulevard/Whittier Boulevard Frontage Road (#2) was evaluated for each of the above analysis scenarios using the California Department of Transportation peak hour traffic signal warrant graphs (Warrant 3) in accordance with the California Manual on Uniform Traffic Control Devices (2014, Revision 6) ["CA MUTCD"]. The study intersection is not forecast to be warranted for installation of a traffic signal based on the CA MUTCD peak hour volume warrant.

The LOS E/F condition at the study intersection of Whittier Boulevard/Whittier Boulevard Frontage Road (#2) is based on the eastbound left turn movement onto Whittier Boulevard; through movements along Whittier Boulevard are uncontrolled and would continue to operate at LOS A. The LOS deficiency may be corrected by prohibiting the eastbound left turn movement at this intersection; however, motorists are likely to naturally adapt to this delay and use alternative routes such as Pacific Place (which appears to be reflected in the traffic counts).

NON-CEQA IMPROVEMENTS

Since the intersection is not warranted for installation of a traffic signal and motorists are likely to adopt alternative routes, installation of a traffic signal at the intersection of Whittier Boulevard/Whittier Boulevard Frontage Road (#2) is not recommended and the need for improvements may be considered optional. The City may consider prohibiting the eastbound left turn movement during the AM and PM peak periods (7-9 AM, 4-6 PM) at the Whittier Boulevard/Whittier Boulevard Frontage Road (#2).

Table 6
Existing Plus Ambient Growth Plus Project Intersection Level of Service

Existing Roadway Network											
			Existing (No Project)				Existing Plus Ambient Growth Plus Project				Project Related ICU Change	
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour			
ID	Study Intersection	Traffic Control[1]	ICU[2] or [Delay][3]	LOS[4]	ICU[2] or [Delay][3]	LOS[4]	ICU[2] or [Delay][3]	LOS[4]	ICU[2] or [Delay][3]	LOS[4]	AM Peak Hour	PM Peak Hour
2.	Whittier Blvd at Whittier Blvd Frontage Rd	CSS	[37.3]	E	[51.6]	F	[52.3]	F	[145.2]	F	n/a	n/a
3.	Whittier Blvd at Mar Vista St	TS	0.620	B	0.550	A	0.627	B	0.559	A	+0.007	+0.009
4.	Whittier Blvd at Pacific Pl	TS	0.418	A	0.534	A	0.440	A	0.591	A	+0.022	+0.057
5.	Whittier Blvd at Pickering Ave/ Santa Fe Springs Rd/Washington Blvd	TS	0.725	C	0.823	D	0.739	C	0.835	D	+0.014	+0.012

Alternative with Mar Vista Street Extension												
			Existing (No Project)				Existing Plus Ambient Growth Plus Project				Project Related ICU Change	
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour			
ID	Study Intersection	Traffic Control[1]	ICU[2] or [Delay][3]	LOS[4]	ICU[2] or [Delay][3]	LOS[4]	ICU[2] or [Delay][3]	LOS[4]	ICU[2] or [Delay][3]	LOS[4]	AM Peak Hour	PM Peak Hour
1.	Whittier Blvd Frontage Rd at Mar Vista St	CSS	n/a	n/a	n/a	n/a	[10.2]	B	[9.9]	A	n/a	n/a
2.	Whittier Blvd at Whittier Blvd Frontage Rd	CSS	[37.3]	E	[51.6]	F	[43.2]	E	[62.0]	F	n/a	n/a
3.	Whittier Blvd at Mar Vista St	TS	0.620	B	0.550	A	0.743	C	0.681	B	+0.123	+0.131
4.	Whittier Blvd at Pacific Pl	TS	0.418	A	0.534	A	0.446	A	0.569	A	+0.028	+0.035
5.	Whittier Blvd at Pickering Ave/ Santa Fe Springs Rd/Washington Blvd	TS	0.725	C	0.823	D	0.739	C	0.835	D	+0.014	+0.012

Notes:

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

(2) ICU = Intersection Capacity Utilization.

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

(4) LOS = Level of Service

Table 7
Existing Plus Ambient Growth Plus Project Plus Cumulative Intersection Level of Service

Existing Roadway Network												
			Without Project				With Project				Project Related ICU Change	
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour			
ID	Study Intersection	Traffic Control[1]	ICU[2] or [Delay][3]	LOS[4]	ICU[2] or [Delay][3]	LOS[4]	ICU[2] or [Delay][3]	LOS[4]	ICU[2] or [Delay][3]	LOS[4]	AM Peak Hour	PM Peak Hour
2.	Whittier Blvd at Whittier Blvd Frontage Rd	CSS	[47.9]	E	[77.8]	E	[69.7]	F	[367.4]	F	n/a	n/a
3.	Whittier Blvd at Mar Vista St	TS	0.662	B	0.597	A	0.663	B	0.601	B	+0.001	+0.004
4.	Whittier Blvd at Pacific Pl	TS	0.457	A	0.576	A	0.473	A	0.629	B	+0.016	+0.053
5.	Whittier Blvd at Pickering Ave/ Santa Fe Springs Rd/Washington Blvd	TS	0.784	C	0.879	D	0.792	C	0.884	D	+0.008	+0.005

Alternative with Mar Vista Street Extension												
			Without Project				With Project				Project Related ICU Change	
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour			
ID	Study Intersection	Traffic Control[1]	ICU[2] or [Delay][3]	LOS[4]	ICU[2] or [Delay][3]	LOS[4]	ICU[2] or [Delay][3]	LOS[4]	ICU[2] or [Delay][3]	LOS[4]	AM Peak Hour	PM Peak Hour
1.	Whittier Blvd Frontage Rd at Mar Vista St	CSS	[0.0]	A	[0.0]	A	[10.2]	B	[9.8]	A	n/a	n/a
2.	Whittier Blvd at Whittier Blvd Frontage Rd	CSS	[47.9]	E	[77.8]	F	[55.0]	F	[95.2]	F	n/a	n/a
3.	Whittier Blvd at Mar Vista St	TS	0.767	C	0.692	B	0.779	C	0.722	C	+0.012	+0.030
4.	Whittier Blvd at Pacific Pl	TS	0.457	A	0.576	A	0.482	A	0.608	B	+0.025	+0.032
5.	Whittier Blvd at Pickering Ave/ Santa Fe Springs Rd/Washington Blvd	TS	0.819	D	0.879	D	0.827	D	0.884	D	+0.008	+0.005

Notes:

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

(2) ICU = Intersection Capacity Utilization

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

(4) LOS = Level of Service

7. SITE ACCESS AND CIRCULATION

This section includes a description of project improvements necessary to provide site access and an evaluation of site access and circulation.

PROJECT DESIGN FEATURES

The proposed project shall construct the following improvements as project design features to provide project site access:

Whittier Boulevard Frontage Road (NS) at Project North Driveway (EW)

- Construct the project driveway to provide one inbound lane and one outbound lane with eastbound stop-control and the following lane configurations:
  - Northbound: one shared left/through lane
  - Southbound: one shared through/right turn lane
  - Eastbound: one shared left/right turn lane.

Whittier Boulevard Frontage Road (NS) at Project South Driveway (EW)

- Construct the project driveway to provide one inbound lane and one outbound lane with eastbound stop-control and the following lane configurations:
  - Northbound: one shared left/through lane
  - Southbound: one shared through/right turn lane
  - Eastbound: one shared left/right turn lane.

This analysis also assumes the project shall comply with the following or comparable conditions as part of the City of Whittier standard development review process:

- A construction work site traffic control plan shall comply with State standards set forth in the California Manual of Uniform Traffic Control Devices and shall be submitted to the City for review and approval prior to the issuance of a grading permit or start of construction. The plan shall identify any roadway, sidewalk, bike route, or bus stop closures and detours as well as haul routes and hours of operation. All construction related trips shall be restricted to off-peak hours to the extent possible.

- All on-site and off-site roadway design, traffic signing and striping, and traffic control improvements relating to the proposed project shall be constructed in accordance with applicable State/Federal engineering standards and to the satisfaction of the City of Whittier.

- Site-adjacent roadways shall be constructed or repaired at their ultimate half-section width, including landscaping and parkway improvements in conjunction with development, or as otherwise required by the City of Whittier.

- Adequate emergency vehicle access shall be provided to the satisfaction of the Whittier Fire Department.

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

8. CONGESTION MANAGEMENT PROGRAM

This section provides analysis of the project impacts at County facilities in accordance with typical Los Angeles County Congestion Management Program (CMP) requirements.

CRITERIA FOR REQUIRING A TRAFFIC IMPACT ANALYSIS FOR CMP

The Los Angeles County 2010 CMP provides the following thresholds for requiring a CMP-compliant traffic impact analysis:

- All CMP arterial monitoring intersections, including monitored freeway on or off-ramp intersections, where the proposed project will add 50 or more trips during either the AM or PM weekday peak hours (of adjacent street traffic)

- If CMP arterial segments are being analyzed rather than intersections, the study area must include all segments where the proposed project will add 50 or more peak hour trips (total of both directions).

- Mainline freeway monitoring locations where the project will add 150 or more trips, in either direction, during either the AM or PM weekday peak hours.

The study area does not include any CMP monitoring intersections and the project does not contribute 150 or more peak hour trips to a mainline freeway monitoring location. Therefore, the proposed project would not result in a CMP impact as it does not meet the County-established thresholds requiring preparation of a traffic impact analysis for CMP purposes.

CMP TRANSIT IMPACT REVIEW

The Los Angeles County Metropolitan Transportation Authority 2010 Congestion Management Program Appendix D - Guidelines for CMP Transportation Impact Analysis 8.4 utilizes a conversion factor based on the daily and AM and PM peak hour trip generation to provide for a transit analysis. The conversion is as follows:

- Multiply the total trips generated by 1.4 to convert vehicle trips to person trips;
- For each time period, multiply the result by one of the following factors:
  - 3.5% of Total Person Trips Generated for most cases, except:
  - 10% primarily Residential within 1/4 mile of a CMP transit center
  - 15% primarily Commercial within 1/4 mile of a CMP transit center
  - 7% primarily Residential within 1/4 mile of a CMP multi-modal transportation center
  - 9% primarily Commercial within 1/4 mile of a CMP multi-modal transportation center
  - 5% primarily Residential within 1/4 mile of a CMP transit corridor
  - 7% primarily Commercial within 1/4 mile of a CMP transit corridor
  - 0% if no fixed route transit services operate within one mile of the project

Accordingly, the proposed project-generated transit trips are calculated as follows:
- Daily: ((995 trips x 1.4) x 0.035) ≈ 49
- AM Peak Hour: ((118 trips x 1.4) x 0.035) ≈ 6
- PM Peak Hour: ((118 trips x 1.4) x 0.035) ≈ 6

The proposed project is forecast to generate approximately six (6) transit trips during the AM peak hour and six (6) transit trips during the PM peak hour. Based on the existing transit services available in the project vicinity, the proposed project is forecast to have a nominal impact on transit service.

9. VEHICLE MILES TRAVELED ANALYSIS

The project VMT impact has been assessed in accordance with guidance from the City of Whittier *Vehicle Miles Traveled (VMT) Transportation Study Guidelines* (October 2021) ["City TIA Guidelines"].

VMT SCREENING CRITERIA

The City TIA Guidelines provide screening thresholds for certain types of projects that may be presumed to cause a less than significant VMT impact based on substantial evidence provided in the Office of Planning and Research (OPR) *Technical Advisory on Evaluating Transportation Impacts in CEQA* (December 2018) ["OPR Technical Advisory"].

The City of Whittier VMT Guidelines provide the following six screening steps: 1) Project Size; 2) Local Serving Retail; 3) Project Located in a Low VMT Area; 4) Transit Proximity; 5) Affordable Housing; and 6) Transportation Facilities.

Project Size Screening

Projects that generate 110 or fewer daily trips may be presumed to have a less than significant impact and are screened from the requirement to prepare further VMT analysis.

Since the existing building could be re-occupied with manufacturing land use under current entitlements, it is appropriate to consider the net new trips that are expected to result from the proposed project relative to the existing building/previous use.

As previously noted, Table 3 shows the previous use trip generation based on manufacturing use for the existing 213,430 square foot building. As with the proposed use trip generation estimate, the percentage of truck trips for the previous use was also obtained from the ITE *Trip Generation Manual Supplement* (February 2020).

As noted in the OPR Technical Advisory, "*Proposed Section 15064.3, subdivision (a), states, "For the purposes of this section, 'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to a project." Here, the term "automobile" refers to on-road passenger vehicles, specifically cars and light trucks."* Additionally, the City guidelines indicate that the VMT threshold for light industrial projects is based on home-based work VMT per employee. Therefore, it is appropriate to exclude the project-generated truck trips for VMT purposes of assessing the project's employment size.

Table 4 shows a trip generation comparison between the previous and proposed uses. As shown in Table 4, the proposed project is forecast to result in a net increase of approximately 90 net new passenger car trips per day relative to the previous use, including a net reduction of 18 fewer passenger car trips during the AM peak hour and 27 fewer passenger car trips during the PM peak hour. Therefore, excluding truck trips, the proposed Project satisfies the City-established screening criteria for small projects that result in a net increase of 110 or fewer daily passenger car trips and may be presumed to result in a less than significant VMT impact.

Locally Serving Retail Screening

A project that has locally serving retail uses that are 50,000 square feet or less, including specialty retail, shopping center, grocery store, pharmacy, financial services/banks, fitness center or health club, restaurant, and café may be presumed to have a less than significant impact and is screened from the requirement to prepare further VMT analysis. If the project contains other land uses, those uses need to be considered under other applicable screening criteria. Proposed projects less than 50,000 square feet that are unique uses or regional draws, may require additional information or evidence that they will be local-serving.

The proposed Project does not include local-serving retail, therefore; this screening criteria does not apply.

Project Located in a Low VMT Area Screening

A residential or office project that is located in a Traffic Analysis Zone (TAZ) that is already 15% below the City and Sphere of Influence (SOI) Baseline VMT may be presumed to have a less than significant impact and is screened from the requirement to prepare further VMT analysis.

The proposed Project is not located in a low VMT area, therefore; the proposed project does not satisfy the City-established screening criteria for a project located in a low VMT area.

Transit Priority Screening

Projects located within a half mile of the Eastside Transit Corridor Phase 2 Project, or a half mile of where two or more 15-minute (during commute hours) bus routes intersect, or within a half mile of a corridor served by 15-minute (during commute hours) bus service may be presumed to have a less than significant impact and is screened from the requirement to prepare further VMT analysis. This presumption may not be appropriate if the project:

1. Has a Floor Area Ratio (FAR) of less than 0.75;
2. Includes more parking for use by residents, customers, or employees of the project than required by the jurisdiction (if the jurisdiction requires the project to supply parking)
3. Is inconsistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Metropolitan Planning Organization): or
4. Replaces affordable residential units with a smaller number of moderate or high-income residential units.

The proposed Project does not meet the presumptions outlined for this screening criteria, therefore; the proposed project does not satisfy the City-established screening criteria for transit priority.

Affordable Housing Screening

A residential project that provides affordable housing units (if part of a larger development only those units that meet the definition of affordable housing satisfy this screening criteria) may be presumed to have a less than significant impact and is screened from the requirement to prepare further VMT analysis.

The proposed Project is not proposing affordable housing, therefore; this screening criteria does not apply.

Transportation Facilities Screening

Transportation projects that promote non-auto travel, improve safety, or improve traffic operations at current bottlenecks, such as transit, bicycle and pedestrian facilities, intersection traffic control (e.g. traffic signals or roundabouts), or widening at intersections to provide new turn lanes may be presumed to have a less than significant impact and is screened from the requirement to prepare further VMT analysis.

The proposed Project is not a transportation facility; therefore, this screening criteria does not apply.

VMT Screening Summary

The proposed Project satisfies the City-established screening criteria for small projects that result in a net increase of 110 or fewer daily passenger car trips and may be presumed to result in a less than significant VMT impact.

10. CONCLUSIONS

This section summarizes the findings and improvements/mitigation measures (if any) identified in previous sections of this report.

PROJECT TRIP GENERATION

The proposed project is forecast to generate a total of approximately 1,266 daily PCE trips, including 144 PCE trips during the AM peak hour and 140 PCE trips during the PM peak hour.

FUTURE LEVELS OF SERVICE

The study intersections are forecast to operate at Level of Service D or better during the peak hours for Existing Plus Ambient Growth Plus Project conditions, except for the following study intersection that is forecast to degrade to LOS F during the AM peak hour and continue operating at LOS F during the PM peak hours:

- Whittier Boulevard at Whittier Boulevard Frontage Road – #2 (Both peak hours – LOS F)

The project-related change in ICU would not exceed the City-established thresholds for adverse operational effects during the peak hours for Existing Plus Ambient Growth Plus Project conditions; therefore, no operational improvements are required.

For the Existing Plus Ambient Growth Plus Project - Alternative with Mar Vista Street Extension conditions, the following study intersection is forecast to continue operating at Level of Service E/F during the peak hours:

- Whittier Boulevard at Whittier Boulevard Frontage Road – #2 (AM–LOS E; PM–LOS F)

The project-related change in ICU would not exceed the City-established thresholds for adverse operational effects during the peak hours for Existing Plus Ambient Growth Plus Project – Alternative with Mar Vista Street Extension conditions, except at the intersection of Whittier Boulevard/Mar Vista Street (#3). Since the existing (no project) condition does not include the proposed extension, the ICU increase is primarily associated with the proposed extension of Mar Vista Street to the Whittier Boulevard frontage road. Additionally, the intersection is forecast to operate at LOS C, which is generally considered acceptable; therefore, no operational improvements are required.

The study intersections are forecast to operate at Level of Service D or better during the peak hours for Existing Plus Ambient Growth Plus Project Plus Cumulative conditions, both without and with the Mar Vista Street Extension, except for the following study intersection that is forecast to operate at Level of Service F during the peak hours:

- Whittier Boulevard at Whittier Boulevard Frontage Road – #2 (Both peak hours – LOS F)

The project-related change in ICU would not exceed the City-established thresholds for adverse operational effects during the peak hours for Existing Plus Ambient Growth Plus Project Plus Cumulative conditions, both without and with the Mar Vista Street Extension; therefore, no operational improvements are required.

SIGNAL WARRANT EVALUATION

The need for a traffic control signal at the currently unsignalized study intersection of Whittier Boulevard/Whittier Boulevard Frontage Road (#2) was evaluated for each of the above analysis scenarios using the California Department of Transportation peak hour traffic signal warrant graphs (Warrant 3) in

accordance with the California Manual on Uniform Traffic Control Devices (2014, Revision 6) ["CA MUTCD"]. The study intersection is not forecast to be warranted for installation of a traffic signal based on the CA MUTCD peak hour volume warrant.

The LOS E/F condition at the study intersection of Whittier Boulevard/Whittier Boulevard Frontage Road (#2) is based on the eastbound left turn movement onto Whittier Boulevard; through movements along Whittier Boulevard are uncontrolled and would continue to operate at LOS A. The LOS deficiency may be corrected by prohibiting the eastbound left turn movement at this intersection; however, motorists are likely to naturally adapt to this delay and use alternative routes such as Pacific Place (which appears to be reflected in the traffic counts).

Non-CEQA Improvements

The project-related change in ICU at the study intersections would not exceed the City-established thresholds for adverse operational effects during the peak hours for the evaluated analysis scenarios; therefore, no operational improvements are required.

Since the intersection is not warranted for installation of a traffic signal and motorists are likely to adopt alternative routes, installation of a traffic signal at the intersection of Whittier Boulevard/Whittier Boulevard Frontage Road (#2) is not recommended and the need for improvements may be considered optional. The City may consider prohibiting the eastbound left turn movement during the AM and PM peak periods (7-9 AM, 4-6 PM) at the Whittier Boulevard/Whittier Boulevard Frontage Road (#2).

Site Access and Circulation

The proposed project shall construct the following improvements as project design features to provide project site access:

Whittier Boulevard Frontage Road (NS) at Project North Driveway (EW)

- Construct the project driveway to provide one inbound lane and one outbound lane with eastbound stop-control and the following lane configurations:
  - Northbound: one shared left/through lane
  - Southbound: one shared through/right turn lane
  - Eastbound: one shared left/right turn lane.

Whittier Boulevard Frontage Road (NS) at Project South Driveway (EW)

- Construct the project driveway to provide one inbound lane and one outbound lane with eastbound stop-control and the following lane configurations:
  - Northbound: one shared left/through lane
  - Southbound: one shared through/right turn lane
  - Eastbound: one shared left/right turn lane.

Congestion Management Program

The proposed project would result in no operational CMP impact as it does not meet the County-established thresholds requiring preparation of a traffic impact analysis for CMP purposes. A transit impact review was conducted for compliance with the CMP requirements and found that the proposed project is forecast to have a nominal impact on transit service.

Vehicle Miles Traveled Analysis

The proposed project satisfies the City-established screening criteria for small projects that result in a net increase of 110 or fewer daily passenger car trips and may be presumed to result in a less than significant VMT impact.

Mitigation Measures

The proposed Project would result in no significant transportation impacts; therefore, no mitigation measures are required.

APPENDICES

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

APPENDIX A

GLOSSARY

ACRONYMS

AC	Acres
ADT	Average Daily Traffic
Caltrans	California Department of Transportation
DU	Dwelling Unit
ICU	Intersection Capacity Utilization
GFA	Gross Floor Area
LOS	Level of Service
PCE	Passenger Car Equivalent
SP	Service Population
TSF	Thousand Square Feet
V/C	Volume/Capacity
VMT	Vehicle Miles Traveled

TERMS

ACTUATED SIGNAL CONTROL: A type of traffic signal control in which display of each phase depends on whether the corresponding phase detector has registered a service call or the phase is on recall.

ACTUATION: Detection of a roadway user that is forwarded to the signal controller.

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.

CALL: An indication within a signal controller that a particular phase is waiting for service, either through actuation from a roadway user or phase recall.

CAPACITY: The maximum number of vehicles that can be reasonably expected to pass through a roadway facility during a specified period.

CHANNELIZATION: The separation of conflicting traffic movements by use of pavement markings, raised curbs, or other suitable means to facilitate free flow movement.

CLEARANCE INTERVAL: Equal to the yellow plus all-red time, if any, when a traffic signal changes between phases (i.e., the amount of time between the end of a green light from one movement to the beginning of a green light for the next).

COORDINATED SIGNAL CONTROL: A type of traffic signal control in which non-coordinated phases associated with minor movements are constrained such that the coordinated phases are served at a specific time during the signal cycle, thus maintaining the efficient progression of traffic flow along the major roadway.

CONTROL DELAY: The portion of delay attributed to the intersection traffic control (such as a traffic signal or stop sign). It includes initial deceleration, queue move-up time, stopped delay, and final acceleration delay.

CORDON: An imaginary boundary line around or across a study area across which vehicles, persons, or other information can be collected for survey and analytical purposes.

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 traveling at a given speed to radically alter their speed or trajectory.

CYCLE: A complete sequence of signal indications for all phases.

CYCLE LENGTH: The total time for a traffic signal to complete one full cycle.

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 total additional travel time experienced by a roadway user (driver, passenger, bicyclist, or pedestrian) beyond that required to travel at a desired speed.

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 used to count or determine the presence of a roadway user.

DESIGN SPEED: A speed used for purposes of designing horizontal and vertical alignments of a highway.

DIRECTIONAL SPLIT: The percent of two-way traffic traveling in a specified direction.

DIVERSION: The rerouting of traffic from a normal path of travel between two points, such as to avoid congestion or perform a secondary trip.

FREE FLOW: Traffic flow that is unaffected by a traffic control and/or or upstream or downstream conditions.

GAP: Time or distance between two vehicles measured from rear bumper of the front vehicle to front bumper of the second vehicle.

GAP ACCEPTANCE: The method by which a driver accepts an available gap in traffic to enter or cross the road.

HEADWAY: Time or distance between two successive vehicles measured from same point on both vehicles (i.e., front bumper to front bumper).

LEVEL OF SERVICE: A grading scale of quantitative performance measures representing the quality of service of a transportation facility or service from an average traveler's perspective.

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.

MULTI-MODAL: More than one mode, such as automobile, transit, bicycle, and pedestrian.

OFFSET: The time interval between the beginning of a traffic signal cycle at one intersection and the beginning of signal cycle an adjacent intersection.

PLATOON: A set of vehicles traveling at similar speed and moving as a general group with clear separation between other vehicles ahead and behind.

PASSENGER CAR EQUIVALENT: 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.

PEDESTRIAN CLEARANCE INTERVAL: Also known as the "Flashing Don't Walk" interval, it signals the end of pedestrian entry into the crosswalk following the "Walk" indication and provides time for pedestrians who have already entered the crosswalk to finishing crossing.

PEAK HOUR: The hour within a day in which the maximum volume occurs.

PEAK HOUR FACTOR: The peak hour volume divided by the four times the peak 15-minute flow rate. This

PHASE: In traffic signals, the green, yellow, and red clearance intervals assigned to a specified traffic movement.

PRETIMED SIGNAL: A traffic signal operation in which the cycle length, phasing sequence, and phasing times are predetermined and fixed, regardless of actual demand for any given traffic movement. Also known as a fixed time signal.

PROGRESSION: The coordinated movement of vehicles through signalized intersections along a corridor.

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.

RECALL: A signal phasing operation in which a specified phase places a call to the signal controller each time a conflicting phase is served, thus ensuring the specified phase will be serviced again.

SEMI-ACTUATED CONTROL: A type of traffic signal control in which only the minor movements are provided detection.

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

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

STOPPING SIGHT DISTANCE: The minimum distance required by the driver of a vehicle traveling at a given speed to bring the vehicle to a stop after an object on the road becomes visible, including reaction and response time.

TRIP OR TRIP END: The one-directional movement of a person or vehicle. Every trip has an origin and a destination at its respective ends (i.e., trip ends). In terms of site trip generation, the same vehicle entering and exiting a site generates two trips: one inbound trip and one outbound trip.

TRIP GENERATION RATE: The rate at which a land use generates trips per the specified land use variable, such per dwelling unit or per thousand square feet.

TRUCK: A heavy motor vehicle generally used for transporting goods.

VEHICLE MILES TRAVELED: A measure of the amount and distance of automobile travel essentially calculated as the sum of each trip times the trip length.

APPENDIX B

MEMORANDUM OF UNDERSTANDING

MEMORANDUM OF UNDERSTANDING

TO: Mr. Alex Loayza | CITY OF WHITTIER

FROM: Bryan Crawford | GANDDINI GROUP, INC.

DATE: December 2, 2021

SUBJECT: Whittier Boulevard Business Park Transportation Impact Analysis Scope
Project No. 19391

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

PROJECT DESCRIPTION

The 13.49-acre project site is located at 12352 Whittier Boulevard in the City of Whittier, California. The project site is currently developed with a 213,430 square foot industrial building formerly used for manufacturing. The existing industrial building is no longer in operation. Figure 1 shows the project location map.

The proposed project involves demolition of the existing building and construction of a new building for industrial and warehousing uses totaling 294,800 square feet of floor area. The project proposes two full access driveways at the Whittier Boulevard frontage road. The site plan is illustrated on Figure 2.

The opening year for the proposed project is 2023.

PROJECT TRIP GENERATION

Table 1 shows the project trip generation forecast based upon rates obtained from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (10th Edition, 2017). Based on review of the ITE land use definitions, trip generation rates for ITE Land Use Code 130 – Industrial Park were determined to adequately represent the proposed Project.

As shown in Table 1, the proposed Project is forecast to generate approximately 995 daily vehicle trips, including 118 vehicle trips during the AM peak hour and 118 vehicle trips during the PM peak hour.

Due to zoning restrictions, the proposed industrial buildings are limited to a maximum of 50 percent warehousing use. As currently proposed, the proposed project would include 12,000 square feet of office, 138,500 square feet of light industrial land use, and 144,300 square feet of warehousing land use. Preliminary project trip generation estimates also considered analyzing the Project trip generation based on the sum of trip generation calculations for ITE 110 – Light Industrial and ITE 150 – Warehousing. While the results were comparable, use of ITE 130 – Industrial Park was determined to provide a slightly more conservative scenario in terms of peak hour and daily trip generation. Thus, the Project will be analyzed using 294,800 square feet of industrial park land use as the trip rates encapsulate the proposed mixture of industrial uses for the site while providing a conservative trip generation forecast.

Truck Trips

In accordance with industry practice for land uses that generate an appreciable number of truck trips, the Project trip generation was also calculated in terms of Passenger Car Equivalent (PCE) trips. The percentage of truck trips was obtained from the ITE *Trip Generation Manual Supplement* (February 2020). The breakdown of truck mix by axle type was obtained from the City of Fontana *Truck Trip Generation Study* (August 2003). The City of Whittier *Draft Transportation Study Guidelines for VMT* (January 2021) ["the City guidelines"] does not specify PCE adjustment factors; therefore, truck trips were converted to PCE trips based on the following factors used in San Bernardino County where truck-related projects are analyzed more regularly: 1.5 for 2-axle trucks, 2.0 for 3-axle trucks, and 3.0 for trucks with four or more axles.

As also shown in Table 1, the proposed Project is forecast to generate approximately 1,266 daily PCE trips, including 144 PCE trips during the AM peak hour and 140 PCE trips during the PM peak hour.

Previous Use

Since the previous manufacturing use is no longer in operation, new traffic counts would not account for trips generated by the previous use. Therefore, no credit will be assumed for trips generated by the previous manufacturing use of the existing building for purposes of the roadway operational analysis.

PROJECT TRIP DISTRIBUTION

Figure 3 and Figure 4 illustrate the forecast directional distribution patterns of project-generated trips based on review of surrounding land uses and the roadway network.

LOCAL TRANSPORTATION ASSESSMENT SCOPE

Study Area

Based on the City of Whittier guidelines, intersections identified for analysis typically include signalized intersections at which a project is forecast to contribute 100 or more trips during the AM or PM peak hours. The study area is proposed to consist of the following three (3) study intersections, even if the project may not contribute 100 or more trips during either peak hour but are the adjacent or primary intersections that will be used for access by the proposed project:

1. Whittier Boulevard Frontage Road (NS) at Mar Vista Street (EW)
2. Whittier Boulevard (NS) at Whittier Boulevard Frontage Road (EW)
3. Whittier Boulevard (NS) at Mar Vista Street (EW)
4. Whittier Boulevard (NS) at Pacific Place (EW)
5. Whittier Boulevard (NS) at Washington Boulevard/Pickering Avenue/Santa Fe Springs Road (EW)

Traffic Counts

New intersection turning movement counts will be collected at the study intersection during the AM peak period (7:00 AM – 9:00 AM) and PM peak period (4:00 PM – 6:00 PM) on a typical weekday (Tuesday, Wednesday, or Thursday).

Analysis Scenarios

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

- Existing
- Existing Plus Ambient Growth Plus Project
- Existing Plus Ambient Growth Plus Project Plus Cumulative

An alternative analysis will be performed for "with project" scenarios which includes the extension of Mar Vista Street between Whittier Boulevard and the Whittier Boulevard frontage road. The project driveway for the proposed development will align with this proposed extension.

Annual Ambient Growth Rate

The annual ambient growth rate has been devised based on growth factors for Regional Statistical Area (RSA) 22 from the Los Angeles County *2010 Congestion Management Program* and input from City of Whittier staff. The annual ambient growth rate is 0.56%.

Other Development

City of Whitter staff will provide a list of related projects to be included in the analysis.

Analysis Methodology

Intersection Level of Service shall be calculated based on the Intersection Capacity Utilization (ICU) methodology in accordance with the parameters specified in the City guidelines. ICU analysis was performed using the Vistro software.

In accordance with the City guidelines, an operational deficiency shall be considered substantial if the project related increase in the volume-to-capacity (V/C) ratio equals or exceeds the thresholds shown below:

Operational Deficiency Thresholds for Intersections		
Level of Service (Pre-Project)	Volume/Capacity	Project V/C Increase
C	0.71-0.80	0.04 or more
D	0.81-0.90	0.02 or more
E/F	0.91 - more	0.01 or more

If roadway improvements are proposed to address operational deficiencies, the analysis shall include an estimate of the project's share of traffic relative to the cumulative share of new traffic.

VEHICLES MILES TRAVELED (VMT) ANALYSIS

The transportation study will include a comprehensive VMT screening analysis for the proposed project in accordance with the City guidelines.

The City of Whittier VMT Guidelines provide the following six screening steps: 1) Project Size; 2) Local Serving Retail; 3) Project Located in a Low VMT Area; 4) Transit Proximity; 5) Affordable Housing; and 6)

Transportation Facilities. Based on preliminary review, the proposed project is anticipated to satisfy the City-established screening criteria for project size.

Project Size Screening

In accordance with City guidelines, project's that generate 110 or fewer daily trips are screened from the requirement to prepare further VMT analysis and may be presumed to result in a less than significant impact. As noted in the State of California Governor's Office of Planning and Research *Technical Advisory on Evaluating Transportation Impacts in CEQA* (December 2018) ['OPR Technical Advisory']:

> *CEQA provides a categorical exemption for existing facilities, including additions to existing structures of up to 10,000 square feet, so long as the project is in an area where public infrastructure is available to allow for maximum planned development and the project is not in an environmentally sensitive area. (CEQA Guidelines, § 15301, subd. (e)(2).) Typical project types for which trip generation increases relatively linearly with building footprint (i.e., general office building, single tenant office building, office park, and business park) generate or attract an additional 110-124 trips per 10,000 square feet. Therefore, absent substantial evidence otherwise, it is reasonable to conclude that the addition of 110 or fewer trips could be considered not to lead to a significant impact.*

Since the existing building could be re-occupied with manufacturing land use under current entitlements, it is appropriate to consider the net new trips that are expected to result from the proposed project relative to the existing building/previous use.

Table 2 shows the previous use trip generation based on manufacturing use for the existing 213,430 square foot building. As with the proposed use trip generation estimate, the percentage of truck trips for the previous use was also obtained from the ITE *Trip Generation Manual Supplement* (February 2020).

As noted in the OPR Technical Advisory, "*Proposed Section 15064.3, subdivision (a), states, "For the purposes of this section, 'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to a project." Here, the term "automobile" refers to on-road passenger vehicles, specifically cars and light trucks."* Additionally, the City guidelines indicate that the VMT threshold for light industrial projects is based on home-based work VMT per employee. Therefore, it is appropriate to exclude the project-generated truck trips for VMT purposes of assessing the project's employment size.

Table 3 shows a trip generation comparison between the previous and proposed uses. As shown in Table 3, the project is forecast to result in 90 net new automobile trips relative to the existing building/previous use. Therefore, from an employment perspective, the proposed project satisfies the City-established screening criteria for small projects and may be presumed to result in a less than significant VMT impact.

CONCLUSION

We appreciate the opportunity to provide this scoping document for your review. Should you have any questions or comments regarding the proposed scope, please contact me at (714) 795-3100 x 104.

Table 1
Project Trip Generation

Land Use: Industrial Park
Size: 294.800 TSF

TRIP GENERATION RATES PER TSF[1]								
		AM Peak Hour			PM Peak Hour			Daily
Vehicle Type	Source[2]	In	Out	Rate	In	Out	Rate	Rate
All Vehicles	ITE 130	81%	19%	0.400	21%	79%	0.400	3.370
Passenger Cars (88.0% AM, 90.0% PM, 85.0% Daily)	TGMS 130	0.285	0.067	0.352	0.076	0.284	0.360	2.865
Trucks (12.0% AM, 10.0% PM, 15.0% Daily)	TGMS 130	0.039	0.009	0.048	0.008	0.032	0.040	0.506
Truck Mix:	Fontana							
2-Axle Trucks (7.9%)		0.003	0.001	0.004	0.001	0.002	0.003	0.040
3-Axle Trucks (7.1%)		0.003	0.001	0.004	0.001	0.002	0.003	0.036
4+ Axle Trucks (85.0%)		0.033	0.008	0.041	0.007	0.027	0.034	0.430

VEHICLE TRIPS GENERATED							
	AM Peak Hour			PM Peak Hour			
Vehicle Type	In	Out	Total	In	Out	Total	Daily
Passenger Cars	84	20	104	22	84	106	845
Trucks							
2-Axle Trucks	1	0	1	0	1	1	12
3-Axle Trucks	1	0	1	0	1	1	11
4+ Axle Trucks	10	2	12	2	8	10	127
Subtotal	12	2	14	2	10	12	150
Total Vehicle Trips Generated	**96**	**22**	**118**	**24**	**94**	**118**	**995**

PCE[3] TRIPS GENERATED								
		AM Peak Hour			PM Peak Hour			
Vehicle Type	PCE Factor	In	Out	Total	In	Out	Total	Daily
Passenger Cars	1.0	84	20	104	22	84	106	845
Trucks								
2-Axle Trucks	1.5	2	0	2	0	2	2	18
3-Axle Trucks	2.0	2	0	2	0	2	2	22
4+ Axle Trucks	3.0	30	6	36	6	24	30	381
Subtotal		34	6	40	6	28	34	421
Total PCE Trips Generated		**118**	**26**	**144**	**28**	**112**	**140**	**1,266**

Notes:
(1) TSF = Thousand Square Feet

(2) ITE = Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017); ### = ITE Land Use Code.
TGMS = ITE Trip Generation Manual Supplement (10th Edition, 2020); ### = ITE Land Use Code.
Fontana = City of Fontana Truck Trip Generation Study (August 2003); recommended truck mix for Industrial Park classification.

(3) PCE = Passenger Car Equivalent

Table 2
Previous Use Trip Generation

Land Use: Manufacturing
Size: 213.430 TSF

TRIP GENERATION RATES PER TSF[1]								
		AM Peak Hour			PM Peak Hour			Daily
Vehicle Type	Source[2]	In	Out	Rate	In	Out	Rate	Rate
All Vehicles	ITE 140	77%	23%	0.620	31%	69%	0.670	3.930
Passenger Cars (92.0% AM, 93.0% PM, 90.0% Daily)	TGMS 140	0.439	0.131	0.570	0.193	0.430	0.623	3.537
Trucks (8.0% AM, 7.0% PM, 10.0% Daily)	TGMS 140	0.038	0.011	0.049	0.015	0.032	0.047	0.393
Truck Mix:	Fontana							
2-Axle Trucks (11.0%)		0.004	0.001	0.005	0.002	0.004	0.006	0.043
3-Axle Trucks (36.0%)		0.014	0.004	0.018	0.005	0.012	0.017	0.141
4+ Axle Trucks (53.0%)		0.020	0.006	0.026	0.008	0.017	0.025	0.208

VEHICLE TRIPS GENERATED							
	AM Peak Hour			PM Peak Hour			
Vehicle Type	In	Out	Total	In	Out	Total	Daily
Passenger Cars	94	28	122	41	92	133	755
Trucks							
2-Axle Trucks	1	0	1	0	1	1	9
3-Axle Trucks	3	1	4	1	3	4	30
4+ Axle Trucks	4	1	5	2	4	6	44
Subtotal	8	2	10	3	8	11	83
Total Vehicle Trips Generated	**102**	**30**	**132**	**44**	**100**	**144**	**838**

Notes:
(1) TSF = Thousand Square Feet

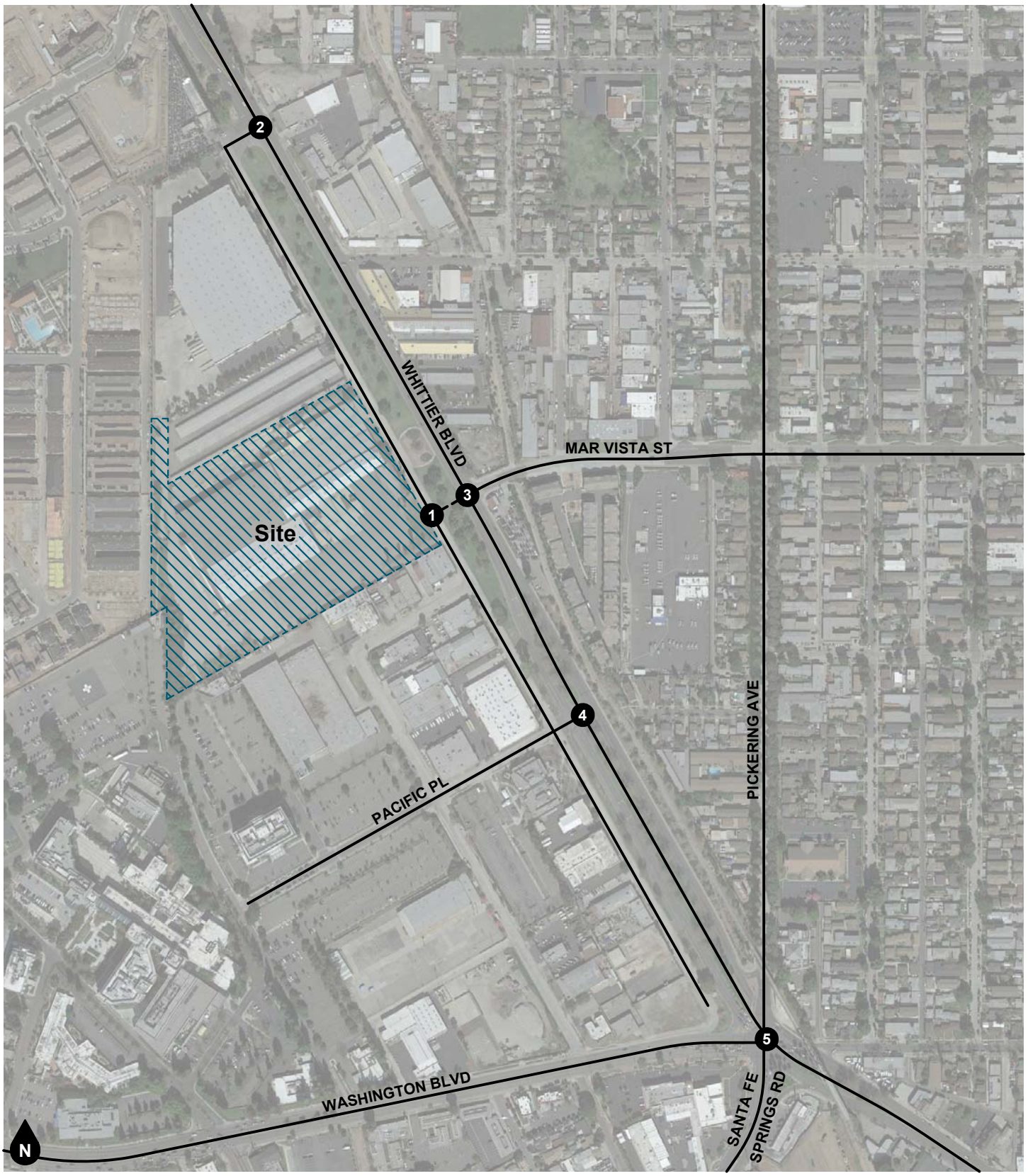
(2) ITE = Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017); ### = ITE Land Use Code.
TGMS = ITE Trip Generation Manual Supplement (10th Edition, 2020); ### = ITE Land Use Code.
Fontana = City of Fontana Truck Trip Generation Study (August 2003); recommended truck mix for Heavy Industrial classification.

Table 3
Project Trip Generation Comparison for VMT Purposes

Land Use	Vehicle (Automobile) Trips Generated						
	AM Peak Hour			PM Peak Hour			Daily
	Inbound	Outbound	Total	Inbound	Outbound	Total	
Previous Use[1]	94	28	122	41	92	133	755
Proposed Project[2]	84	20	104	22	84	106	845
Difference	**-10**	**-8**	**-18**	**-19**	**-8**	**-27**	**+90**
Percent Difference	-10.6%	-28.6%	-14.8%	-46.3%	-8.7%	-20.3%	11.9%

Notes:
(1) See Table 2 (passenger car trips).

(2) See Table 1 (passenger car trips).



Legend

Study Intersection

Mar Vista Street Extension - Alternative

Figure 1
Project Location Map

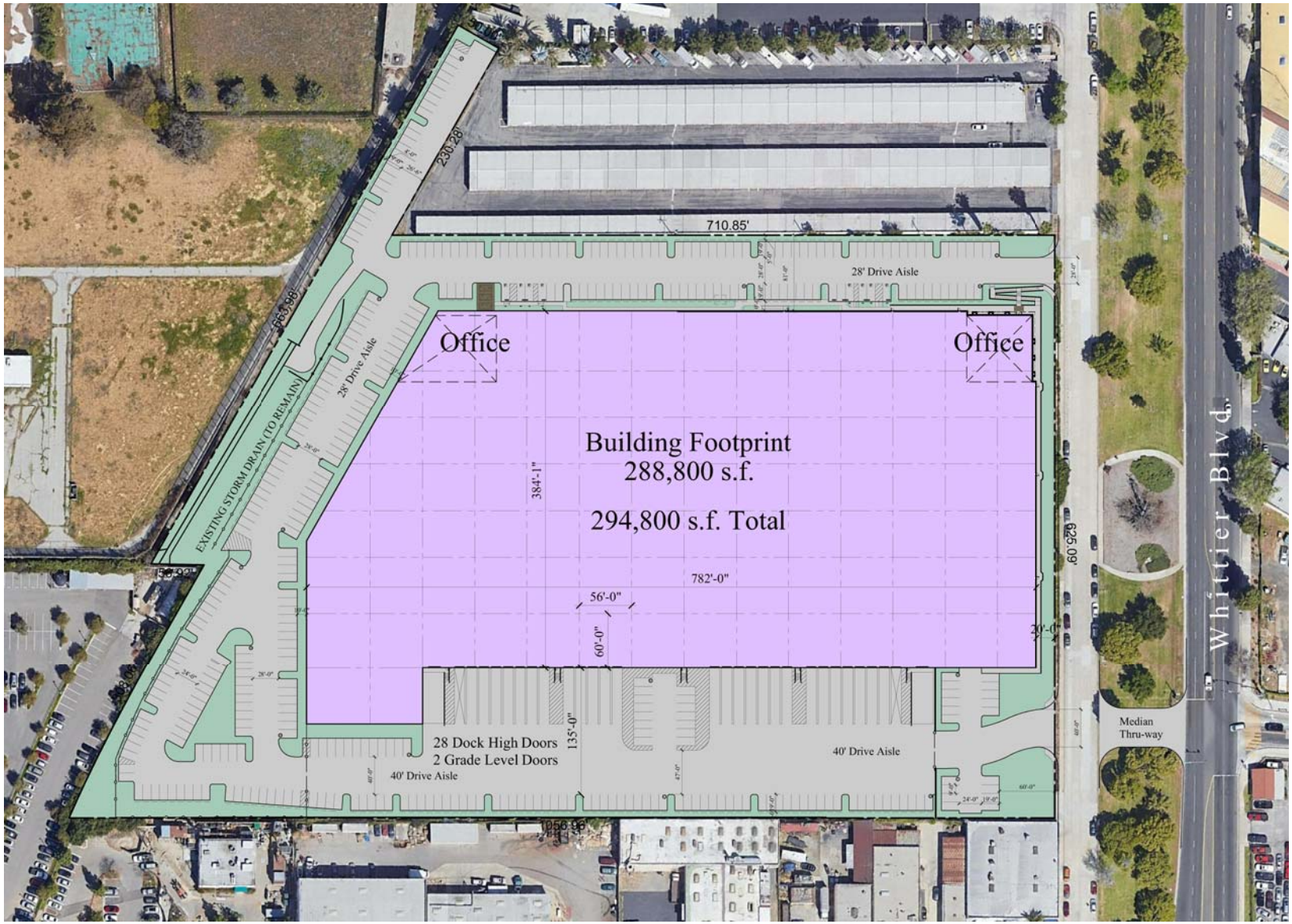
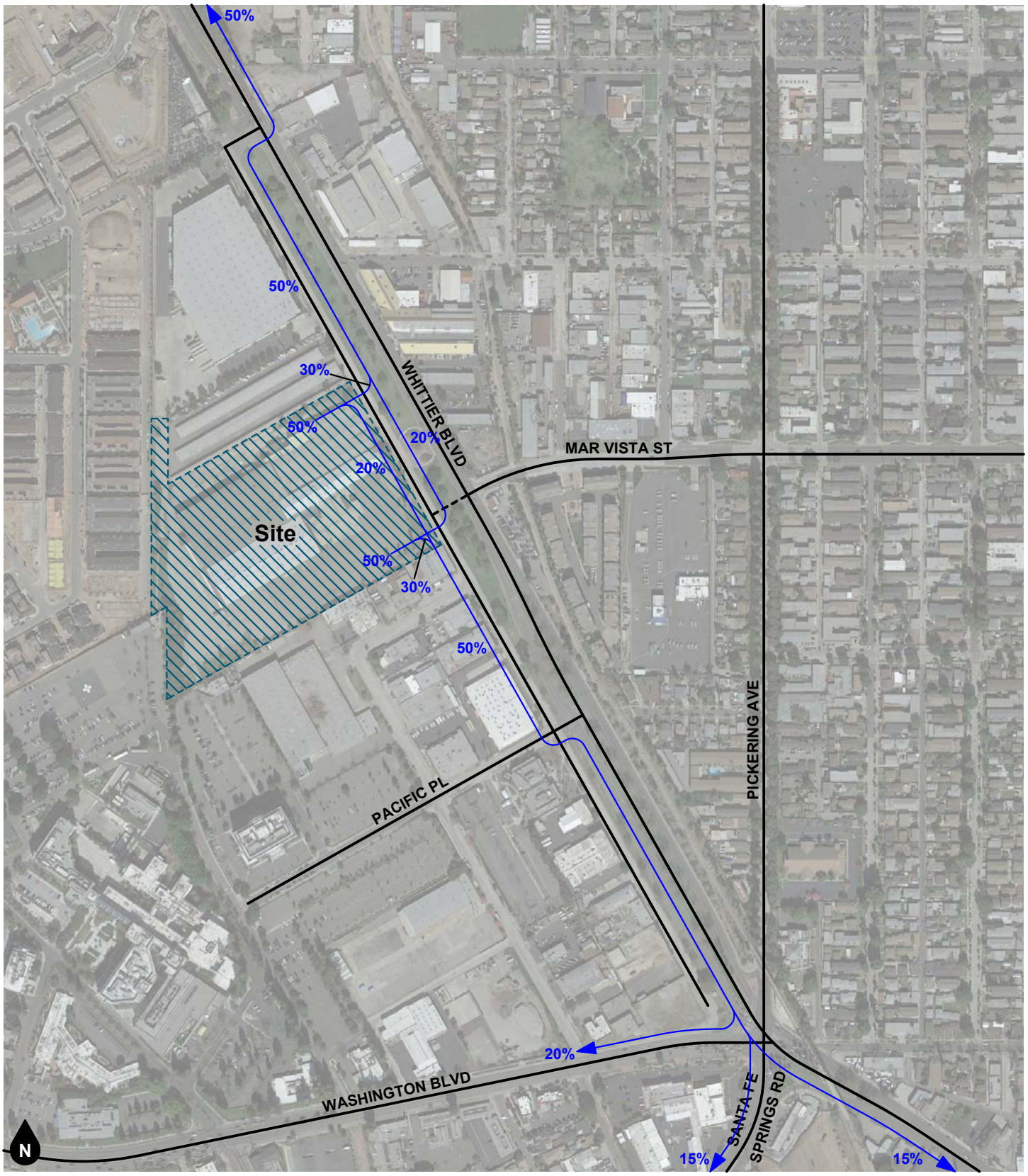


Figure 2
Site Plan



Legend

10% Percent From Project

Figure 3
Project Outbound Trip Distribution - Cars

Legend

10% Percent To Project

Figure 4
Project Inbound Trip Distribution - Cars

Legend

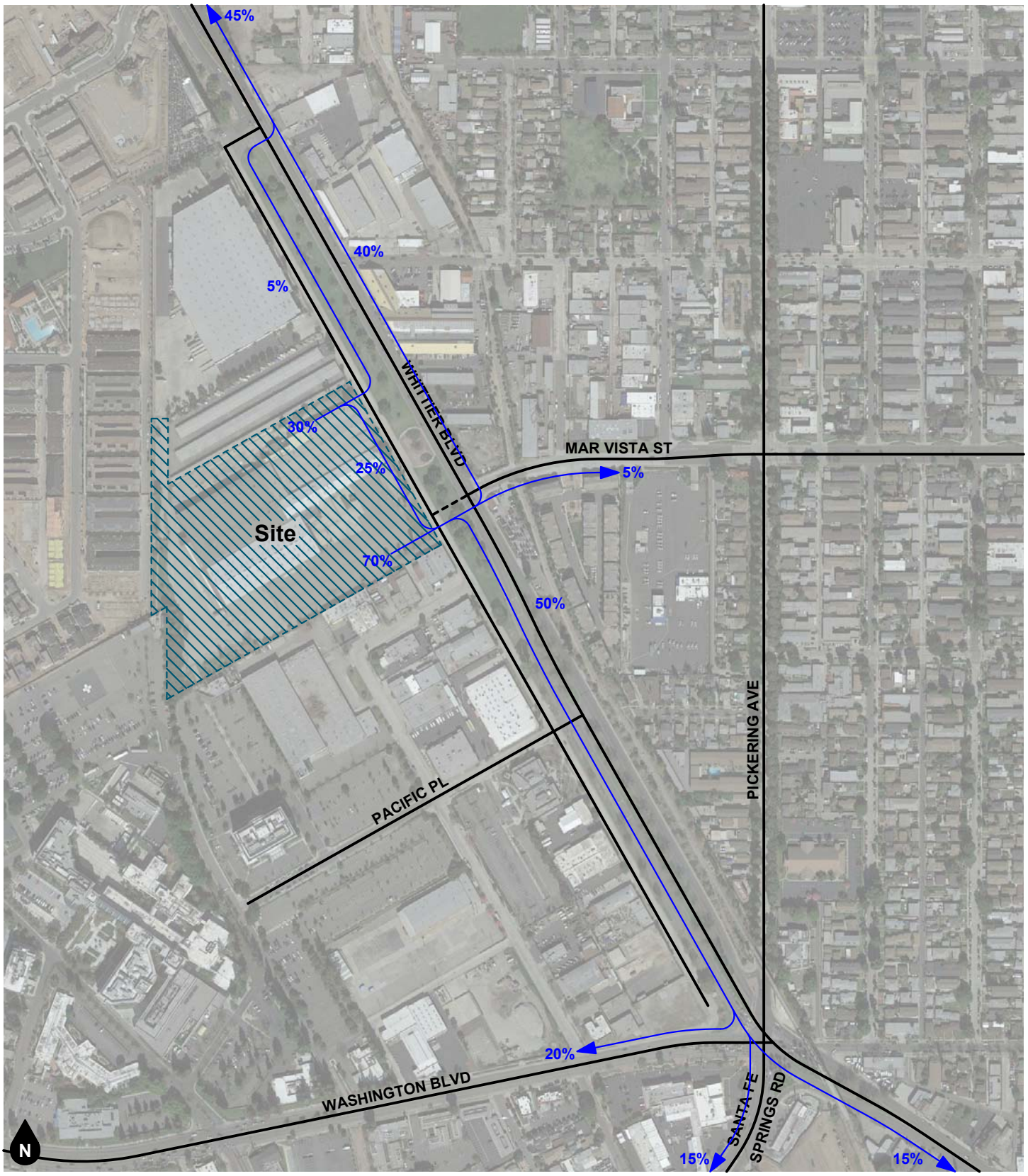
10% Percent From Project

Figure 5
Project Outbound Trip Distribution - Trucks

Legend

10% Percent To Project

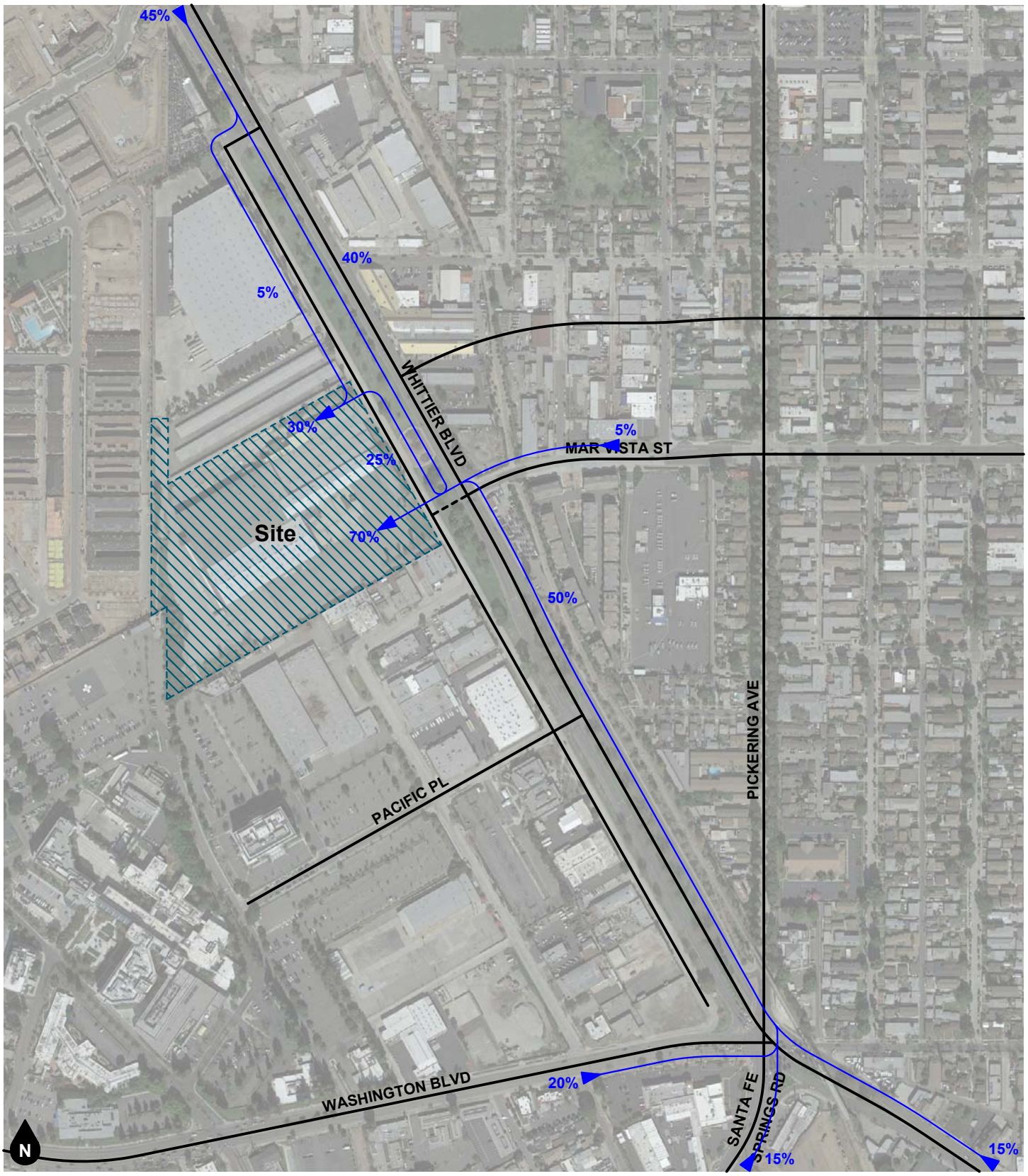
Figure 6
Project Inbound Trip Distribution - Trucks



Legend

10% Percent From Project

Figure 7
Project Outbound Trip Distribution - Cars - Alternative With Mar Vista Street Extension



Legend

10% Percent To Project

Figure 8
Project Inbound Trip Distribution - Cars - Alternative With Mar Vista Street Extension

Legend

10% Percent From Project

Figure 9
Project Outbound Trip Distribution - Trucks - Alternative With Mar Vista Street Extension

Legend

10% Percent To Project

Figure 10
Project Inbound Trip Distribution - Trucks - Alternative With Mar Vista Street Extension

APPENDIX C

VOLUME COUNT WORKSHEETS

Thursday, September 30, 2021 CITY: Whittier PROJECT: SC3097

ADT1 Whittier FR between Whittier and Pacific. **Prepared by AimTD LLC tel. 714 253 7888**

AM Period	NB		SB			PM Period	NB		SB		
0:00	0		0			12:00	2		12		
0:15	1		1			12:15	4		20		
0:30	1		0			12:30	3		9		
0:45	0	2	1	2	4	12:45	6	15	9	50	65
1:00	0		0			13:00	6		14		
1:15	0		0			13:15	10		13		
1:30	0		0			13:30	4		20		
1:45	1	1	1	1	2	13:45	4	24	12	59	83
2:00	0		1			14:00	12		15		
2:15	0		0			14:15	11		9		
2:30	0		1			14:30	14		17		
2:45	1	1	1	3	4	14:45	10	47	20	61	108
3:00	0		0			15:00	7		15		
3:15	0		0			15:15	6		10		
3:30	1		1			15:30	9		9		
3:45	1	2	1	2	4	15:45	8	30	14	48	78
4:00	0		1			16:00	10		15		
4:15	0		2			16:15	7		10		
4:30	0		1			16:30	7		17		
4:45	0	0	1	5	5	16:45	10	34	11	53	87
5:00	0		3			17:00	8		12		
5:15	0		6			17:15	8		5		
5:30	1		14			17:30	5		1		
5:45	3	4	28	51	55	17:45	6	27	8	26	53
6:00	3		15			18:00	5		6		
6:15	3		15			18:15	7		4		
6:30	2		12			18:30	1		10		
6:45	1	9	30	72	81	18:45	3	16	14	34	50
7:00	3		22			19:00	3		4		
7:15	0		21			19:15	3		7		
7:30	3		20			19:30	5		2		
7:45	4	10	25	88	98	19:45	2	13	1	14	27
8:00	2		32			20:00	0		1		
8:15	0		29			20:15	1		0		
8:30	2		12			20:30	0		2		
8:45	5	9	17	90	99	20:45	0	1	2	5	6
9:00	4		18			21:00	1		3		
9:15	2		11			21:15	1		1		
9:30	8		13			21:30	3		2		
9:45	5	19	20	62	81	21:45	0	5	1	7	12
10:00	7		16			22:00	0		2		
10:15	7		12			22:15	2		3		
10:30	3		17			22:30	3		0		
10:45	4	21	18	63	84	22:45	0	5	0	5	10
11:00	6		9			23:00	2		2		
11:15	7		12			23:15	2		0		
11:30	7		13			23:30	3		1		
11:45	5	25	9	43	68	23:45	0	7	0	3	10
Total Vol.	103		482		**585**		224		365		**589**

Daily Totals

NB	SB	**Combined**
327	847	**1174**

	AM			**PM**		
Split %	17.6%	82.4%	**49.8%**	38.0%	62.0%	**50.2%**
Peak Hour	9:30	7:30	**7:30**	14:00	14:30	**14:00**
Volume	27	106	**115**	47	62	**108**
P.H.F.	0.84	0.83	**0.85**	0.91	0.78	**0.87**

cs@aimtd.com Tell. 714 253 7888

INTERSECTION TURNING MOVEMENT COUNTS

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

DATE:				
Thu, Sep 30, 21	LOCATION:	Whittier	PROJECT #:	SC3097
	NORTH & SOUTH:	Whittier	LOCATION #:	2
	EAST & WEST:	Driveway	CONTROL:	STOP E

NOTES:

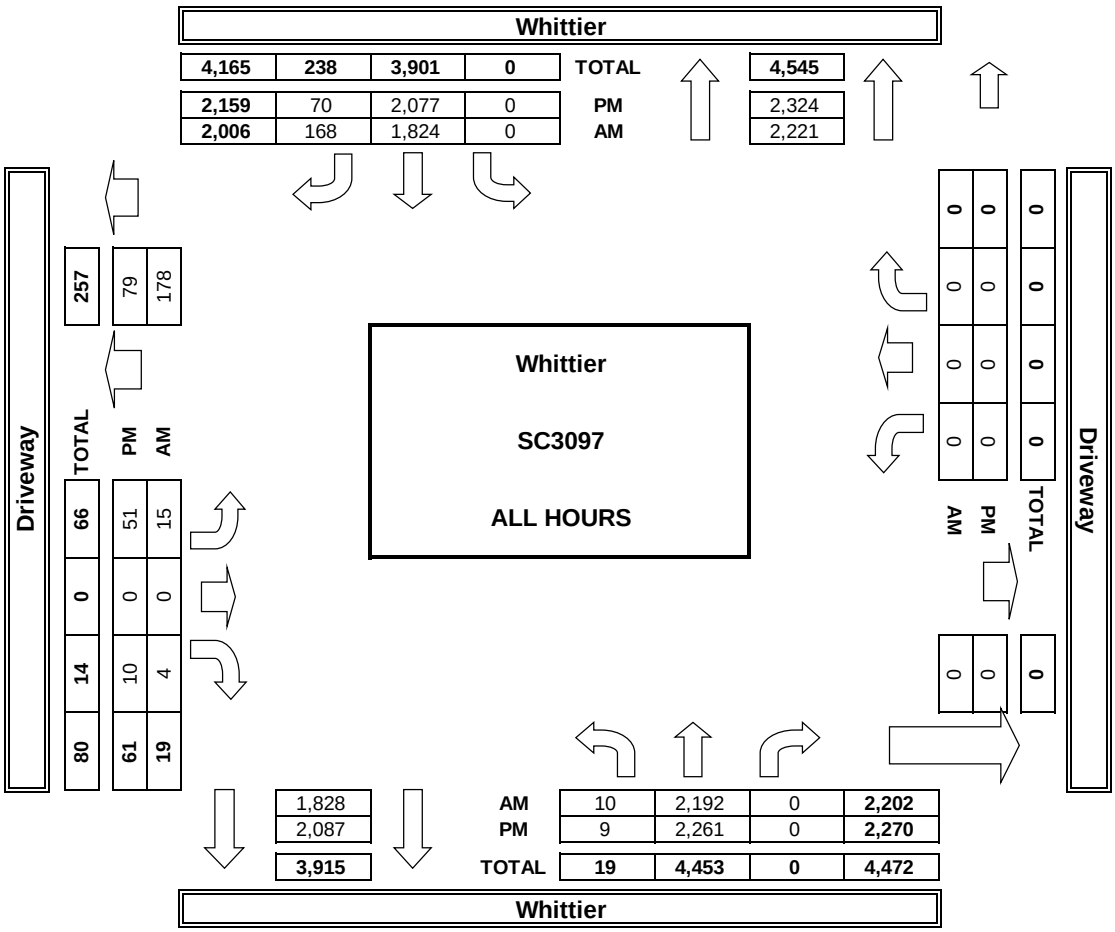
AM
PM
MD
OTHER
OTHER

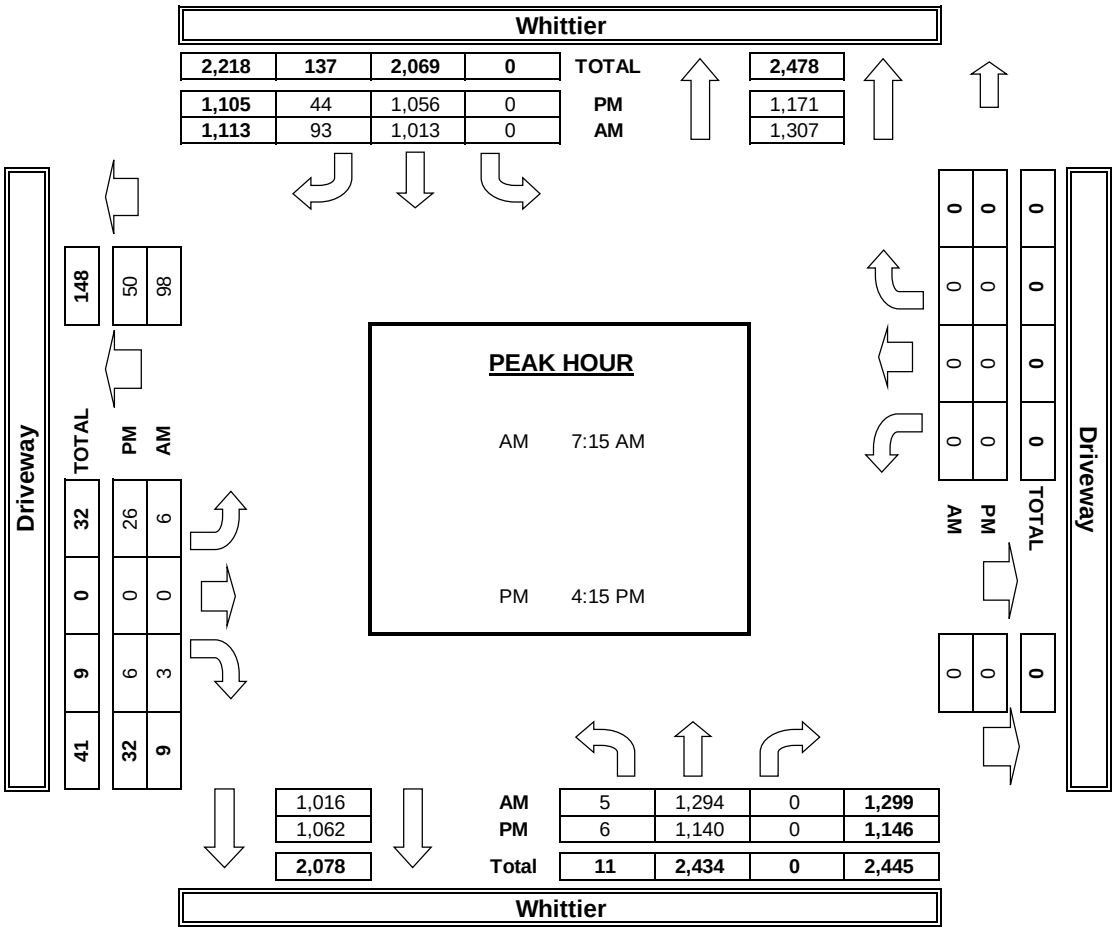
▲ N
◄ W
E ►
S ▼

		NORTHBOUND Whittier			SOUTHBOUND Whittier			EASTBOUND Driveway			WESTBOUND Driveway			
	LANES:	NL 0	NT 2	NR X	SL X	ST 2	SR 1	EL 1	ET X	ER 1	WL X	WT X	WR X	TOTAL
AM	7:00 AM	1	279	0	0	172	21	2	0	1	0	0	0	476
	7:15 AM	0	320	0	0	200	21	0	0	0	0	0	0	541
	7:30 AM	1	399	0	0	295	19	1	0	2	0	0	0	717
	7:45 AM	2	289	0	0	268	23	3	0	1	0	0	0	586
	8:00 AM	2	286	0	0	250	30	2	0	0	0	0	0	570
	8:15 AM	4	226	0	0	213	25	0	0	0	0	0	0	468
	8:30 AM	0	209	0	0	224	12	2	0	0	0	0	0	447
	8:45 AM	0	184	0	0	202	17	5	0	0	0	0	0	408
	VOLUMES	10	2,192	0	0	1,824	168	15	0	4	0	0	0	4,227
	APPROACH %	0%	100%	0%	0%	91%	8%	79%	0%	21%	0%	0%	0%	
	APP/DEPART	2,202	/	2,221	2,006	/	1,828	19	/	0	0	/	178	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	5	1,294	0	0	1,013	93	6	0	3	0	0	0	2,421
	APPROACH %	0%	100%	0%	0%	91%	8%	67%	0%	33%	0%	0%	0%	
	PEAK HR FACTOR		0.812			0.883			0.563			0.000		0.843
	APP/DEPART	1,299	/	1,307	1,113	/	1,016	9	/	0	0	/	98	0
PM	4:00 PM	2	278	0	0	261	13	9	0	1	0	0	0	564
	4:15 PM	1	273	0	0	273	9	5	0	2	0	0	0	563
	4:30 PM	1	271	0	0	250	16	6	0	1	0	0	0	545
	4:45 PM	0	292	0	0	255	11	8	0	2	0	0	0	568
	5:00 PM	4	304	0	0	278	8	7	0	1	0	0	0	602
	5:15 PM	1	279	0	0	252	4	6	0	2	0	0	0	544
	5:30 PM	0	285	0	0	250	1	4	0	1	0	0	0	541
	5:45 PM	0	279	0	0	258	8	6	0	0	0	0	0	551
	VOLUMES	9	2,261	0	0	2,077	70	51	0	10	0	0	0	4,490
	APPROACH %	0%	100%	0%	0%	96%	3%	84%	0%	16%	0%	0%	0%	
	APP/DEPART	2,270	/	2,324	2,159	/	2,087	61	/	0	0	/	79	0
	BEGIN PEAK HR		4:15 PM											
	VOLUMES	6	1,140	0	0	1,056	44	26	0	6	0	0	0	2,283
	APPROACH %	1%	99%	0%	0%	96%	4%	81%	0%	19%	0%	0%	0%	
	PEAK HR FACTOR		0.930			0.963			0.800			0.000		0.947
	APP/DEPART	1,146	/	1,171	1,105	/	1,062	32	/	0	0	/	50	0

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

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

DATE:				
Thu, Sep 30, 21	LOCATION:	Whittier	PROJECT #:	SC3097
	NORTH & SOUTH:	Whittier	LOCATION #:	3
	EAST & WEST:	Mar Vista	CONTROL:	SIGNAL

NOTES:

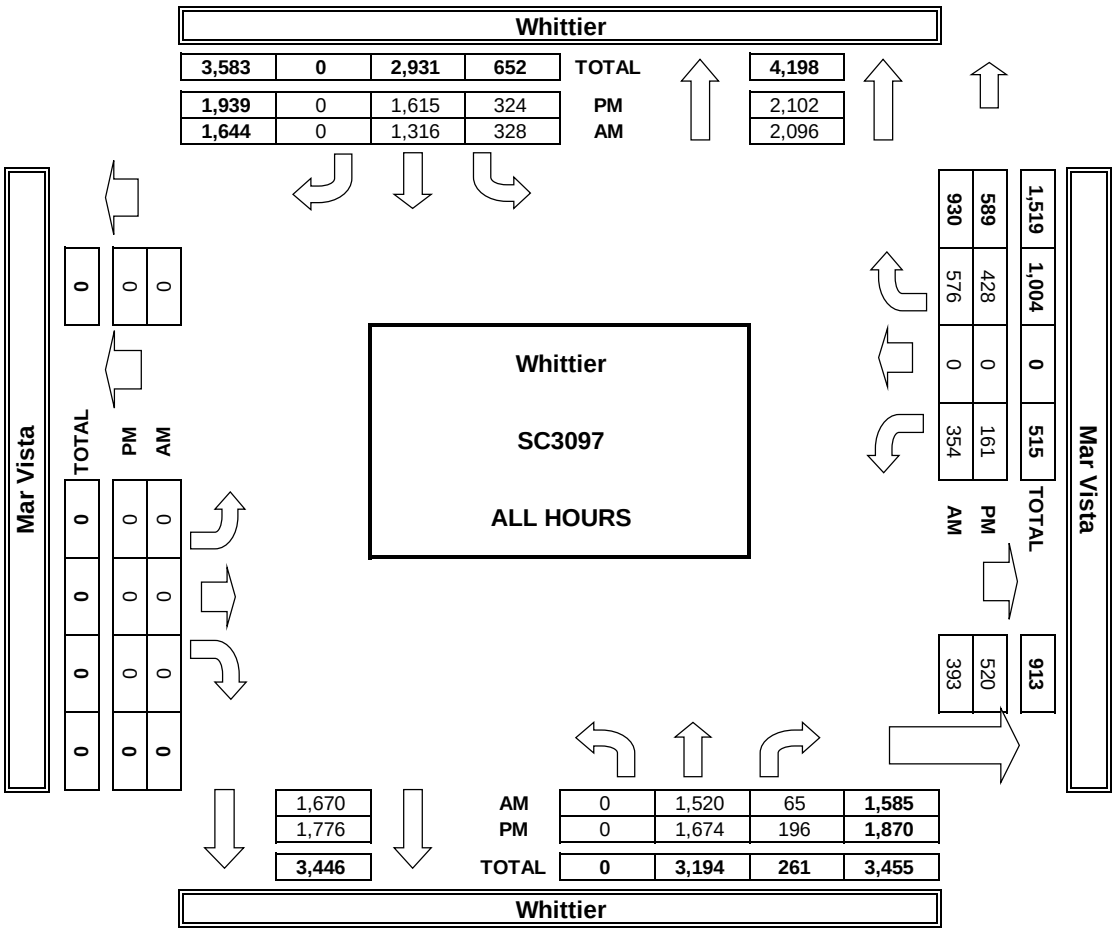
AM
PM
MD
OTHER
OTHER

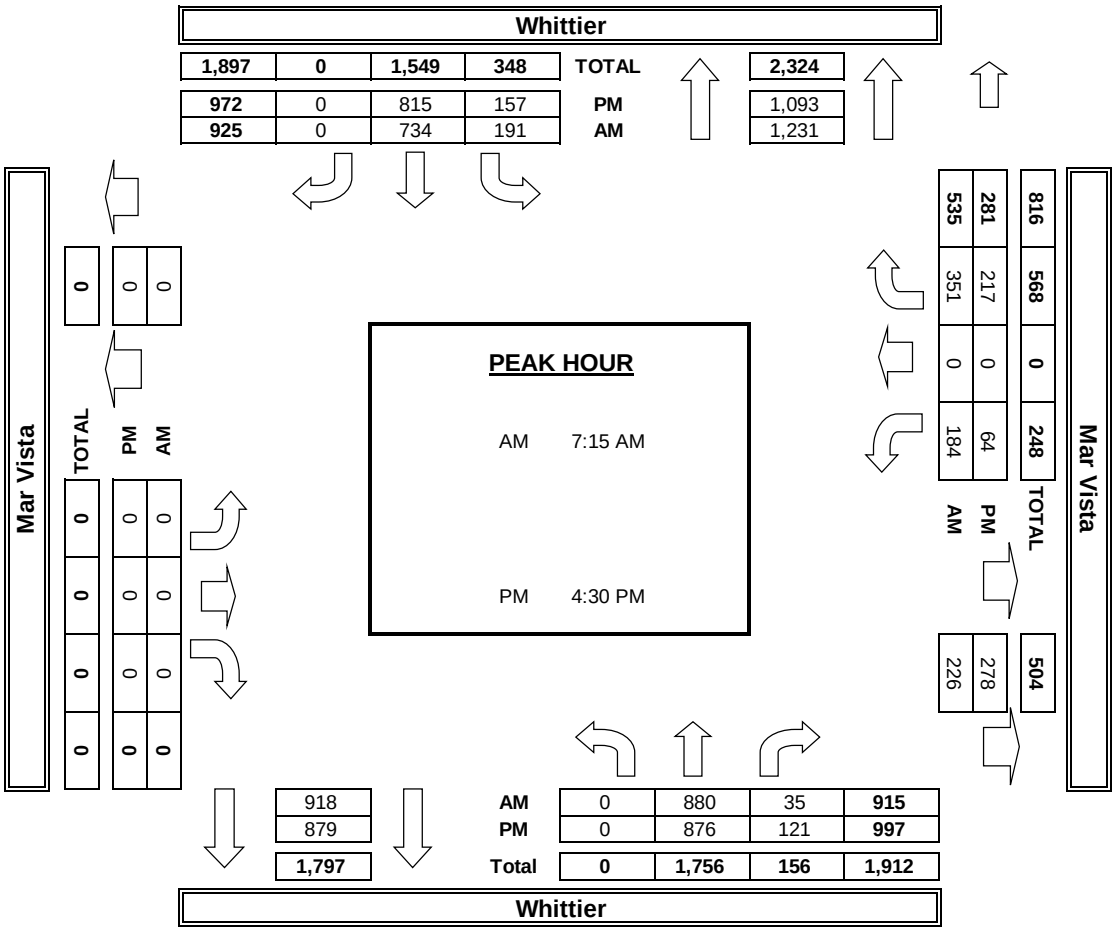
▲ N
◄ W E ►
S ▼

		NORTHBOUND Whittier			SOUTHBOUND Whittier			EASTBOUND Mar Vista			WESTBOUND Mar Vista			
	LANES:	NL X	NT 2	NR 0	SL 1	ST 2	SR X	EL X	ET X	ER X	WL 1	WT X	WR 1	TOTAL
AM	7:00 AM	0	181	4	22	123	0	0	0	0	45	0	64	439
	7:15 AM	0	196	5	34	142	0	0	0	0	37	0	89	503
	7:30 AM	0	264	13	49	208	0	0	0	0	40	0	94	668
	7:45 AM	0	216	5	46	195	0	0	0	0	62	0	98	622
	8:00 AM	0	204	12	62	189	0	0	0	0	45	0	70	582
	8:15 AM	0	176	7	45	149	0	0	0	0	48	0	58	483
	8:30 AM	0	148	11	42	153	0	0	0	0	33	0	56	443
	8:45 AM	0	135	8	28	157	0	0	0	0	44	0	47	419
	VOLUMES	0	1,520	65	328	1,316	0	0	0	0	354	0	576	4,159
	APPROACH %	0%	96%	4%	20%	80%	0%	0%	0%	0%	38%	0%	62%	
	APP/DEPART	1,585	/	2,096	1,644	/	1,670	0	/	393	930	/	0	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	0	880	35	191	734	0	0	0	0	184	0	351	2,375
	APPROACH %	0%	96%	4%	21%	79%	0%	0%	0%	0%	34%	0%	66%	
	PEAK HR FACTOR		0.826			0.900			0.000			0.836		0.889
	APP/DEPART	915	/	1,231	925	/	918	0	/	226	535	/	0	0
PM	4:00 PM	0	202	28	48	205	0	0	0	0	21	0	47	551
	4:15 PM	0	196	21	41	217	0	0	0	0	28	0	48	551
	4:30 PM	0	212	28	43	204	0	0	0	0	13	0	57	557
	4:45 PM	0	210	27	42	201	0	0	0	0	18	0	52	550
	5:00 PM	0	247	32	31	206	0	0	0	0	16	0	54	586
	5:15 PM	0	207	34	41	204	0	0	0	0	17	0	54	557
	5:30 PM	0	209	13	42	183	0	0	0	0	25	0	55	527
	5:45 PM	0	191	13	36	195	0	0	0	0	23	0	61	519
	VOLUMES	0	1,674	196	324	1,615	0	0	0	0	161	0	428	4,398
	APPROACH %	0%	90%	10%	17%	83%	0%	0%	0%	0%	27%	0%	73%	
	APP/DEPART	1,870	/	2,102	1,939	/	1,776	0	/	520	589	/	0	0
	BEGIN PEAK HR		4:30 PM											
	VOLUMES	0	876	121	157	815	0	0	0	0	64	0	217	2,250
	APPROACH %	0%	88%	12%	16%	84%	0%	0%	0%	0%	23%	0%	77%	
	PEAK HR FACTOR		0.893			0.984			0.000			0.989		0.960
	APP/DEPART	997	/	1,093	972	/	879	0	/	278	281	/	0	0

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

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

DATE:				
Thu, Sep 30, 21	LOCATION:	Whittier	PROJECT #:	SC3097
	NORTH & SOUTH:	Whittier	LOCATION #:	4
	EAST & WEST:	Pacific	CONTROL:	SIGNAL

NOTES:

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

		NORTHBOUND Whittier			SOUTHBOUND Whittier			EASTBOUND Pacific			WESTBOUND Pacific			
	LANES:	NL 1	NT 2	NR X	SL X	ST 2	SR 1	EL 0	ET X	ER 0	WL X	WT X	WR X	TOTAL
AM	7:00 AM	4	178	0	0	121	38	12	0	2	0	0	0	355
	7:15 AM	1	210	0	0	135	47	9	0	2	0	0	0	404
	7:30 AM	8	241	0	0	200	47	29	0	1	0	0	0	526
	7:45 AM	4	191	0	0	197	61	17	0	1	0	0	0	471
	8:00 AM	8	198	0	0	176	54	23	0	7	0	0	0	466
	8:15 AM	11	176	0	0	139	55	8	0	5	0	0	0	394
	8:30 AM	7	145	0	0	146	42	10	0	7	0	0	0	357
	8:45 AM	10	134	0	0	150	56	14	0	4	0	0	0	368
	VOLUMES	53	1,473	0	0	1,264	400	122	0	29	0	0	0	3,346
	APPROACH %	3%	96%	0%	0%	76%	24%	81%	0%	19%	0%	0%	0%	
	APP/DEPART	1,531	/	1,595	1,664	/	1,298	151	/	0	0	/	453	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	21	840	0	0	708	209	78	0	11	0	0	0	1,870
	APPROACH %	2%	97%	0%	0%	77%	23%	88%	0%	12%	0%	0%	0%	
	PEAK HR FACTOR		0.864			0.889			0.742			0.000		0.887
	APP/DEPART	864	/	918	917	/	722	89	/	0	0	/	230	0
PM	4:00 PM	6	175	0	0	183	30	49	0	18	0	0	0	461
	4:15 PM	8	192	0	0	219	31	44	0	14	0	0	0	508
	4:30 PM	6	164	0	0	208	18	46	0	9	0	0	0	451
	4:45 PM	4	192	0	0	193	23	55	0	16	0	0	0	483
	5:00 PM	1	193	0	0	200	13	75	0	7	0	0	0	489
	5:15 PM	3	182	0	0	220	11	53	0	1	0	0	0	470
	5:30 PM	2	181	0	0	185	18	32	0	1	0	0	0	419
	5:45 PM	1	185	0	0	209	10	29	0	5	0	0	0	439
	VOLUMES	31	1,464	0	0	1,617	154	383	0	71	0	0	0	3,729
	APPROACH %	2%	97%	0%	0%	91%	9%	84%	0%	16%	0%	0%	0%	
	APP/DEPART	1,502	/	1,848	1,772	/	1,695	454	/	1	1	/	185	0
	BEGIN PEAK HR		4:15 PM											
	VOLUMES	19	741	0	0	820	85	220	0	46	0	0	0	1,935
	APPROACH %	2%	97%	0%	0%	91%	9%	83%	0%	17%	0%	0%	0%	
	PEAK HR FACTOR		0.954			0.905			0.811			0.250		0.950
	APP/DEPART	763	/	961	905	/	869	266	/	1	1	/	104	0

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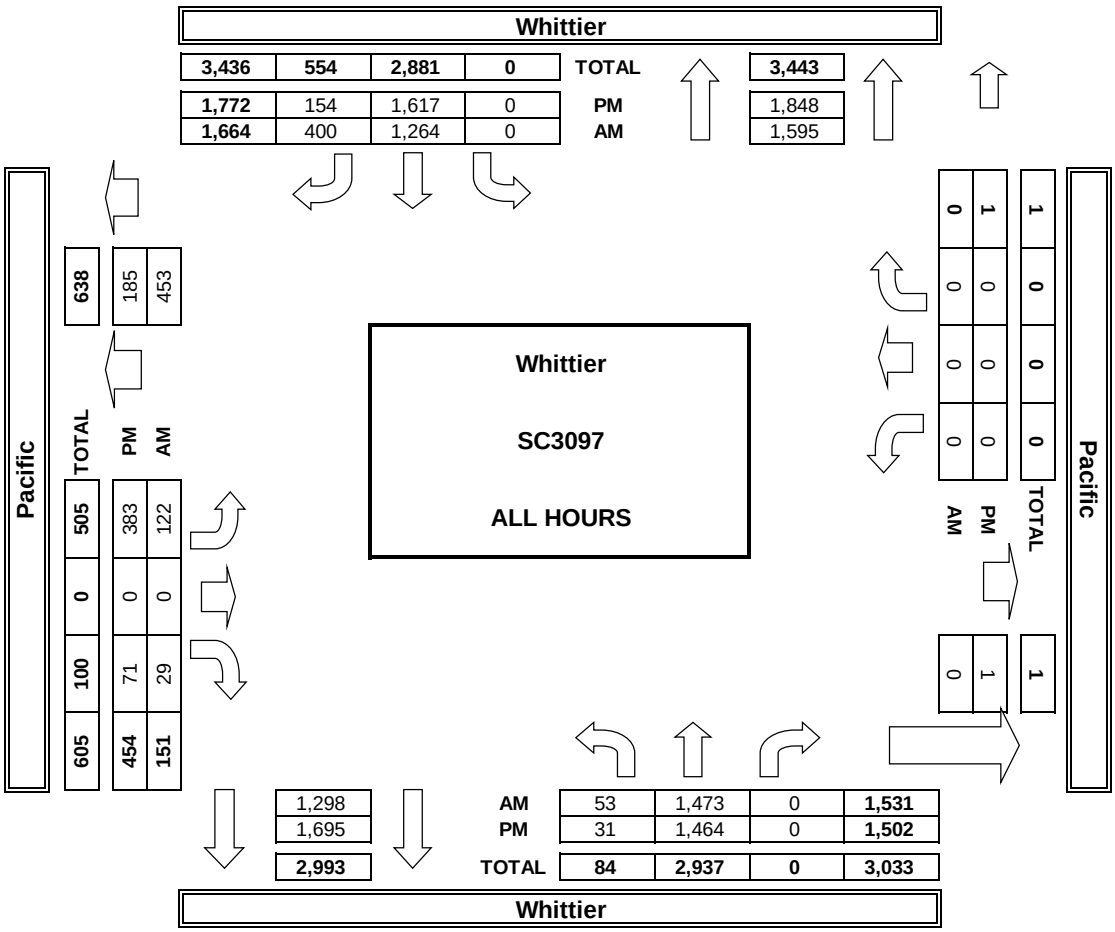
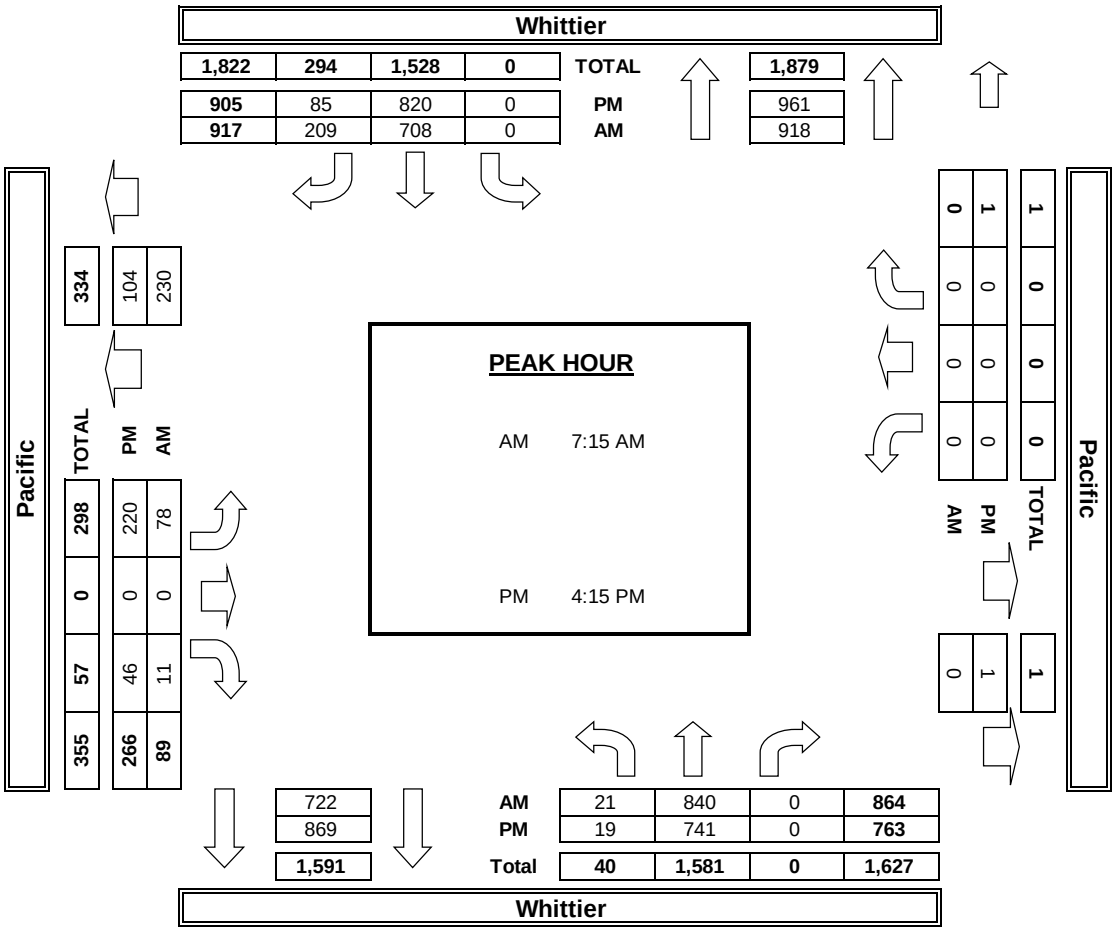
TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

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

DATE:				
Thu, Sep 30, 21	LOCATION:	Whittier	PROJECT #:	SC3097
	NORTH & SOUTH:	Santa Fe Springs	LOCATION #:	1
	EAST & WEST:	Whittier	CONTROL:	SIGNAL

NOTES:

AM
PM
MD
OTHER
OTHER

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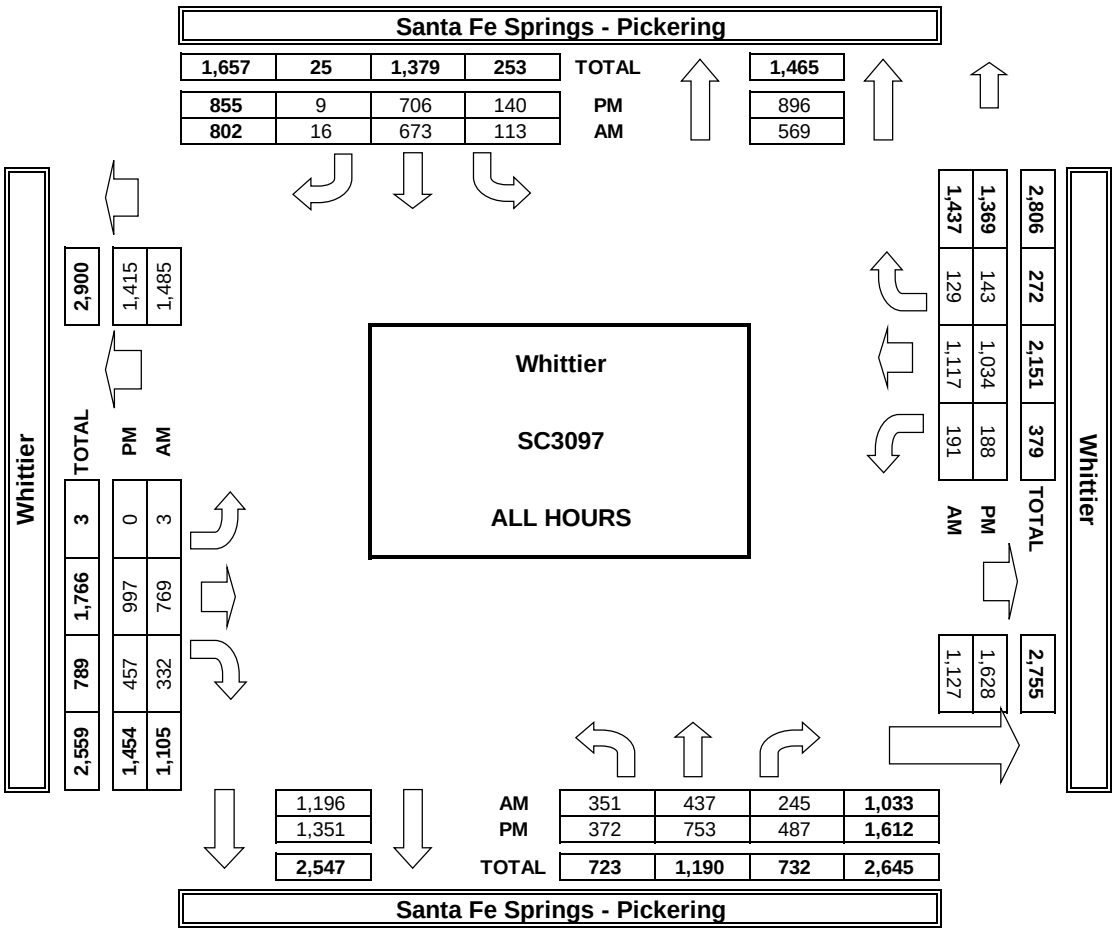
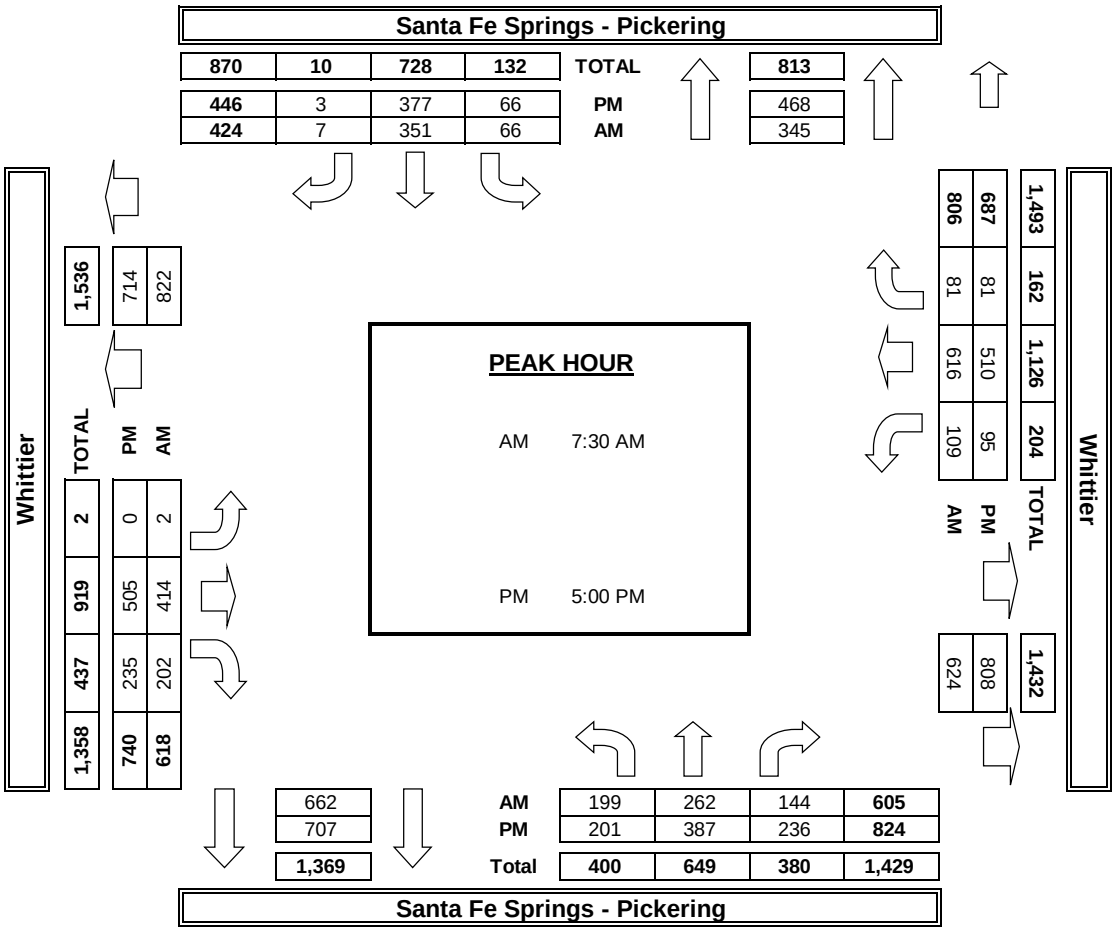
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
		Santa Fe Springs - Pickering			Santa Fe Springs - Pickering			Whittier			Whittier			
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	LANES:	1.5	1.5	1	0.5	1.5	1	X	3	0	1	2	0	
AM	7:00 AM	40	41	19	13	91	2	0	68	32	20	136	14	476
	7:15 AM	39	40	15	13	92	2	0	96	26	13	163	13	512
	7:30 AM	51	50	26	15	86	1	0	105	44	28	192	22	620
	7:45 AM	54	79	44	16	94	1	0	109	58	31	133	27	646
	8:00 AM	51	74	29	12	87	2	2	113	62	28	150	17	627
	8:15 AM	43	59	45	23	84	3	0	87	38	22	141	15	560
	8:30 AM	41	48	40	10	73	1	1	89	32	26	105	12	478
	8:45 AM	32	46	27	11	66	4	0	102	40	23	97	9	457
	VOLUMES	351	437	245	113	673	16	3	769	332	191	1,117	129	4,377
	APPROACH %	34%	42%	24%	14%	84%	2%	0%	70%	30%	13%	78%	9%	
	APP/DEPART	1,033	/	569	802	/	1,196	1,105	/	1,127	1,437	/	1,485	0
	BEGIN PEAK HR		7:30 AM											
	VOLUMES	199	262	144	66	351	7	2	414	202	109	616	81	2,453
	APPROACH %	33%	43%	24%	16%	83%	2%	0%	67%	33%	14%	76%	10%	
	PEAK HR FACTOR		0.855			0.955			0.873			0.833		0.949
	APP/DEPART	605	/	345	424	/	662	618	/	624	806	/	822	0
PM	4:00 PM	36	101	69	20	86	3	0	106	50	27	128	14	640
	4:15 PM	60	94	58	14	67	2	0	141	68	16	128	11	659
	4:30 PM	34	79	67	12	95	1	0	118	52	24	123	19	624
	4:45 PM	41	92	57	28	81	0	0	127	52	26	145	18	667
	5:00 PM	55	101	61	15	93	1	0	125	60	22	123	20	676
	5:15 PM	51	99	47	14	93	1	0	130	56	24	127	20	662
	5:30 PM	43	90	67	27	86	1	0	126	63	26	133	18	680
	5:45 PM	52	97	61	10	105	0	0	124	56	23	127	23	678
	VOLUMES	372	753	487	140	706	9	0	997	457	188	1,034	143	5,290
	APPROACH %	23%	47%	30%	16%	83%	1%	0%	69%	31%	14%	76%	10%	
	APP/DEPART	1,612	/	896	855	/	1,351	1,454	/	1,628	1,369	/	1,415	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	201	387	236	66	377	3	0	505	235	95	510	81	2,697
	APPROACH %	24%	47%	29%	15%	85%	1%	0%	68%	32%	14%	74%	12%	
	PEAK HR FACTOR		0.949			0.970			0.979			0.970		0.992
	APP/DEPART	824	/	468	446	/	707	740	/	808	687	/	714	0

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

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

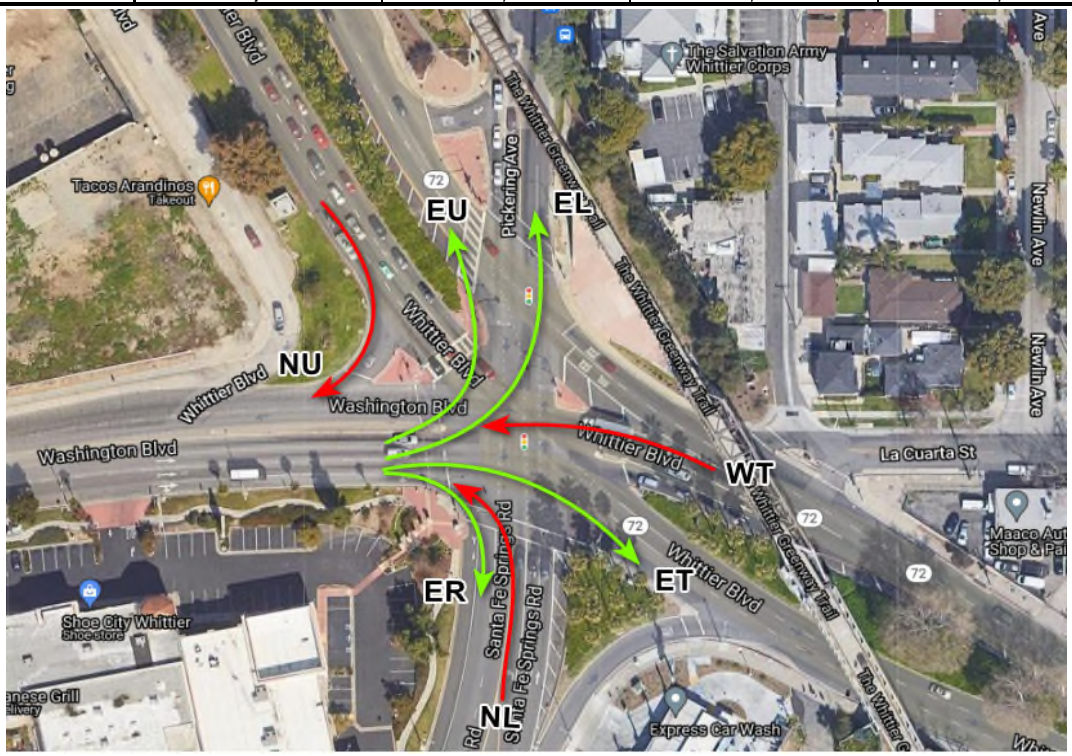
DATE:				
Thu, Sep 30, 21	LOCATION:	Whittier	PROJECT #:	SC3097
	NORTH & SOUTH:	Santa Fe Springs	LOCATION #:	1
	EAST & WEST:	Washington	CONTROL:	SIGNAL

NOTES:

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

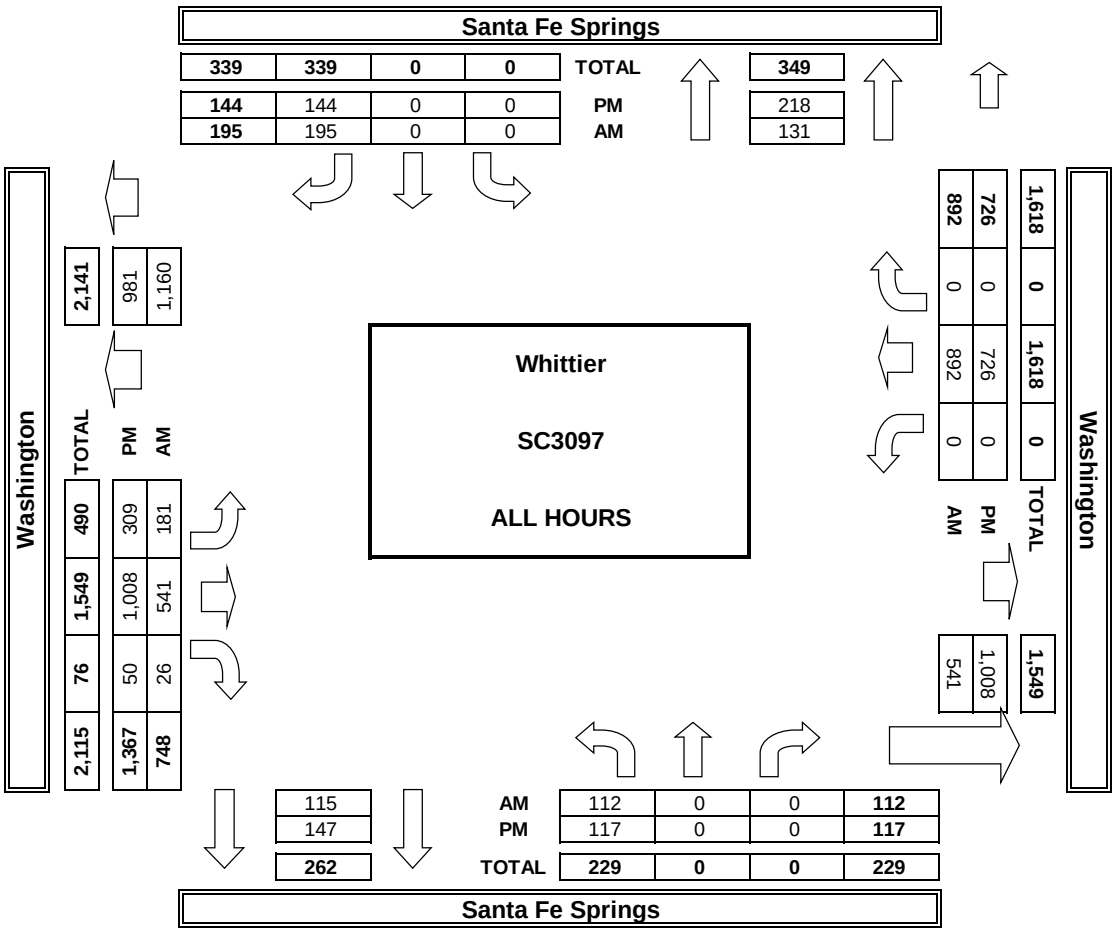
☐ Add U-Turns to Left Turns

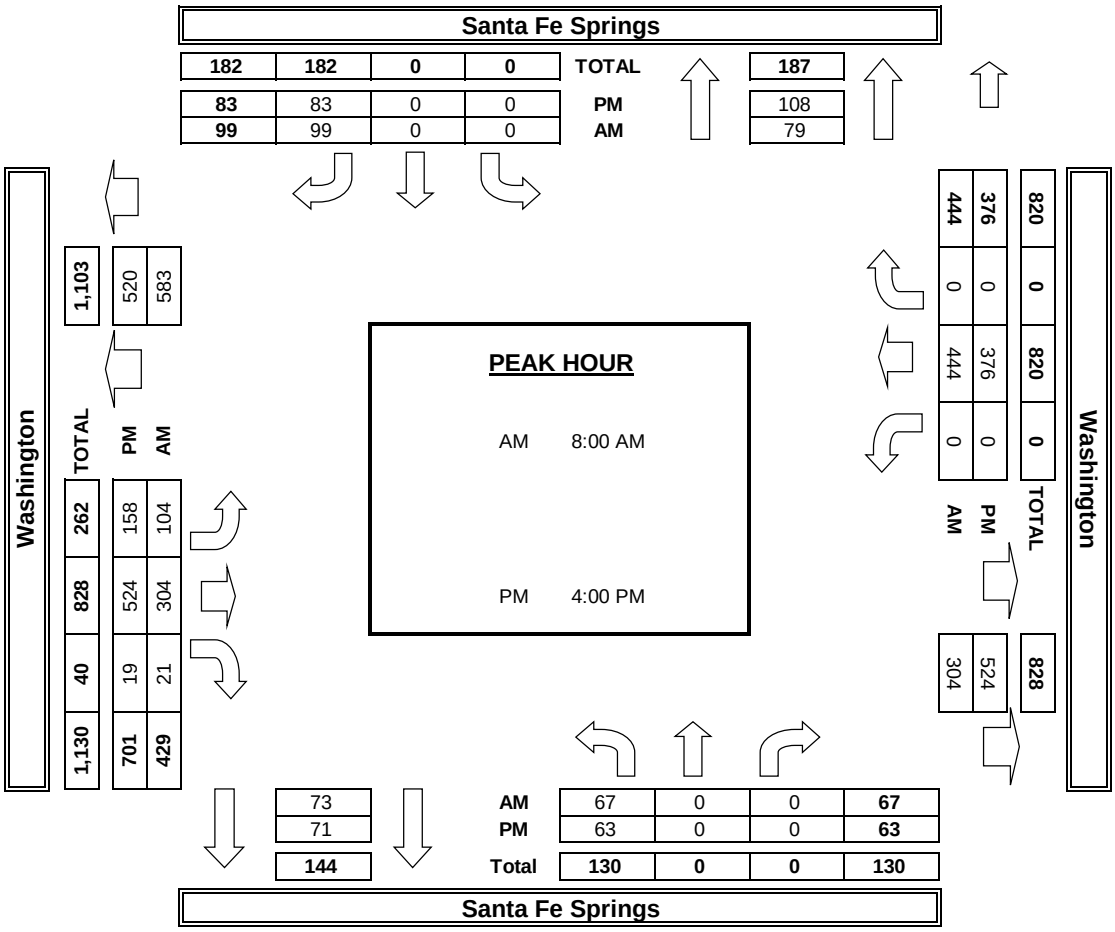
		NORTHBOUND Santa Fe Springs			SOUTHBOUND Santa Fe Springs			EASTBOUND Washington			WESTBOUND Washington				U-TURNS				
	LANES:	NL 1.5	NT 1.5	NR X	SL X	ST X	SR 1	EL 1	ET 2.5	ER 0.5	WL X	WT 2	WR X	TOTAL	NB 1	SB X	EB 1	WB X	TTL
AM	7:00 AM	0	0	0	0	0	21	6	47	1	0	103	0	178	10	0	4	0	14
	7:15 AM	2	0	0	0	0	23	16	72	2	0	111	0	226	12	0	7	0	19
	7:30 AM	1	0	0	0	0	24	13	55	1	0	119	0	213	12	0	7	0	19
	7:45 AM	5	0	0	0	0	28	17	63	1	0	115	0	229	3	0	7	0	10
	8:00 AM	4	0	0	0	0	26	18	61	4	0	131	0	244	13	0	5	0	18
	8:15 AM	3	0	0	0	0	12	23	76	4	0	96	0	214	15	0	2	0	17
	8:30 AM	6	0	0	0	0	27	19	89	8	0	102	0	251	10	0	7	0	17
	8:45 AM	2	0	0	0	0	34	19	78	5	0	115	0	253	14	0	11	0	25
	VOLUMES	23	0	0	0	0	195	131	541	26	0	892	0	1,947	89	0	50	0	139
	APPROACH %	21%	0%	0%	0%	0%	100%	18%	72%	3%	0%	100%	0%		52		25		
	APP/DEPART	112	/	131	195	/	115	748	/	541	892	/	1,160	0					
	BEGIN PEAK HR		8:00 AM												Peak Hour:				
	VOLUMES	15	0	0	0	0	99	79	304	21	0	444	0	1,039	8:00 AM				
	APPROACH %	22%	0%	0%	0%	0%	100%	18%	71%	5%	0%	100%	0%						
	PEAK HR FACTOR		0.931			0.728			0.872			0.847		0.934					
	APP/DEPART	67	/	79	99	/	73	429	/	304	444	/	583	0					
PM	4:00 PM	6	0	0	0	0	19	26	120	9	0	84	0	264	14	0	14	0	28
	4:15 PM	3	0	0	0	0	25	24	124	5	0	99	0	280	14	0	10	0	24
	4:30 PM	0	0	0	0	0	18	26	147	2	0	90	0	283	12	0	15	0	27
	4:45 PM	2	0	0	0	0	21	32	133	3	0	103	0	294	12	0	11	0	23
	5:00 PM	4	0	0	0	0	14	30	127	5	0	85	0	265	5	0	15	0	20
	5:15 PM	2	0	0	0	0	15	31	128	10	0	93	0	279	11	0	9	0	20
	5:30 PM	1	0	0	0	0	20	27	107	14	0	96	0	265	10	0	8	0	18
	5:45 PM	2	0	0	0	0	12	22	122	2	0	76	0	236	19	0	9	0	28
	VOLUMES	20	0	0	0	0	144	218	1,008	50	0	726	0	2,354	97	0	91	0	188
	APPROACH %	17%	0%	0%	0%	0%	100%	16%	74%	4%	0%	100%	0%		52		50		
	APP/DEPART	117	/	218	144	/	147	1,367	/	1,008	726	/	981	0					
	BEGIN PEAK HR		4:00 PM												Peak Hour:				
	VOLUMES	11	0	0	0	0	83	108	524	19	0	376	0	1,223	4:00 PM				
	APPROACH %	17%	0%	0%	0%	0%	100%	15%	75%	3%	0%	100%	0%						
	PEAK HR FACTOR		0.788			0.830			0.922			0.913		0.965					
	APP/DEPART	63	/	108	83	/	71	701	/	524	376	/	520	0					



AimTD LLC

TURNING MOVEMENT COUNTS





APPENDIX D

LEVEL OF SERVICE WORKSHEETS

EXISTING

Whittier Boulevard Business Park

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

Scenario 1 Existing AM Peak Hour
1/25/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Whittier Blvd (NS) at Whittier Blvd Frontage Rd (EW)	Two-way stop	HCM 6th Edition	EB Left	0.070	49.9	E
3	Whittier Blvd (NS) at Mar Vista St (EW)	Signalized	ICU 1	NB Thru	0.620	-	B
4	Whittier Blvd (NS) at Pacific Pl (EW)	Signalized	ICU 1	NB Thru	0.418	-	A
5	Whittier Blvd (NS) at Washington Blvd (EW)	Signalized	ICU 1	WB Right	0.725	-	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 2: Whittier Blvd (NS) at Whittier Blvd Frontage Rd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	49.9
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.070

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	5	1294	1013	93	6	3
Base Volume Adjustment Factor	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
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	1294	1013	93	6	3
Peak Hour Factor	0.8430	0.8430	0.8430	0.8430	0.8430	0.8430
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	384	300	28	2	1
Total Analysis Volume [veh/h]	6	1535	1202	110	7	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.01	0.00	0.07	0.01
d_M, Delay for Movement [s/veh]	10.79	0.00	0.00	0.00	49.87	12.08
Movement LOS	B	A	A	A	E	B
95th-Percentile Queue Length [veh/ln]	0.02	0.00	0.00	0.00	0.22	0.02
95th-Percentile Queue Length [ft/ln]	0.60	0.00	0.00	0.00	5.58	0.44
d_A, Approach Delay [s/veh]	0.04		0.00		37.27	
Approach LOS	A		A		E	
d_I, Intersection Delay [s/veh]	0.16					
Intersection LOS	E					

Intersection Level Of Service Report
Intersection 3: Whittier Blvd (NS) at Mar Vista St (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.620

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	1	0	0	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	110.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00
Speed [mph]	45.00			45.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	880	35	191	734	0	0	0	0	184	0	351
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 Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	880	35	191	734	0	0	0	0	184	0	351
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	220	9	48	184	0	0	0	0	46	0	88
Total Analysis Volume [veh/h]	0	880	35	191	734	0	0	0	0	184	0	351
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

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

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap
Signal group	0	2	0	1	6	0	0	8	0	7	0	4
Auxiliary Signal Groups												1,4
Lead / Lag	-	-	-	Lead	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.29	0.29	0.12	0.23	0.00	0.00	0.00	0.00	0.12	0.00	0.10
Intersection LOS	B											
Intersection V/C	0.620											

Intersection Level Of Service Report
Intersection 4: Whittier Blvd (NS) at Pacific Pl (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.418

Intersection Setup

Name	Whittier Blvd					
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Whittier Blvd					
Base Volume Input [veh/h]	21	840	708	209	78	11
Base Volume Adjustment Factor	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
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	21	840	708	209	78	11
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	210	177	52	20	3
Total Analysis Volume [veh/h]	21	840	708	209	78	11
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

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

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	2	6	0	3	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.26	0.22	0.13	0.05	0.06
Intersection LOS	A					
Intersection V/C	0.418					

Intersection Level Of Service Report
Intersection 5: Whittier Blvd (NS) at Washington Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.725

Intersection Setup

Name	Santa Fe Springs Rd				Pickering Ave				Washington Blvd			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Left	Thru	Right	Left	Thru	Right	Right2	Left	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	1	0	0	0	0	0	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	195.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				45.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	Yes				Yes				No			

Volumes

Name	Santa Fe Springs Rd				Pickering Ave				Washington Blvd			
Base Volume Input [veh/h]	15	199	262	144	66	351	99	7	25	79	304	21
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	0.00	2.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	199	262	144	66	351	99	7	25	79	304	21
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	50	66	36	17	88	25	2	6	20	76	5
Total Analysis Volume [veh/h]	15	199	262	144	66	351	99	7	25	79	304	21
Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

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

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Split	Split	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	8	0	0	4	0	0	5	3	2	0
Auxiliary Signal Groups												
Lead / Lag	-	Lag	-	-	-	-	-	-	-	Lag	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.06	0.10	0.09	0.04	0.16	0.16	0.16	0.02	0.05	0.07	0.07
Intersection LOS	C											
Intersection V/C	0.725											

Intersection Setup

Name	Whittier Blvd				Whittier Blvd			
Approach	Westbound				Southeastbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	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
Speed [mph]	35.00				30.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				Yes			

Volumes

Name	Whittier Blvd				Whittier Blvd			
Base Volume Input [veh/h]	109	444	616	81	0	414	202	52
Base Volume Adjustment Factor	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	0.00	0.00	2.00	2.00	2.00
Growth Factor	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
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	109	444	616	81	0	414	202	52
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	111	154	20	0	104	51	13
Total Analysis Volume [veh/h]	109	444	616	81	0	414	202	52
Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

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

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	1	6	0	0	0	0	3	0
Auxiliary Signal Groups								
Lead / Lag	Lead	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.14	0.22	0.22	0.00	0.13	0.16	0.16
Intersection LOS	C							
Intersection V/C	0.725							

Whittier Boulevard Business Park

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

Scenario 1 Existing PM Peak Hour
1/25/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Whittier Blvd (NS) at Whittier Blvd Frontage Rd (EW)	Two-way stop	HCM 6th Edition	EB Left	0.288	60.7	F
3	Whittier Blvd (NS) at Mar Vista St (EW)	Signalized	ICU 1	NB Thru	0.550	-	A
4	Whittier Blvd (NS) at Pacific Pl (EW)	Signalized	ICU 1	SB Thru	0.534	-	A
5	Whittier Blvd (NS) at Washington Blvd (EW)	Signalized	ICU 1	WB Right	0.823	-	D

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

Intersection Level Of Service Report
Intersection 2: Whittier Blvd (NS) at Whittier Blvd Frontage Rd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	60.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.288

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	6	1140	1056	44	26	6
Base Volume Adjustment Factor	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
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	1140	1056	44	26	6
Peak Hour Factor	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	301	279	12	7	2
Total Analysis Volume [veh/h]	6	1204	1115	46	27	6
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.01	0.00	0.29	0.01
d_M, Delay for Movement [s/veh]	10.77	0.00	0.00	0.00	60.68	12.36
Movement LOS	B	A	A	A	F	B
95th-Percentile Queue Length [veh/ln]	0.03	0.00	0.00	0.00	1.17	0.04
95th-Percentile Queue Length [ft/ln]	0.72	0.00	0.00	0.00	29.21	0.92
d_A, Approach Delay [s/veh]	0.06		0.00		51.62	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	0.75					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 3: Whittier Blvd (NS) at Mar Vista St (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.550

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	1	0	0	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	110.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00
Speed [mph]	45.00			45.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	876	121	157	815	0	0	0	0	64	0	217
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 Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	876	121	157	815	0	0	0	0	64	0	217
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	219	30	39	204	0	0	0	0	16	0	54
Total Analysis Volume [veh/h]	0	876	121	157	815	0	0	0	0	64	0	217
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

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

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap
Signal group	0	2	0	1	6	0	0	8	0	7	0	4
Auxiliary Signal Groups												1,4
Lead / Lag	-	-	-	Lead	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.31	0.31	0.10	0.25	0.00	0.00	0.00	0.00	0.04	0.00	0.04
Intersection LOS	A											
Intersection V/C	0.550											

Intersection Level Of Service Report
Intersection 4: Whittier Blvd (NS) at Pacific Pl (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.534

Intersection Setup

Name	Whittier Blvd					
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Whittier Blvd					
Base Volume Input [veh/h]	19	741	820	85	220	46
Base Volume Adjustment Factor	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
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	19	741	820	85	220	46
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	185	205	21	55	12
Total Analysis Volume [veh/h]	19	741	820	85	220	46
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

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

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	2	6	0	3	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.23	0.26	0.05	0.14	0.17
Intersection LOS	A					
Intersection V/C	0.534					

Intersection Level Of Service Report
Intersection 5: Whittier Blvd (NS) at Washington Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.823

Intersection Setup

Name	Santa Fe Springs Rd				Pickering Ave				Washington Blvd			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Left	Thru	Right	Left	Thru	Right	Right2	Left	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	1	0	0	0	0	0	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	195.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				45.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	Yes				Yes				Yes			

Volumes

Name	Santa Fe Springs Rd				Pickering Ave				Washington Blvd			
Base Volume Input [veh/h]	11	201	387	236	66	377	83	3	108	50	524	19
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	0.00	2.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	201	387	236	66	377	83	3	108	50	524	19
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	50	97	59	17	94	21	1	27	13	131	5
Total Analysis Volume [veh/h]	11	201	387	236	66	377	83	3	108	50	524	19
Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

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

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Split	Split	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	8	0	0	4	0	0	5	3	2	0
Auxiliary Signal Groups												
Lead / Lag	-	Lag	-	-	-	-	-	-	-	Lag	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.06	0.12	0.15	0.04	0.17	0.17	0.17	0.07	0.03	0.11	0.11
Intersection LOS	D											
Intersection V/C	0.823											

Intersection Setup

Name	Whittier Blvd				Whittier Blvd			
Approach	Westbound				Southeastbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	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
Speed [mph]	35.00				30.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				Yes			

Volumes

Name	Whittier Blvd				Whittier Blvd			
Base Volume Input [veh/h]	95	376	510	81	0	505	235	52
Base Volume Adjustment Factor	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	0.00	0.00	2.00	2.00	2.00
Growth Factor	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
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	95	376	510	81	0	505	235	52
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	94	128	20	0	126	59	13
Total Analysis Volume [veh/h]	95	376	510	81	0	505	235	52
Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

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

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	1	6	0	0	0	0	3	0
Auxiliary Signal Groups								
Lead / Lag	Lead	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.12	0.18	0.18	0.00	0.16	0.18	0.18
Intersection LOS	D							
Intersection V/C	0.823							

EXISTING PLUS AMBIENT GROWTH PLUS PROJECT

Whittier Boulevard Business Park

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

Scenario 2 Existing Plus Ambient Growth Plus Project AM Peak Hour

Report File: C:\...\AMEAP.pdf

1/25/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Whittier Blvd (NS) at Whittier Blvd Frontage Rd (EW)	Two-way stop	HCM 6th Edition	EB Left	0.196	59.8	F
3	Whittier Blvd (NS) at Mar Vista St (EW)	Signalized	ICU 1	NB Thru	0.627	-	B
4	Whittier Blvd (NS) at Pacific Pl (EW)	Signalized	ICU 1	NB Thru	0.440	-	A
5	Whittier Blvd (NS) at Washington Blvd (EW)	Signalized	ICU 1	WB Right	0.739	-	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 2: Whittier Blvd (NS) at Whittier Blvd Frontage Rd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	59.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.196

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	5	1294	1013	93	6	3
Base Volume Adjustment Factor	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
Growth Factor	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	17	42	10	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	1310	1040	136	16	3
Peak Hour Factor	0.8430	0.8430	0.8430	0.8430	0.8430	0.8430
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	388	308	40	5	1
Total Analysis Volume [veh/h]	6	1554	1234	161	19	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.01	0.00	0.20	0.01
d_M, Delay for Movement [s/veh]	11.16	0.00	0.00	0.00	59.75	12.23
Movement LOS	B	A	A	A	F	B
95th-Percentile Queue Length [veh/ln]	0.03	0.00	0.00	0.00	0.72	0.02
95th-Percentile Queue Length [ft/ln]	0.64	0.00	0.00	0.00	17.89	0.45
d_A, Approach Delay [s/veh]	0.04		0.00		52.25	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	0.42					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 3: Whittier Blvd (NS) at Mar Vista St (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.627

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	1	0	0	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	110.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00
Speed [mph]	45.00			45.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	880	35	191	734	0	0	0	0	184	0	351
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 Factor	1.00	1.01	1.01	1.01	1.01	1.00	1.01	1.01	1.01	1.01	1.00	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	0	0	17	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]	0	892	35	193	758	0	0	0	0	186	0	355
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	223	9	48	190	0	0	0	0	47	0	89
Total Analysis Volume [veh/h]	0	892	35	193	758	0	0	0	0	186	0	355
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

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

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap
Signal group	0	2	0	1	6	0	0	8	0	7	0	4
Auxiliary Signal Groups												1,4
Lead / Lag	-	-	-	Lead	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.29	0.29	0.12	0.24	0.00	0.00	0.00	0.00	0.12	0.00	0.10
Intersection LOS	B											
Intersection V/C	0.627											

Intersection Level Of Service Report
Intersection 4: Whittier Blvd (NS) at Pacific Pl (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.440

Intersection Setup

Name	Whittier Blvd					
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Whittier Blvd					
Base Volume Input [veh/h]	21	840	708	209	78	11
Base Volume Adjustment Factor	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
Growth Factor	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	60	0	0	17	3	13
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	81	848	715	228	82	24
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	212	179	57	21	6
Total Analysis Volume [veh/h]	81	848	715	228	82	24
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

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

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	2	6	0	3	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.27	0.22	0.14	0.05	0.07
Intersection LOS	A					
Intersection V/C	0.440					

Intersection Level Of Service Report
Intersection 5: Whittier Blvd (NS) at Washington Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.739

Intersection Setup

Name	Santa Fe Springs Rd				Pickering Ave				Washington Blvd			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Left	Thru	Right	Left	Thru	Right	Right2	Left	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	1	0	0	0	0	0	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	195.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				45.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	Yes				Yes				No			

Volumes

Name	Santa Fe Springs Rd				Pickering Ave				Washington Blvd			
Base Volume Input [veh/h]	15	199	262	144	66	351	99	7	25	79	304	21
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	0.00	2.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	13	0	0	0	0	0	0	0	34	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]	15	214	265	145	67	355	100	7	25	114	307	21
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	54	66	36	17	89	25	2	6	29	77	5
Total Analysis Volume [veh/h]	15	214	265	145	67	355	100	7	25	114	307	21
Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

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

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Split	Split	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	8	0	0	4	0	0	5	3	2	0
Auxiliary Signal Groups												
Lead / Lag	-	Lag	-	-	-	-	-	-	-	Lag	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.07	0.10	0.09	0.04	0.17	0.17	0.17	0.02	0.07	0.07	0.07
Intersection LOS	C											
Intersection V/C	0.739											

Intersection Setup

Name	Whittier Blvd				Whittier Blvd			
Approach	Westbound				Southeastbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	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
Speed [mph]	35.00				30.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				Yes			

Volumes

Name	Whittier Blvd				Whittier Blvd			
Base Volume Input [veh/h]	109	444	616	81	0	414	202	52
Base Volume Adjustment Factor	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	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.01	1.01	1.01	1.01	1.00	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	13	0	0	3	3	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	110	448	635	82	0	421	207	60
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	112	159	21	0	105	52	15
Total Analysis Volume [veh/h]	110	448	635	82	0	421	207	60
Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

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

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	1	6	0	0	0	0	3	0
Auxiliary Signal Groups								
Lead / Lag	Lead	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.14	0.22	0.22	0.00	0.13	0.17	0.17
Intersection LOS	C							
Intersection V/C	0.739							

Whittier Boulevard Business Park

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Scenario 2 Existing Plus Ambient Growth Plus Project PM Peak Hour

Report File: C:\...\PMEAP.pdf

1/25/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Whittier Blvd (NS) at Whittier Blvd Frontage Rd (EW)	Two-way stop	HCM 6th Edition	EB Left	0.772	157.0	F
3	Whittier Blvd (NS) at Mar Vista St (EW)	Signalized	ICU 1	NB Thru	0.559	-	A
4	Whittier Blvd (NS) at Pacific Pl (EW)	Signalized	ICU 1	SB Thru	0.591	-	A
5	Whittier Blvd (NS) at Washington Blvd (EW)	Signalized	ICU 1	SEB Thru	0.835	-	D

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

Intersection Level Of Service Report
Intersection 2: Whittier Blvd (NS) at Whittier Blvd Frontage Rd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	157.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.772

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	6	1140	1056	44	26	6
Base Volume Adjustment Factor	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
Growth Factor	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	14	3	11	41	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	1165	1070	55	67	6
Peak Hour Factor	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	308	282	15	18	2
Total Analysis Volume [veh/h]	6	1230	1130	58	71	6
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.01	0.00	0.77	0.01
d_M, Delay for Movement [s/veh]	10.90	0.00	0.00	0.00	157.03	12.44
Movement LOS	B	A	A	A	F	B
95th-Percentile Queue Length [veh/ln]	0.03	0.00	0.00	0.00	6.23	0.04
95th-Percentile Queue Length [ft/ln]	0.74	0.00	0.00	0.00	155.75	0.93
d_A, Approach Delay [s/veh]	0.06		0.00		145.15	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	4.50					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 3: Whittier Blvd (NS) at Mar Vista St (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.559

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	1	0	0	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	110.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00
Speed [mph]	45.00			45.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	876	121	157	815	0	0	0	0	64	0	217
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 Factor	1.00	1.01	1.01	1.01	1.01	1.00	1.01	1.01	1.01	1.01	1.00	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	14	0	0	3	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]	0	899	122	159	826	0	0	0	0	65	0	219
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	225	31	40	207	0	0	0	0	16	0	55
Total Analysis Volume [veh/h]	0	899	122	159	826	0	0	0	0	65	0	219
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

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

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap
Signal group	0	2	0	1	6	0	0	8	0	7	0	4
Auxiliary Signal Groups												1,4
Lead / Lag	-	-	-	Lead	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.32	0.32	0.10	0.26	0.00	0.00	0.00	0.00	0.04	0.00	0.04
Intersection LOS	A											
Intersection V/C	0.559											

Intersection Level Of Service Report
Intersection 4: Whittier Blvd (NS) at Pacific Pl (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.591

Intersection Setup

Name	Whittier Blvd					
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Whittier Blvd					
Base Volume Input [veh/h]	19	741	820	85	220	46
Base Volume Adjustment Factor	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
Growth Factor	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	13	0	0	3	14	57
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	32	748	828	89	236	103
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	187	207	22	59	26
Total Analysis Volume [veh/h]	32	748	828	89	236	103
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

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

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	2	6	0	3	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.23	0.26	0.06	0.15	0.21
Intersection LOS	A					
Intersection V/C	0.591					

Intersection Level Of Service Report
Intersection 5: Whittier Blvd (NS) at Washington Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.835

Intersection Setup

Name	Santa Fe Springs Rd				Pickering Ave				Washington Blvd			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Left	Thru	Right	Left	Thru	Right	Right2	Left	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	1	0	0	0	0	0	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	195.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				45.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	Yes				Yes				Yes			

Volumes

Name	Santa Fe Springs Rd				Pickering Ave				Washington Blvd			
Base Volume Input [veh/h]	11	201	387	236	66	377	83	3	108	50	524	19
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	0.00	2.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	0	0	0	0	0	0	0	7	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	206	391	238	67	381	84	3	109	58	529	19
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	52	98	60	17	95	21	1	27	15	132	5
Total Analysis Volume [veh/h]	11	206	391	238	67	381	84	3	109	58	529	19
Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

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

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Split	Split	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	8	0	0	4	0	0	5	3	2	0
Auxiliary Signal Groups												
Lead / Lag	-	Lag	-	-	-	-	-	-	-	Lag	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.06	0.13	0.15	0.04	0.17	0.17	0.17	0.07	0.04	0.11	0.11
Intersection LOS	D											
Intersection V/C	0.835											

Intersection Setup

Name	Whittier Blvd				Whittier Blvd			
Approach	Westbound				Southeastbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	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
Speed [mph]	35.00				30.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				Yes			

Volumes

Name	Whittier Blvd				Whittier Blvd			
Base Volume Input [veh/h]	95	376	510	81	0	505	235	52
Base Volume Adjustment Factor	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	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.01	1.01	1.01	1.01	1.00	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	3	0	0	13	13	31
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	96	380	518	82	0	523	250	84
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	95	130	21	0	131	63	21
Total Analysis Volume [veh/h]	96	380	518	82	0	523	250	84
Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

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

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	1	6	0	0	0	0	3	0
Auxiliary Signal Groups								
Lead / Lag	Lead	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.12	0.19	0.19	0.00	0.16	0.21	0.21
Intersection LOS	D							
Intersection V/C	0.835							

Whittier Boulevard Business Park

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

Scenario 3 Existing Plus Ambient Growth Plus Project AM Peak Hour - Alternative

Report File: C:\...\AMEAP-A.pdf

1/25/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Whittier Blvd Frontage Rd (NS) at Mar Vista St (EW)	Two-way stop	HCM 6th Edition	WB Thru	0.122	10.4	B
2	Whittier Blvd (NS) at Whittier Blvd Frontage Rd (EW)	Two-way stop	HCM 6th Edition	EB Left	0.091	56.4	F
3	Whittier Blvd (NS) at Mar Vista St (EW)	Signalized	ICU 1	NB Thru	0.743	-	C
4	Whittier Blvd (NS) at Pacific Pl (EW)	Signalized	ICU 1	NB Thru	0.446	-	A
5	Whittier Blvd (NS) at Washington Blvd (EW)	Signalized	ICU 1	WB Right	0.739	-	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: Whittier Blvd Frontage Rd (NS) at Mar Vista St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	10.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.122

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	0	9	0	0	106	0	0	0	0	0	0	0
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 Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
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	1	4	0	0	14	6	0	94	21
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]	0	9	0	1	111	0	0	14	6	0	94	21
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	0	0	29	0	0	4	2	0	25	6
Total Analysis Volume [veh/h]	0	9	0	1	117	0	0	15	6	0	99	22
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	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.12	0.02
d_M, Delay for Movement [s/veh]	7.43	0.00	0.00	7.24	0.00	0.00	10.29	9.80	8.93	10.11	10.42	9.09
Movement LOS	A	A	A	A	A	A	B	A	A	B	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.08	0.08	0.50	0.50	0.50
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.05	0.05	0.05	1.89	1.89	1.89	12.39	12.39	12.39
d_A, Approach Delay [s/veh]	0.00			0.06			9.54			10.18		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	5.35											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 2: Whittier Blvd (NS) at Whittier Blvd Frontage Rd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	56.4
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.091

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	5	1294	1013	93	6	3
Base Volume Adjustment Factor	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
Growth Factor	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	11	51	4	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	1318	1074	98	7	3
Peak Hour Factor	0.8430	0.8430	0.8430	0.8430	0.8430	0.8430
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	391	319	29	2	1
Total Analysis Volume [veh/h]	6	1563	1274	116	8	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.01	0.00	0.09	0.01
d_M, Delay for Movement [s/veh]	11.14	0.00	0.00	0.00	56.41	12.42
Movement LOS	B	A	A	A	F	B
95th-Percentile Queue Length [veh/ln]	0.03	0.00	0.00	0.00	0.30	0.02
95th-Percentile Queue Length [ft/ln]	0.64	0.00	0.00	0.00	7.44	0.46
d_A, Approach Delay [s/veh]	0.04		0.00		43.21	
Approach LOS	A		A		E	
d_I, Intersection Delay [s/veh]	0.19					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 3: Whittier Blvd (NS) at Mar Vista St (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.743

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	1	0	0	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	110.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00
Speed [mph]	45.00			45.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	880	35	191	734	0	0	0	0	184	0	351
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 Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	60	0	0	0	0	51	11	1	3	0	4	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]	60	889	35	193	741	51	11	1	3	186	4	355
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	222	9	48	185	13	3	0	1	47	1	89
Total Analysis Volume [veh/h]	60	889	35	193	741	51	11	1	3	186	4	355
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

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

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.29	0.29	0.12	0.25	0.25	0.01	0.01	0.01	0.12	0.22	0.22
Intersection LOS	C											
Intersection V/C	0.743											

Intersection Level Of Service Report
Intersection 4: Whittier Blvd (NS) at Pacific Pl (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.446

Intersection Setup

Name	Whittier Blvd					
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Whittier Blvd					
Base Volume Input [veh/h]	21	840	708	209	78	11
Base Volume Adjustment Factor	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
Growth Factor	1.01	1.01	1.01	1.00	1.00	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	60	3	0	0	10
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	21	908	718	209	78	21
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	227	180	52	20	5
Total Analysis Volume [veh/h]	21	908	718	209	78	21
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

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

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	2	6	0	3	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.28	0.22	0.13	0.05	0.06
Intersection LOS	A					
Intersection V/C	0.446					

Intersection Level Of Service Report
Intersection 5: Whittier Blvd (NS) at Washington Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.739

Intersection Setup

Name	Santa Fe Springs Rd				Pickering Ave				Washington Blvd			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Left	Thru	Right	Left	Thru	Right	Right2	Left	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	1	0	0	0	0	0	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	195.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				45.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	Yes				Yes				No			

Volumes

Name	Santa Fe Springs Rd				Pickering Ave				Washington Blvd			
Base Volume Input [veh/h]	15	199	262	144	66	351	99	7	25	79	304	21
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	0.00	2.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	13	0	0	0	0	0	0	0	34	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]	15	214	265	145	67	355	100	7	25	114	307	21
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	54	66	36	17	89	25	2	6	29	77	5
Total Analysis Volume [veh/h]	15	214	265	145	67	355	100	7	25	114	307	21
Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

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

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Split	Split	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	8	0	0	4	0	0	5	3	2	0
Auxiliary Signal Groups												
Lead / Lag	-	Lag	-	-	-	-	-	-	-	Lag	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.07	0.10	0.09	0.04	0.17	0.17	0.17	0.02	0.07	0.07	0.07
Intersection LOS	C											
Intersection V/C	0.739											

Intersection Setup

Name	Whittier Blvd				Whittier Blvd			
Approach	Westbound				Southeastbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	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
Speed [mph]	35.00				30.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				Yes			

Volumes

Name	Whittier Blvd				Whittier Blvd			
Base Volume Input [veh/h]	109	444	616	81	0	414	202	52
Base Volume Adjustment Factor	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	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.01	1.01	1.01	1.01	1.00	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	13	0	0	3	3	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	110	448	635	82	0	421	207	60
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	112	159	21	0	105	52	15
Total Analysis Volume [veh/h]	110	448	635	82	0	421	207	60
Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

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

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	1	6	0	0	0	0	3	0
Auxiliary Signal Groups								
Lead / Lag	Lead	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.14	0.22	0.22	0.00	0.13	0.17	0.17
Intersection LOS	C							
Intersection V/C	0.739							

Whittier Boulevard Business Park

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

Scenario 3 Existing Plus Ambient Growth Plus Project PM Peak Hour - Alternative

Report File: C:\...\PMEAP-A.pdf

1/25/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Whittier Blvd Frontage Rd (NS) at Mar Vista St (EW)	Two-way stop	HCM 6th Edition	EB Thru	0.079	10.2	B
2	Whittier Blvd (NS) at Whittier Blvd Frontage Rd (EW)	Two-way stop	HCM 6th Edition	EB Left	0.359	71.8	F
3	Whittier Blvd (NS) at Mar Vista St (EW)	Signalized	ICU 1	NB Right	0.681	-	B
4	Whittier Blvd (NS) at Pacific Pl (EW)	Signalized	ICU 1	SB Thru	0.569	-	A
5	Whittier Blvd (NS) at Washington Blvd (EW)	Signalized	ICU 1	SEB Thru	0.835	-	D

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

Intersection Level Of Service Report

Intersection 1: Whittier Blvd Frontage Rd (NS) at Mar Vista St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	10.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.079

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	0	34	0	0	53	0	0	0	0	0	0	0
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 Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
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	17	0	0	61	26	0	21	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	34	0	4	71	0	0	61	26	0	21	5
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	9	0	1	19	0	0	16	7	0	6	1
Total Analysis Volume [veh/h]	0	36	0	4	75	0	0	64	27	0	22	5
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	0.00	0.00	0.00	0.00	0.08	0.03	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	7.35	0.00	0.00	7.29	0.00	0.00	9.87	10.15	9.14	10.01	9.79	8.61
Movement LOS	A	A	A	A	A	A	A	B	A	B	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.01	0.01	0.01	0.35	0.35	0.35	0.10	0.10	0.10
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.19	0.19	0.19	8.78	8.78	8.78	2.47	2.47	2.47
d_A, Approach Delay [s/veh]	0.00			0.39			9.85			9.56		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	5.11											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 2: Whittier Blvd (NS) at Whittier Blvd Frontage Rd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	71.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.359

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	6	1140	1056	44	26	6
Base Volume Adjustment Factor	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
Growth Factor	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	47	12	1	4	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	1198	1079	45	30	6
Peak Hour Factor	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	316	285	12	8	2
Total Analysis Volume [veh/h]	6	1265	1139	48	32	6
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.01	0.00	0.36	0.01
d_M, Delay for Movement [s/veh]	10.89	0.00	0.00	0.00	71.85	12.49
Movement LOS	B	A	A	A	F	B
95th-Percentile Queue Length [veh/ln]	0.03	0.00	0.00	0.00	1.59	0.04
95th-Percentile Queue Length [ft/ln]	0.74	0.00	0.00	0.00	39.72	0.94
d_A, Approach Delay [s/veh]	0.05		0.00		61.96	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	0.97					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 3: Whittier Blvd (NS) at Mar Vista St (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.681

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	1	0	0	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	110.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00
Speed [mph]	45.00			45.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	876	121	157	815	0	0	0	0	64	0	217
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 Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	13	0	0	0	0	12	47	4	14	0	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	885	122	159	823	12	47	4	14	65	1	219
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	221	31	40	206	3	12	1	4	16	0	55
Total Analysis Volume [veh/h]	13	885	122	159	823	12	47	4	14	65	1	219
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

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

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.31	0.31	0.10	0.26	0.26	0.03	0.04	0.04	0.04	0.14	0.14
Intersection LOS	B											
Intersection V/C	0.681											

Intersection Level Of Service Report
Intersection 4: Whittier Blvd (NS) at Pacific Pl (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.569

Intersection Setup

Name	Whittier Blvd					
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Whittier Blvd					
Base Volume Input [veh/h]	19	741	820	85	220	46
Base Volume Adjustment Factor	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
Growth Factor	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	13	14	0	0	43
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	19	761	842	86	222	89
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	190	211	22	56	22
Total Analysis Volume [veh/h]	19	761	842	86	222	89
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

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

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	2	6	0	3	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.24	0.26	0.05	0.14	0.19
Intersection LOS	A					
Intersection V/C	0.569					

Intersection Level Of Service Report
Intersection 5: Whittier Blvd (NS) at Washington Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.835

Intersection Setup

Name	Santa Fe Springs Rd				Pickering Ave				Washington Blvd			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Left	Thru	Right	Left	Thru	Right	Right2	Left	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	1	0	0	0	0	0	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	195.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				45.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	Yes				Yes				Yes			

Volumes

Name	Santa Fe Springs Rd				Pickering Ave				Washington Blvd			
Base Volume Input [veh/h]	11	201	387	236	66	377	83	3	108	50	524	19
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	0.00	2.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	0	0	0	0	0	0	0	7	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	206	391	238	67	381	84	3	109	58	529	19
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	52	98	60	17	95	21	1	27	15	132	5
Total Analysis Volume [veh/h]	11	206	391	238	67	381	84	3	109	58	529	19
Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

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

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Split	Split	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	8	0	0	4	0	0	5	3	2	0
Auxiliary Signal Groups												
Lead / Lag	-	Lag	-	-	-	-	-	-	-	Lag	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.06	0.13	0.15	0.04	0.17	0.17	0.17	0.07	0.04	0.11	0.11
Intersection LOS	D											
Intersection V/C	0.835											

Intersection Setup

Name	Whittier Blvd				Whittier Blvd			
Approach	Westbound				Southeastbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	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
Speed [mph]	35.00				30.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				Yes			

Volumes

Name	Whittier Blvd				Whittier Blvd			
Base Volume Input [veh/h]	95	376	510	81	0	505	235	52
Base Volume Adjustment Factor	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	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.01	1.01	1.01	1.01	1.00	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	3	0	0	13	13	31
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	96	380	518	82	0	523	250	84
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	95	130	21	0	131	63	21
Total Analysis Volume [veh/h]	96	380	518	82	0	523	250	84
Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

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

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	1	6	0	0	0	0	3	0
Auxiliary Signal Groups								
Lead / Lag	Lead	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.12	0.19	0.19	0.00	0.16	0.21	0.21
Intersection LOS	D							
Intersection V/C	0.835							

EXISTING PLUS AMBIENT GROWTH PLUS PROJECT PLUS CUMULATIVE

Whittier Boulevard Business Park

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

Scenario 4 Existing Plus Ambient Growth Plus Project Plus Cumulative AM Peak Hour

Report File: C:\...\AMEAPC.pdf

1/25/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Whittier Blvd (NS) at Whittier Blvd Frontage Rd (EW)	Two-way stop	HCM 6th Edition	EB Left	0.252	80.4	F
3	Whittier Blvd (NS) at Mar Vista St (EW)	Signalized	ICU 1	NB Thru	0.663	-	B
4	Whittier Blvd (NS) at Pacific Pl (EW)	Signalized	ICU 1	NB Thru	0.473	-	A
5	Whittier Blvd (NS) at Washington Blvd (EW)	Signalized	ICU 1	WB Right	0.792	-	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 2: Whittier Blvd (NS) at Whittier Blvd Frontage Rd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	80.4
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.252

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	5	1294	1013	93	6	3
Base Volume Adjustment Factor	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
Growth Factor	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	113	123	42	10	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	1420	1146	136	16	3
Peak Hour Factor	0.8430	0.8430	0.8430	0.8430	0.8430	0.8430
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	421	340	40	5	1
Total Analysis Volume [veh/h]	6	1684	1359	161	19	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.01	0.00	0.25	0.01
d_M, Delay for Movement [s/veh]	11.77	0.00	0.00	0.00	80.36	12.83
Movement LOS	B	A	A	A	F	B
95th-Percentile Queue Length [veh/ln]	0.03	0.00	0.00	0.00	0.97	0.02
95th-Percentile Queue Length [ft/ln]	0.70	0.00	0.00	0.00	24.22	0.49
d_A, Approach Delay [s/veh]	0.04		0.00		69.70	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	0.51					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 3: Whittier Blvd (NS) at Mar Vista St (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.663

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	1	0	0	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	110.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00
Speed [mph]	45.00			45.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	880	35	191	734	0	0	0	0	184	0	351
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 Factor	1.00	1.01	1.01	1.01	1.01	1.00	1.01	1.01	1.01	1.01	1.00	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	113	3	1	122	0	0	0	0	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
Total Hourly Volume [veh/h]	0	1002	38	194	863	0	0	0	0	187	0	355
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	251	10	49	216	0	0	0	0	47	0	89
Total Analysis Volume [veh/h]	0	1002	38	194	863	0	0	0	0	187	0	355
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

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

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap
Signal group	0	2	0	1	6	0	0	8	0	7	0	4
Auxiliary Signal Groups												1,4
Lead / Lag	-	-	-	Lead	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.33	0.33	0.12	0.27	0.00	0.00	0.00	0.00	0.12	0.00	0.10
Intersection LOS	B											
Intersection V/C	0.663											

Intersection Level Of Service Report
Intersection 4: Whittier Blvd (NS) at Pacific Pl (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.473

Intersection Setup

Name	Whittier Blvd					
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Whittier Blvd					
Base Volume Input [veh/h]	21	840	708	209	78	11
Base Volume Adjustment Factor	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
Growth Factor	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	60	113	105	18	3	13
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	81	961	820	229	82	24
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	240	205	57	21	6
Total Analysis Volume [veh/h]	81	961	820	229	82	24
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

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

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	2	6	0	3	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.30	0.26	0.14	0.05	0.07
Intersection LOS	A					
Intersection V/C	0.473					

Intersection Level Of Service Report
Intersection 5: Whittier Blvd (NS) at Washington Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.792

Intersection Setup

Name	Santa Fe Springs Rd				Pickering Ave				Washington Blvd			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Left	Thru	Right	Left	Thru	Right	Right2	Left	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	1	0	0	0	0	0	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	195.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				45.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	Yes				Yes				No			

Volumes

Name	Santa Fe Springs Rd				Pickering Ave				Washington Blvd			
Base Volume Input [veh/h]	15	199	262	144	66	351	99	7	25	79	304	21
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	0.00	2.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	54	0	0	0	0	0	0	0	35	2	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	255	265	145	67	355	100	7	25	115	309	21
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	64	66	36	17	89	25	2	6	29	77	5
Total Analysis Volume [veh/h]	20	255	265	145	67	355	100	7	25	115	309	21
Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

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

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Split	Split	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	8	0	0	4	0	0	5	3	2	0
Auxiliary Signal Groups												
Lead / Lag	-	Lag	-	-	-	-	-	-	-	Lag	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.08	0.11	0.09	0.04	0.17	0.17	0.17	0.02	0.07	0.07	0.07
Intersection LOS	C											
Intersection V/C	0.792											

Intersection Setup

Name	Whittier Blvd				Whittier Blvd			
Approach	Westbound				Southeastbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	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
Speed [mph]	35.00				30.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				Yes			

Volumes

Name	Whittier Blvd				Whittier Blvd			
Base Volume Input [veh/h]	109	444	616	81	0	414	202	52
Base Volume Adjustment Factor	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	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.01	1.01	1.01	1.01	1.00	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	84	0	0	70	41	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	110	448	706	82	0	488	245	60
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	112	177	21	0	122	61	15
Total Analysis Volume [veh/h]	110	448	706	82	0	488	245	60
Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

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

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	1	6	0	0	0	0	3	0
Auxiliary Signal Groups								
Lead / Lag	Lead	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.14	0.25	0.25	0.00	0.15	0.19	0.19
Intersection LOS	C							
Intersection V/C	0.792							

Whittier Boulevard Business Park

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

Scenario 4 Existing Plus Ambient Growth Plus Project Plus Cumulative PM Peak Hour

Report File: C:\...\PMEAPC.pdf

1/25/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Whittier Blvd (NS) at Whittier Blvd Frontage Rd (EW)	Two-way stop	HCM 6th Edition	EB Left	1.023	399.1	F
3	Whittier Blvd (NS) at Mar Vista St (EW)	Signalized	ICU 1	NB Thru	0.601	-	B
4	Whittier Blvd (NS) at Pacific Pl (EW)	Signalized	ICU 1	SB Thru	0.629	-	B
5	Whittier Blvd (NS) at Washington Blvd (EW)	Signalized	ICU 1	SEB Thru	0.884	-	D

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

Intersection Level Of Service Report
Intersection 2: Whittier Blvd (NS) at Whittier Blvd Frontage Rd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	399.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	1 hour	Volume to Capacity (v/c):	1.023

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	6	1140	1056	44	26	6
Base Volume Adjustment Factor	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
Growth Factor	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	139	122	11	41	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	1290	1189	55	67	6
Peak Hour Factor	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	341	314	15	18	2
Total Analysis Volume [veh/h]	6	1362	1256	58	71	6
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.01	0.00	1.02	0.01
d_M, Delay for Movement [s/veh]	11.55	0.00	0.00	0.00	399.13	13.15
Movement LOS	B	A	A	A	F	B
95th-Percentile Queue Length [veh/ln]	0.03	0.00	0.00	0.00	10.40	0.04
95th-Percentile Queue Length [ft/ln]	0.82	0.00	0.00	0.00	260.10	1.02
d_A, Approach Delay [s/veh]	0.05		0.00		367.41	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	10.29					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 3: Whittier Blvd (NS) at Mar Vista St (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.601

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	1	0	0	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	110.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00
Speed [mph]	45.00			45.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	876	121	157	815	0	0	0	0	64	0	217
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 Factor	1.00	1.01	1.01	1.01	1.01	1.00	1.01	1.01	1.01	1.01	1.00	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	138	3	1	121	0	0	0	0	3	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]	0	1023	125	160	944	0	0	0	0	68	0	220
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	256	31	40	236	0	0	0	0	17	0	55
Total Analysis Volume [veh/h]	0	1023	125	160	944	0	0	0	0	68	0	220
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

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

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap
Signal group	0	2	0	1	6	0	0	8	0	7	0	4
Auxiliary Signal Groups												1,4
Lead / Lag	-	-	-	Lead	-	-	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.36	0.36	0.10	0.30	0.00	0.00	0.00	0.00	0.04	0.00	0.04
Intersection LOS	B											
Intersection V/C	0.601											

Intersection Level Of Service Report
Intersection 4: Whittier Blvd (NS) at Pacific Pl (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.629

Intersection Setup

Name	Whittier Blvd					
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Whittier Blvd					
Base Volume Input [veh/h]	19	741	820	85	220	46
Base Volume Adjustment Factor	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
Growth Factor	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	13	126	120	4	15	57
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	32	874	948	90	237	103
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	219	237	23	59	26
Total Analysis Volume [veh/h]	32	874	948	90	237	103
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

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

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	2	6	0	3	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.27	0.30	0.06	0.15	0.21
Intersection LOS	B					
Intersection V/C	0.629					

Intersection Level Of Service Report
Intersection 5: Whittier Blvd (NS) at Washington Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.884

Intersection Setup

Name	Santa Fe Springs Rd				Pickering Ave				Washington Blvd			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Left	Thru	Right	Left	Thru	Right	Right2	Left	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	1	0	0	0	0	0	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	195.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				45.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	Yes				Yes				Yes			

Volumes

Name	Santa Fe Springs Rd				Pickering Ave				Washington Blvd			
Base Volume Input [veh/h]	11	201	387	236	66	377	83	3	108	50	524	19
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	0.00	2.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	50	0	0	0	0	0	0	0	7	6	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]	14	253	391	238	67	381	84	3	109	58	535	19
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	63	98	60	17	95	21	1	27	15	134	5
Total Analysis Volume [veh/h]	14	253	391	238	67	381	84	3	109	58	535	19
Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

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

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Split	Split	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	8	0	0	4	0	0	5	3	2	0
Auxiliary Signal Groups												
Lead / Lag	-	Lag	-	-	-	-	-	-	-	Lag	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.08	0.14	0.15	0.04	0.17	0.17	0.17	0.07	0.04	0.12	0.12
Intersection LOS	D											
Intersection V/C	0.884											

Intersection Setup

Name	Whittier Blvd				Whittier Blvd			
Approach	Westbound				Southeastbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	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
Speed [mph]	35.00				30.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				Yes			

Volumes

Name	Whittier Blvd				Whittier Blvd			
Base Volume Input [veh/h]	95	376	510	81	0	505	235	52
Base Volume Adjustment Factor	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	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.01	1.01	1.01	1.01	1.00	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	82	0	0	92	53	32
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	96	380	597	82	0	602	290	85
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	95	149	21	0	151	73	21
Total Analysis Volume [veh/h]	96	380	597	82	0	602	290	85
Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

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

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	1	6	0	0	0	0	3	0
Auxiliary Signal Groups								
Lead / Lag	Lead	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.12	0.21	0.21	0.00	0.19	0.23	0.23
Intersection LOS	D							
Intersection V/C	0.884							

Whittier Boulevard Business Park

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

Scenario 5 Existing Plus Ambient Growth Plus Project Plus Cumulative AM Peak Hour - Alternative

Report File: C:\...\AMEAPC-A.pdf

1/25/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Whittier Blvd Frontage Rd (NS) at Mar Vista St (EW)	Two-way stop	HCM 6th Edition	WB Thru	0.122	10.4	B
2	Whittier Blvd (NS) at Whittier Blvd Frontage Rd (EW)	Two-way stop	HCM 6th Edition	EB Left	0.117	72.9	F
3	Whittier Blvd (NS) at Mar Vista St (EW)	Signalized	ICU 1	NB Thru	0.779	-	C
4	Whittier Blvd (NS) at Pacific Pl (EW)	Signalized	ICU 1	NB Thru	0.482	-	A
5	Whittier Blvd (NS) at Washington Blvd (EW)	Signalized	ICU 1	WB Right	0.827	-	D

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

Intersection Level Of Service Report

Intersection 1: Whittier Blvd Frontage Rd (NS) at Mar Vista St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	10.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.122

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	0	9	0	0	106	0	0	0	0	0	0	0
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 Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
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	1	4	0	0	14	6	0	94	21
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]	0	9	0	1	111	0	0	14	6	0	94	21
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	0	0	29	0	0	4	2	0	25	6
Total Analysis Volume [veh/h]	0	9	0	1	117	0	0	15	6	0	99	22
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	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.12	0.02
d_M, Delay for Movement [s/veh]	7.43	0.00	0.00	7.24	0.00	0.00	10.29	9.80	8.93	10.11	10.42	9.09
Movement LOS	A	A	A	A	A	A	B	A	A	B	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.08	0.08	0.50	0.50	0.50
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.05	0.05	0.05	1.89	1.89	1.89	12.39	12.39	12.39
d_A, Approach Delay [s/veh]	0.00			0.06			9.54			10.18		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	5.35											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 2: Whittier Blvd (NS) at Whittier Blvd Frontage Rd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	72.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.117

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	5	1294	1013	93	6	3
Base Volume Adjustment Factor	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
Growth Factor	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	121	157	4	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	1428	1180	98	7	3
Peak Hour Factor	0.8430	0.8430	0.8430	0.8430	0.8430	0.8430
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	423	350	29	2	1
Total Analysis Volume [veh/h]	6	1694	1400	116	8	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.01	0.00	0.12	0.01
d_M, Delay for Movement [s/veh]	11.74	0.00	0.00	0.00	72.94	13.04
Movement LOS	B	A	A	A	F	B
95th-Percentile Queue Length [veh/ln]	0.03	0.00	0.00	0.00	0.39	0.02
95th-Percentile Queue Length [ft/ln]	0.70	0.00	0.00	0.00	9.77	0.50
d_A, Approach Delay [s/veh]	0.04		0.00		54.97	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	0.22					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 3: Whittier Blvd (NS) at Mar Vista St (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.779

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	1	0	0	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	110.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00
Speed [mph]	45.00			45.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	880	35	191	734	0	0	0	0	184	0	351
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 Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	60	110	3	1	105	51	11	1	3	1	4	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]	60	999	38	194	846	51	11	1	3	187	4	355
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	250	10	49	212	13	3	0	1	47	1	89
Total Analysis Volume [veh/h]	60	999	38	194	846	51	11	1	3	187	4	355
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

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

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.32	0.32	0.12	0.28	0.28	0.01	0.01	0.01	0.12	0.22	0.22
Intersection LOS	C											
Intersection V/C	0.779											

Intersection Level Of Service Report
Intersection 4: Whittier Blvd (NS) at Pacific Pl (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.482

Intersection Setup

Name	Whittier Blvd					
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Whittier Blvd					
Base Volume Input [veh/h]	21	840	708	209	78	11
Base Volume Adjustment Factor	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
Growth Factor	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	173	108	1	0	10
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	21	1021	823	212	79	21
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	255	206	53	20	5
Total Analysis Volume [veh/h]	21	1021	823	212	79	21
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

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

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	2	6	0	3	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.32	0.26	0.13	0.05	0.06
Intersection LOS	A					
Intersection V/C	0.482					

Intersection Level Of Service Report
Intersection 5: Whittier Blvd (NS) at Washington Blvd (EW)

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

Intersection Setup

Name	Santa Fe Springs Rd				Pickering Ave				Washington Blvd			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2	Left2	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	1	0	0	0	0	0	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	195.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				45.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	Yes				Yes				No			

Volumes

Name	Santa Fe Springs Rd				Pickering Ave				Washington Blvd			
Base Volume Input [veh/h]	15	199	262	144	66	351	99	7	25	79	304	21
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	0.00	2.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	2.00
Growth Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	54	0	0	0	0	0	0	35	0	2	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	255	265	145	67	355	100	7	60	80	309	21
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	64	66	36	17	89	25	2	15	20	77	5
Total Analysis Volume [veh/h]	20	255	265	145	67	355	100	7	60	80	309	21
Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

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

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Split	Split	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	8	0	0	4	0	0	3	5	2	0
Auxiliary Signal Groups												
Lead / Lag	-	Lag	-	-	-	-	-	-	Lag	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.08	0.11	0.09	0.04	0.17	0.17	0.17	0.04	0.05	0.07	0.07
Intersection LOS	D											
Intersection V/C	0.827											

Intersection Setup

Name	Whittier Blvd				Whittier Blvd			
Approach	Westbound				Southeastbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	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
Speed [mph]	35.00				30.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				Yes			

Volumes

Name	Whittier Blvd				Whittier Blvd			
Base Volume Input [veh/h]	109	444	616	81	0	414	202	52
Base Volume Adjustment Factor	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	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.01	1.01	1.01	1.01	1.00	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	84	0	0	70	41	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	110	448	706	82	0	488	245	60
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	112	177	21	0	122	61	15
Total Analysis Volume [veh/h]	110	448	706	82	0	488	245	60
Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

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

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	1	6	0	0	0	0	3	0
Auxiliary Signal Groups								
Lead / Lag	Lead	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.14	0.25	0.25	0.00	0.15	0.19	0.19
Intersection LOS	D							
Intersection V/C	0.827							

Whittier Boulevard Business Park

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

Scenario 5 Existing Plus Ambient Growth Plus Project Plus Cumulative PM Peak Hour - Alternative

Report File: C:\...\PMEAPC-A.pdf

1/25/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Whittier Blvd Frontage Rd (NS) at Mar Vista St (EW)	Two-way stop	HCM 6th Edition	EB Thru	0.079	10.2	B
2	Whittier Blvd (NS) at Whittier Blvd Frontage Rd (EW)	Two-way stop	HCM 6th Edition	EB Left	0.476	111.6	F
3	Whittier Blvd (NS) at Mar Vista St (EW)	Signalized	ICU 1	NB Thru	0.722	-	C
4	Whittier Blvd (NS) at Pacific Pl (EW)	Signalized	ICU 1	SB Thru	0.608	-	B
5	Whittier Blvd (NS) at Washington Blvd (EW)	Signalized	ICU 1	SEB Thru	0.884	-	D

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

Intersection Level Of Service Report

Intersection 1: Whittier Blvd Frontage Rd (NS) at Mar Vista St (EW)

Control Type:	Two-way stop	Delay (sec / veh):	10.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.079

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	0	34	0	0	53	0	0	0	0	0	0	0
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 Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
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	17	0	0	61	26	0	21	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	34	0	4	71	0	0	61	26	0	21	5
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	9	0	1	19	0	0	16	7	0	6	1
Total Analysis Volume [veh/h]	0	36	0	4	75	0	0	64	27	0	22	5
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	0.00	0.00	0.00	0.00	0.08	0.03	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	7.35	0.00	0.00	7.29	0.00	0.00	9.87	10.15	9.14	10.01	9.79	8.61
Movement LOS	A	A	A	A	A	A	A	B	A	B	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.01	0.01	0.01	0.35	0.35	0.35	0.10	0.10	0.10
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.19	0.19	0.19	8.78	8.78	8.78	2.47	2.47	2.47
d_A, Approach Delay [s/veh]	0.00			0.39			9.85			9.56		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	5.11											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 2: Whittier Blvd (NS) at Whittier Blvd Frontage Rd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	111.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.476

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	6	1140	1056	44	26	6
Base Volume Adjustment Factor	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
Growth Factor	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	172	131	1	4	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	1323	1198	45	30	6
Peak Hour Factor	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	349	316	12	8	2
Total Analysis Volume [veh/h]	6	1397	1265	48	32	6
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.01	0.00	0.48	0.01
d_M, Delay for Movement [s/veh]	11.55	0.00	0.00	0.00	111.60	13.21
Movement LOS	B	A	A	A	F	B
95th-Percentile Queue Length [veh/ln]	0.03	0.00	0.00	0.00	2.38	0.04
95th-Percentile Queue Length [ft/ln]	0.82	0.00	0.00	0.00	59.62	1.03
d_A, Approach Delay [s/veh]	0.05		0.00		95.20	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	1.34					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 3: Whittier Blvd (NS) at Mar Vista St (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.722

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	1	0	0	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	110.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00
Speed [mph]	45.00			45.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	876	121	157	815	0	0	0	0	64	0	217
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 Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	13	124	3	1	118	12	47	4	14	3	1	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]	13	1009	125	160	941	12	47	4	14	68	1	220
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	252	31	40	235	3	12	1	4	17	0	55
Total Analysis Volume [veh/h]	13	1009	125	160	941	12	47	4	14	68	1	220
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

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

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.35	0.35	0.10	0.30	0.30	0.03	0.04	0.04	0.04	0.14	0.14
Intersection LOS	C											
Intersection V/C	0.722											

Intersection Level Of Service Report
Intersection 4: Whittier Blvd (NS) at Pacific Pl (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.608

Intersection Setup

Name	Whittier Blvd					
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Whittier Blvd					
Base Volume Input [veh/h]	19	741	820	85	220	46
Base Volume Adjustment Factor	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
Growth Factor	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	139	134	1	1	43
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	19	887	962	87	223	89
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	222	241	22	56	22
Total Analysis Volume [veh/h]	19	887	962	87	223	89
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

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

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	2	6	0	3	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.28	0.30	0.05	0.14	0.20
Intersection LOS	B					
Intersection V/C	0.608					

Intersection Level Of Service Report
Intersection 5: Whittier Blvd (NS) at Washington Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.884

Intersection Setup

Name	Santa Fe Springs Rd				Pickering Ave				Washington Blvd			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left	Left	Thru	Right	Left	Thru	Right	Right2	Left	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	1	0	0	0	0	0	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	195.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				45.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	Yes				Yes				Yes			

Volumes

Name	Santa Fe Springs Rd				Pickering Ave				Washington Blvd			
Base Volume Input [veh/h]	11	201	387	236	66	377	83	3	108	50	524	19
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	0.00	2.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	50	0	0	0	0	0	0	0	7	6	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]	14	253	391	238	67	381	84	3	109	58	535	19
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	63	98	60	17	95	21	1	27	15	134	5
Total Analysis Volume [veh/h]	14	253	391	238	67	381	84	3	109	58	535	19
Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

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

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Split	Split	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	8	0	0	4	0	0	5	3	2	0
Auxiliary Signal Groups												
Lead / Lag	-	Lag	-	-	-	-	-	-	-	Lag	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.08	0.14	0.15	0.04	0.17	0.17	0.17	0.07	0.04	0.12	0.12
Intersection LOS	D											
Intersection V/C	0.884											

Intersection Setup

Name	Whittier Blvd				Whittier Blvd			
Approach	Westbound				Southeastbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	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
Speed [mph]	35.00				30.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				Yes			

Volumes

Name	Whittier Blvd				Whittier Blvd			
Base Volume Input [veh/h]	95	376	510	81	0	505	235	52
Base Volume Adjustment Factor	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	0.00	0.00	2.00	2.00	2.00
Growth Factor	1.01	1.01	1.01	1.01	1.00	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	82	0	0	92	53	32
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	96	380	597	82	0	602	290	85
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	95	149	21	0	151	73	21
Total Analysis Volume [veh/h]	96	380	597	82	0	602	290	85
Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

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

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	1	6	0	0	0	0	3	0
Auxiliary Signal Groups								
Lead / Lag	Lead	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.12	0.21	0.21	0.00	0.19	0.23	0.23
Intersection LOS	D							
Intersection V/C	0.884							

APPENDIX E

TRAFFIC SIGNAL WARRANT WORKSHEETS

PEAK HOUR VOLUME WARRANT
(Rural Areas)

Existing Plus Ambient Growth Plus Project

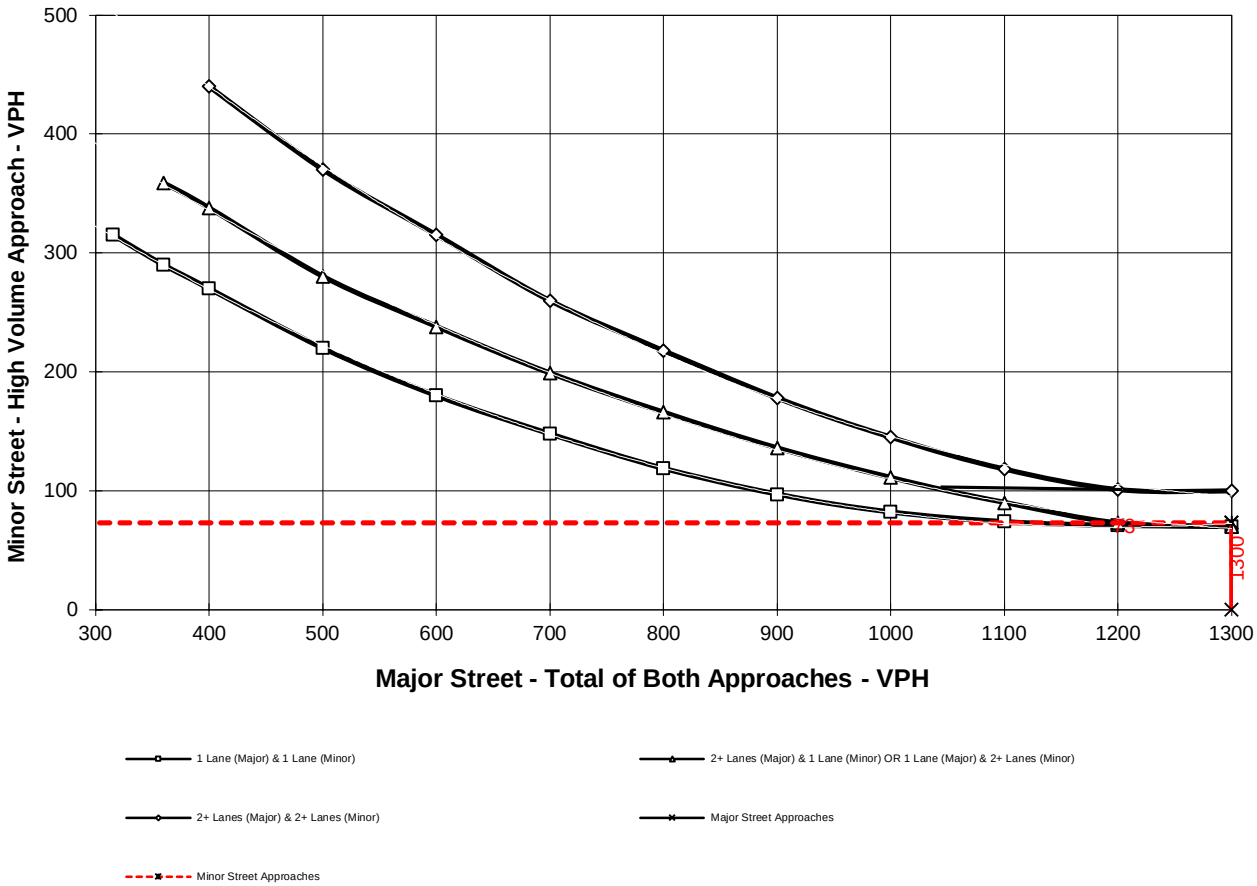
Major Street Name = **Whittier Boulevard** Total of Both Approaches (VPH) = **2296**

Number of Approach Lanes Major Street = **2**

Minor Street Name = **Whittier Boulevard Frontage Road** High Volume Approach (VPH) = **73**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



* NOTE:

Warrant includes adjustments to right turning movements from the minor approach consistent with CAMUTCD procedures.

** NOTE:

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

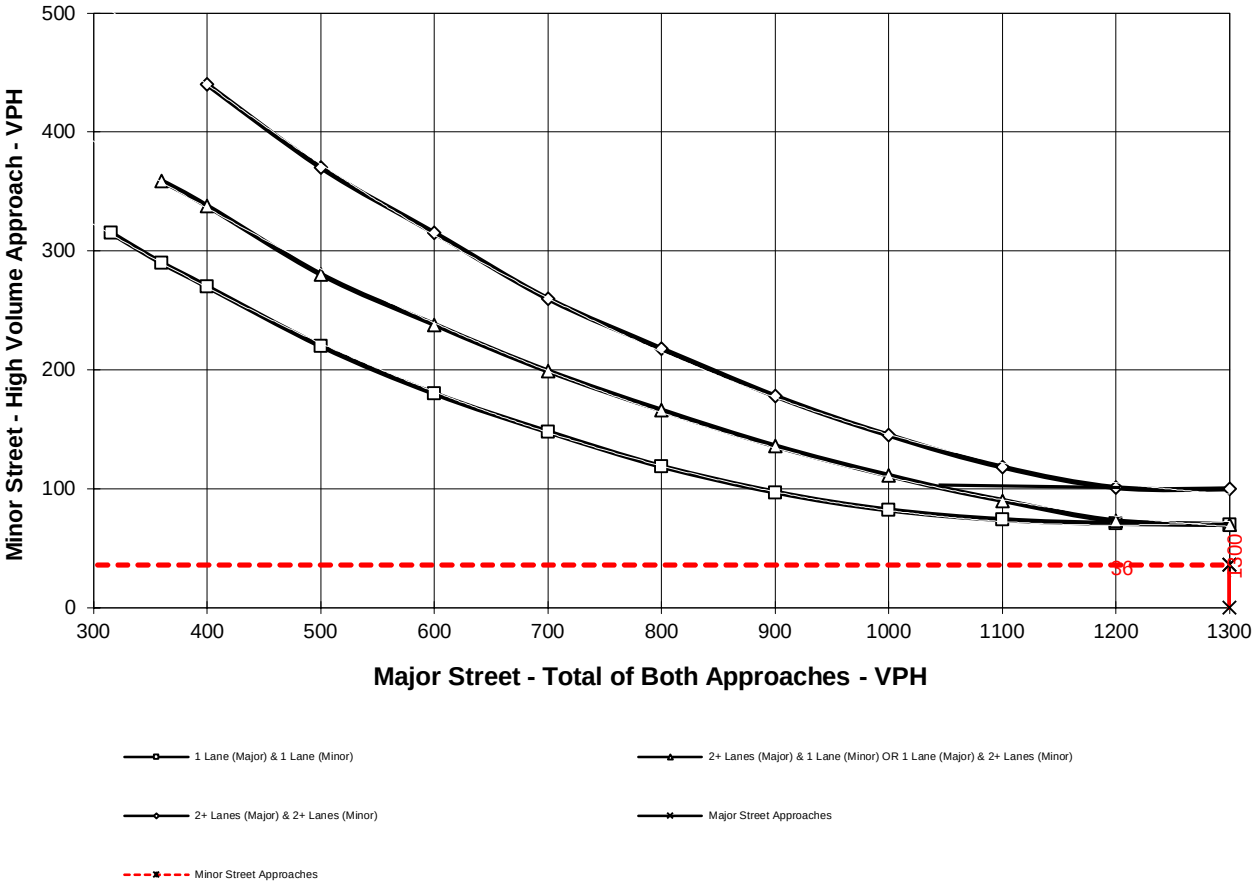
PEAK HOUR VOLUME WARRANT
(Rural Areas)

Existing Plus Ambient Growth Plus Project - Alternative

Major Street Name = **Whittier Boulevard** Total of Both Approaches (VPH) = **2328**
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Whittier Boulevard Frontage Road** High Volume Approach (VPH) = **36**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



* NOTE:

Warrant includes adjustments to right turning movements from the minor approach consistent with CAMUTCD procedures.

** NOTE:

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

PEAK HOUR VOLUME WARRANT
(Rural Areas)

Existing Plus Ambient Growth Plus Project Plus Cumulative

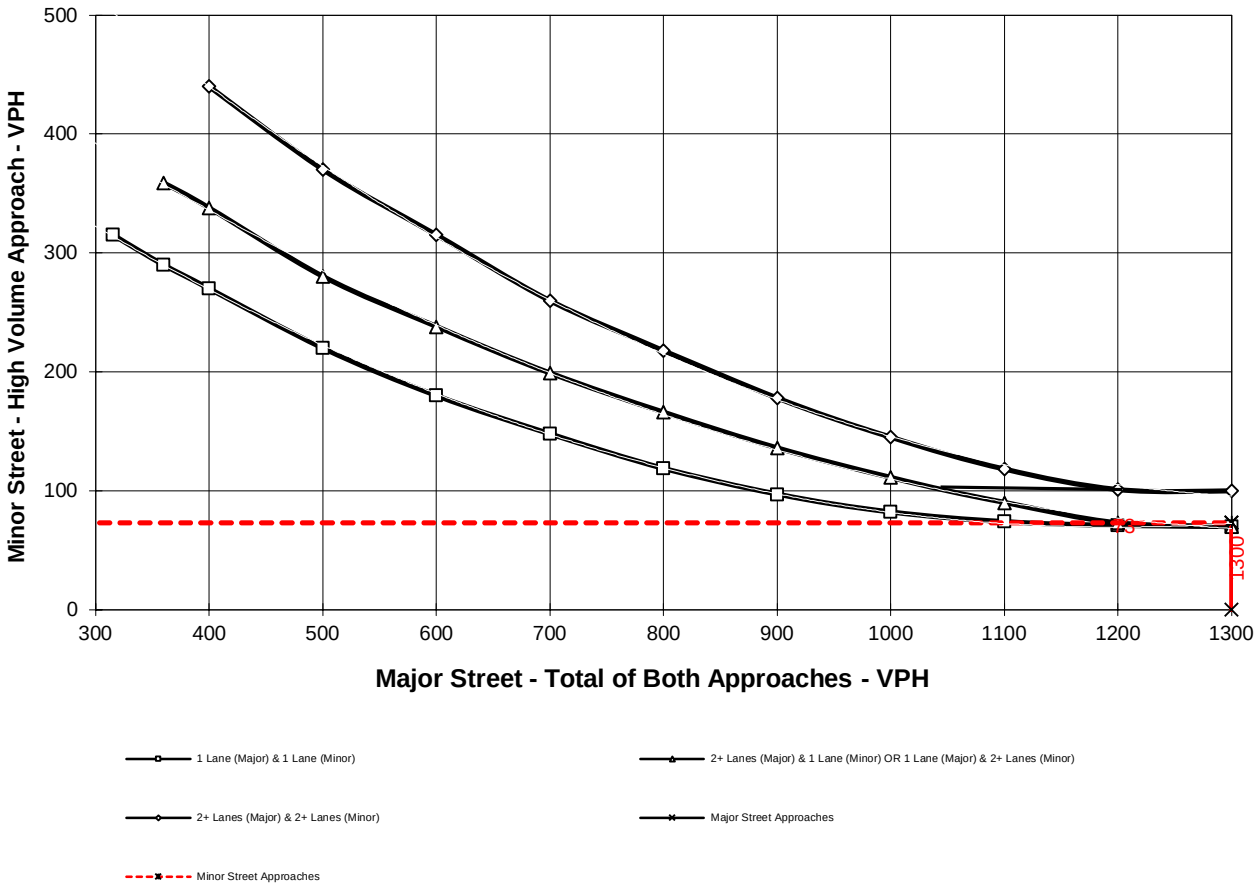
Major Street Name = **Whittier Boulevard** Total of Both Approaches (VPH) = **2540**

Number of Approach Lanes Major Street = **2**

Minor Street Name = **Whittier Boulevard Frontage Road** High Volume Approach (VPH) = **73**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



* NOTE:

Warrant includes adjustments to right turning movements from the minor approach consistent with CAMUTCD procedures.

** NOTE:

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

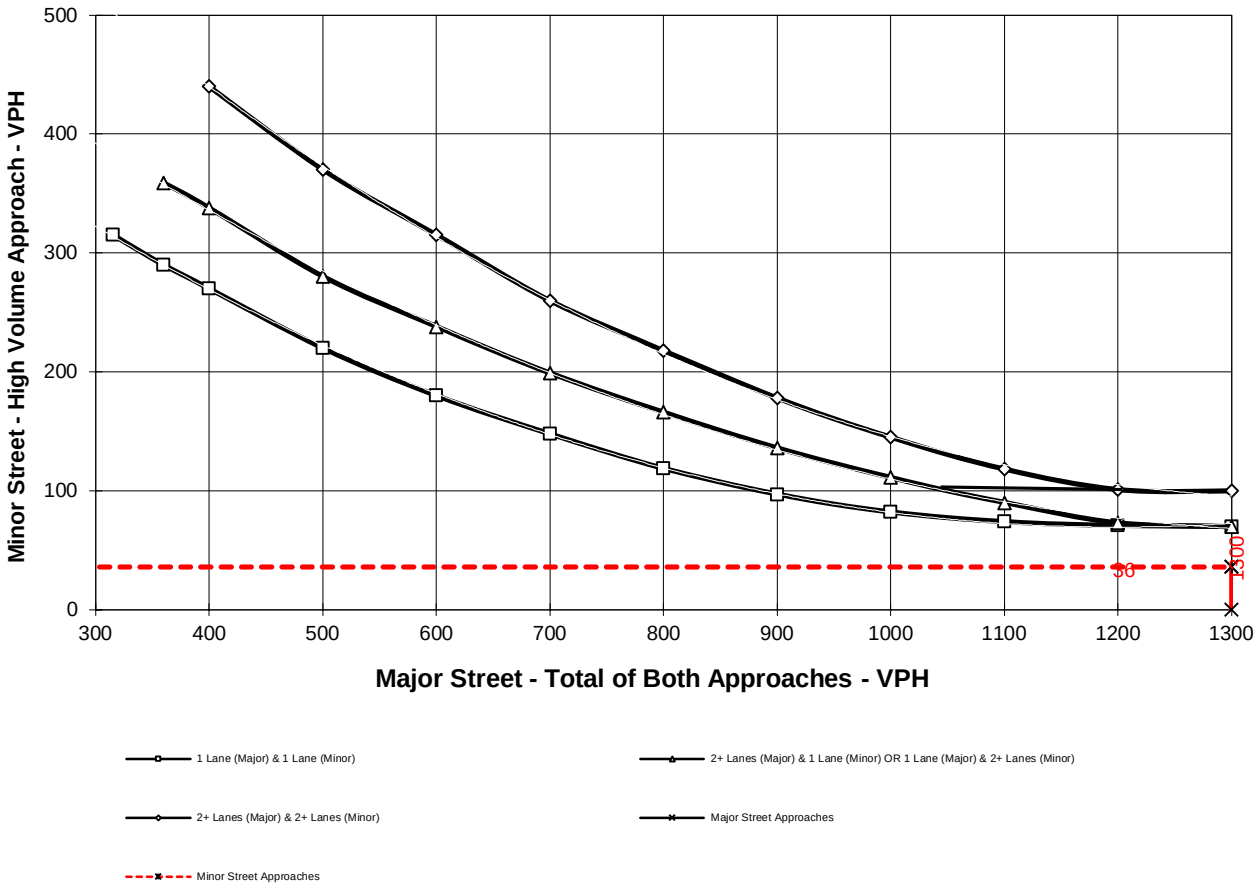
PEAK HOUR VOLUME WARRANT
(Rural Areas)

Existing Plus Ambient Growth Plus Project Plus Cumulative - Alternative

Major Street Name = **Whittier Boulevard** Total of Both Approaches (VPH) = **2572**
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Whittier Boulevard Frontage Road** High Volume Approach (VPH) = **36**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



* NOTE:

Warrant includes adjustments to right turning movements from the minor approach consistent with CAMUTCD procedures.

** NOTE:

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

GANDDINI GROUP INC.

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