URBAN | CROSSROADS

ORCHARD LOGISTICS CENTER (PW2022-0874)

TRAFFIC ANALYSIS

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Reference Number	Agency	Date
14410-14 TA Report	City of Beaumont	October 18, 2023

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
CAMUTCD	California Manual on Uniform Traffic Control Devices
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CMP	Congestion Management Program
DIF	Development Impact Fee
EAP	Existing Plus Ambient Growth Plus Project
HCM	Highway Capacity Manual
ITE	Institute of Transportation Engineers
LOS	Level of Service
NP	No/Without Project
OPR	Office of Planning and Research
PHF	Peak Hour Factor
Project	Orchard Logistics Center
RCTC	Riverside County Transportation Commission
RIVCOM	Riverside County Transportation Model
RTA	Riverside Transit Authority
sf	Square Feet
SHS	State Highway System
TA	Traffic Analysis
TAZ	Traffic Analysis Zone
TUMF	Transportation Uniform Mitigation Fee
WP	With Project
WRCOG	Western Riverside Council of Governments
v/c	Volume to Capacity
VMT	Vehicle Miles Traveled
vphgpl	Vehicles per Hour Green per Lane

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1 INTRODUCTION

This report presents the results of the Traffic Analysis (TA) for Orchard Logistics Center development ("Project"), which is located north of Prosperity Way between Distribution Way and Nicholas Road in the City of Beaumont, as shown on Exhibit 1-1. The purpose of this TA is to evaluate the potential circulation system deficiencies that may result from the development of the proposed Project, and where necessary recommend improvements to achieve acceptable operations consistent with the City's General Plan level of service goals and policies. This TA has been prepared in accordance with the City of Beaumont's adopted Western Riverside Council of Governments (WRCOG) Recommended Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment (adopted on June 16, 2020) and through consultation with City of Beaumont staff during the scoping process. (1) The Project traffic study scoping agreement is provided in Appendix 1.1 of this TA, which has been reviewed and approved by the City of Beaumont.

1.1 SUMMARY OF FINDINGS

The Project is to construct the following improvements as design features in conjunction with development of the site:

- Project to install stop controls for all egress traffic from each Project driveway (Driveway 1 at Distribution Way and Driveway 2 at Nicholas Road).

Additional details and intersection lane geometrics are provided in Section 1.6 *Recommendations* of this report. The Project Applicant's responsibility for the Project's contributions towards deficient off-site intersections is fulfilled through payment into pre-existing fee programs (if applicable) that would be assigned to the future construction of regional roadway infrastructure improvements and/or fair share contribution. The Project Applicant would be required to pay requisite fees consistent with the City' requirements (see Section 8 *Local and Regional Funding Mechanisms*).

EXHIBIT 1-1: LOCATION MAP

1.2 PROJECT OVERVIEW

The Project includes the development of 610,000 square foot warehouse use within a single building. For the purposes of the traffic assessment, the building has conservatively been evaluated assuming 10% high-cube cold storage warehousing use (61,000 square feet) and 90% high-cube fulfillment center warehousing use (549,000 square feet). A preliminary site plan of which the traffic study will be based on is shown on Exhibit 1-2. The Project is anticipated to be constructed in one phase by the year 2025. Project traffic will have access to Distribution Way, Nicholas Road, and Prosperity Way.

In order to develop the traffic characteristics of the proposed project, trip-generation statistics published in the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Edition, 2021) and the High Cube Warehouse Trip Generation Study (WSP, January 2019) for the proposed high-cube fulfillment center land use. (2) (3) The Project is anticipated to generate a net total of 1,304 two-way trips per day with 73 AM peak hour trips and 97 PM peak hour trips (actual vehicles). The assumptions and methods used to estimate the Project's trip generation characteristics are discussed in greater detail in Section 4.1 *Project Trip Generation* of this report.

1.3 ANALYSIS SCENARIOS

For the purposes of this traffic study, potential deficiencies to traffic and circulation have been assessed for each of the following conditions:

- Existing (2022) Conditions
- Existing plus Ambient Growth plus Project (EAP) (2025) Conditions
- Opening Year (2025) Without Project
- Opening Year (2025) With Project
- Horizon Year (2045) Without Project
- Horizon Year (2045) With Project

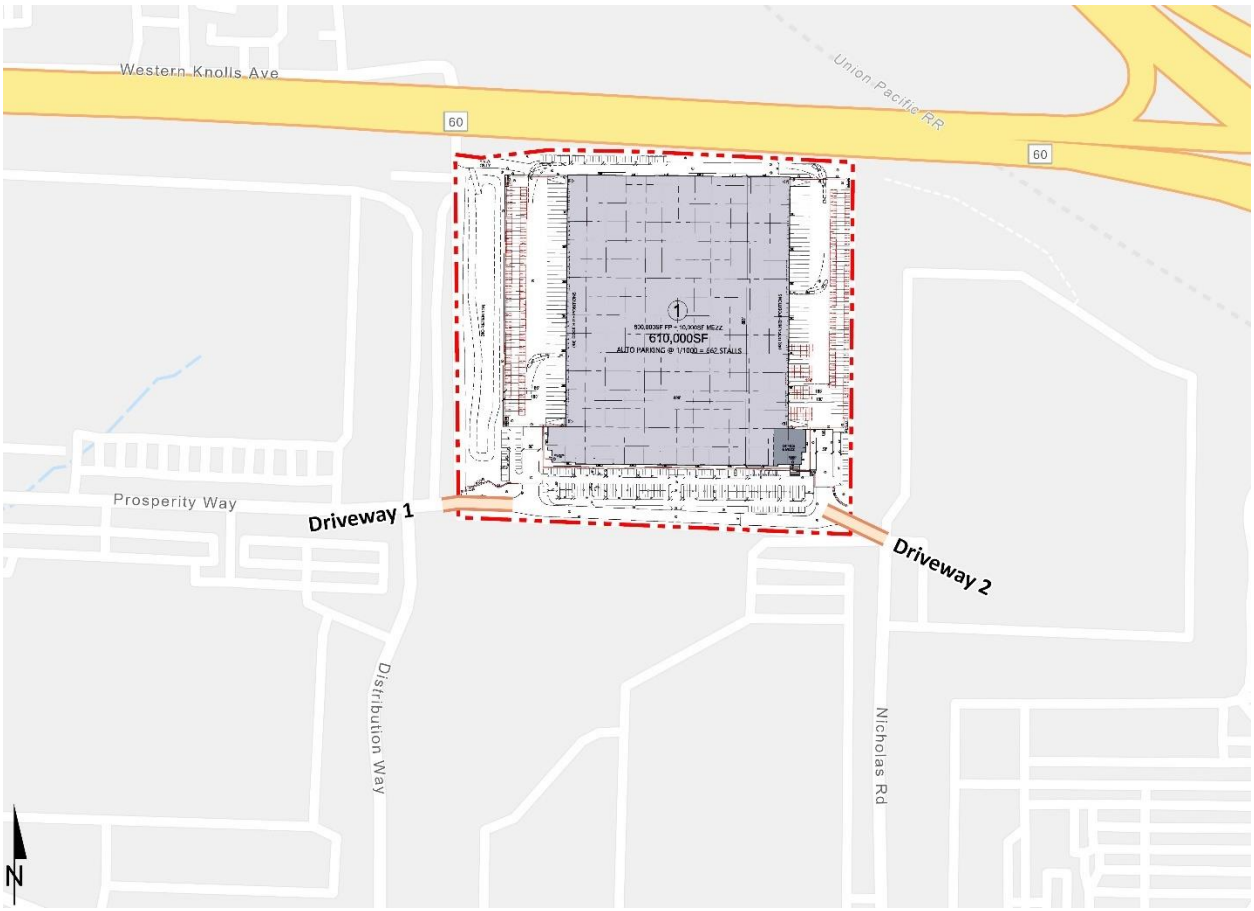
1.3.1 EXISTING (2022) CONDITIONS

Information for Existing (2022) conditions is disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared. For a detailed discussion on the existing traffic counts, see Section 3.7 *Existing Traffic Counts*.

1.3.2 EAP (2025) CONDITIONS

The EAP (2025) conditions analysis determines the potential circulation system deficiencies based on a comparison of the EAP traffic conditions to Existing conditions. The roadway network is similar to Existing conditions except for new connections to be constructed by the Project. To account for background traffic growth, an ambient growth factor from Existing (2022) conditions of 6.12% (2 percent per year, compounded over 3 years) is included for EAP (2025) traffic conditions plus the addition of Project traffic. The 2% per year ambient growth rate is consistent with other traffic studies for projects within the City and is consistent with the ambient growth rate used by the County. The EAP analysis is intended to identify "Opening Year" deficiencies associated with the development of the proposed Project based on the expected background growth within the study area.

EXHIBIT 1-2: PRELIMINARY SITE PLAN



1.3.3 OPENING YEAR (2025) CONDITIONS

The Opening Year (2025) conditions analysis determines the potential near-term circulation system deficiencies. To account for background traffic growth, traffic associated with other known development projects in conjunction with an ambient growth from Existing (2022) conditions of 6.12% is included for Opening Year (2025) traffic conditions. A list of development projects was compiled from information provided by the City of Beaumont, other near-by agencies, and is consistent with other recent studies in the study area.

1.3.4 HORIZON YEAR (2045) CONDITIONS

Traffic projections for Horizon Year (2045) conditions were derived from the latest Riverside County Transportation Analysis Model (RIVCOM) using accepted procedures for model forecast refinement and smoothing. The Horizon Year conditions analysis will be utilized to determine if improvements funded through regional transportation mitigation fee programs, such as the Transportation Uniform Mitigation Fee (TUMF) program or City of Beaumont Development Impact Fee (DIF) programs, can accommodate the long-range traffic at the target Level of Service (LOS) identified in the City of Beaumont (lead agency) General Plan. (4) Each of these regional transportation fee programs are discussed in more detail in Section 8 *Local and Regional Funding Mechanisms*.

1.4 STUDY AREA

To ensure that this TA satisfies the City of Beaumont's traffic study requirements, Urban Crossroads, Inc. prepared a Project traffic study scoping package for review by City of Beaumont staff prior to the preparation of this report. This agreement provides an outline of the Project study area, trip generation, trip distribution, and analysis methodology. The scoping agreement approved by the City is included in Appendix 1.1 of this TA.

The 6 study area intersections shown on Exhibit 1-3 and listed in Table 1-1 were selected for evaluation in this TA based on consultation with City of Beaumont staff. At a minimum, the study area includes intersections where the Project is anticipated to contribute 50 or more peak hour trips per the City's Guidelines. (1) The "50 peak hour trip" criterion represents a minimum number of trips at which a typical intersection would have the potential to be affected by a given development proposal. The 50 peak hour trip criterion is a traffic engineering rule of thumb that is accepted and used within many agencies throughout Southern California, including the City of Beaumont, for the purposes of estimating a potential area of influence (i.e., study area).

The intent of a Congestion Management Program (CMP) is to more directly link land use, transportation, and air quality, thereby prompting reasonable growth management programs that will effectively utilize new transportation funds, alleviate traffic congestion and related deficiencies, and improve air quality. The County of Riverside CMP became effective with the passage of Proposition 111 in 1990 and most recently updated in 2019 as part of the Riverside County Long Range Transportation Study. The Riverside County Transportation Commission (RCTC) adopted the 2019 CMP for the County of Riverside in December 2019. (5) There are no study area intersections that are identified as CMP intersections.

EXHIBIT 1-3: STUDY AREA

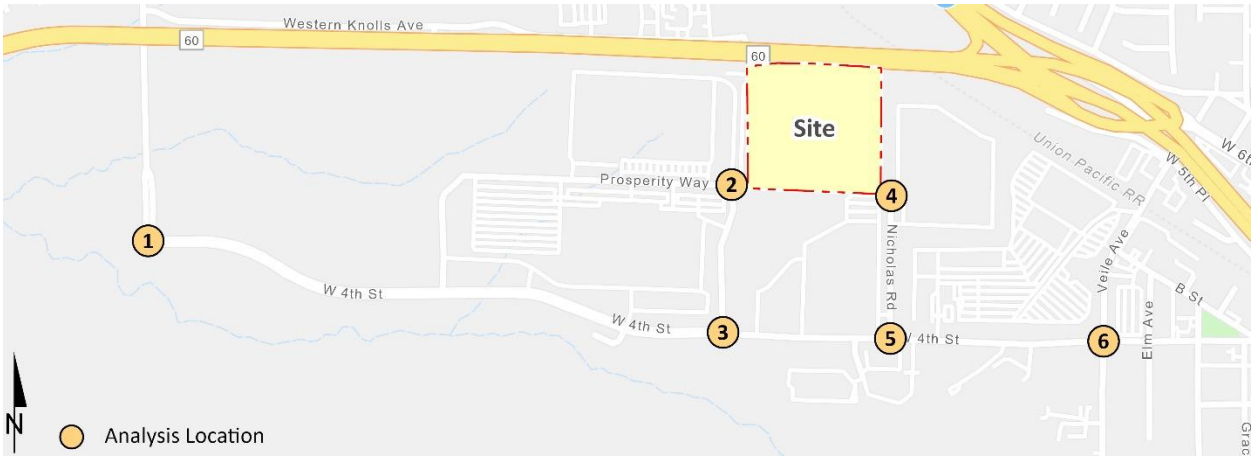


TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS

#	Intersections	Jursidiction	CMP?
1	Potrero Bl. & 4th St.	Beaumont	No
2	Distribution Wy. & Prosperity Wy./Driveway 1	Beaumont	No
3	Distribution Wy. & 4th St.	Beaumont	No
4	Nicholas Rd. & Driveway 2	Beaumont	No
5	Nicholas Rd. & 4th St.	Beaumont	No
6	Veile Av. & 4th St.	Beaumont	No

1.5 DEFICIENCIES

This section provides a summary of deficiencies by analysis scenario. Section 2 *Methodologies* provides information on the methodologies used in the analysis and Section 5 *EAP (2025) Traffic Conditions*, Section 6 *Opening Year (2025) Traffic Conditions*, and Section 7 *Horizon Year (2045) Traffic Conditions* include the detailed analysis. A summary of level of service (LOS) results for all analysis scenarios is presented in Table 1-2.

TABLE 1-2: SUMMARY OF LOS

		Existing		EAP (2025)		2025 Without Project		2025 With Project		2045 Without Project		2045 With Project	
#	Intersection	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	Potrero Bl. & 4th St.	A - D	A - D	A - D	A - D	A - D	F	A - D	F	F	F	F	F
2	Distribution Wy. & Prosperity Wy./Dwy 1	A - D	F	A - D	F	A - D	F	A - D	F	E	F	E	F
3	Distribution Wy. & 4th St.	A - D	A - D	A - D	A - D	A - D	A - D	A - D	A - D	A - D	A - D	A - D	A - D
4	Nicholas Rd. & Dwy 2	A - D	A - D	A - D	A - D	A - D	A - D	A - D	A - D	A - D	A - D	A - D	A - D
5	Nicholas Rd. & 4th St.	A - D	A - D	A - D	A - D	A - D	A - D	A - D	E	A - D	A - D	E	A - D
6	Veile Av. & 4th St.	A - D	A - D	A - D	A - D	A - D	A - D	A - D	A - D	F	E	F	E

A - D = A - D E = E F = F

1.5.1 EXISTING (2022) CONDITIONS

The study area intersections are currently operating at an acceptable LOS during the peak hours, with the exception of the following intersection:

- Distribution Wy. & Prosperity Wy. /Driveway 1 (#2) – LOS F PM peak hour only

1.5.2 EAP (2025) CONDITIONS

There are no additional study area intersections anticipated to operate at an unacceptable LOS traffic under EAP (2025) traffic conditions, in addition to the location identified as deficient for Existing traffic conditions.

1.5.3 OPENING YEAR (2025) CONDITIONS

The following study area intersections are anticipated to operate at an unacceptable LOS under Opening Year (2025) Without Project traffic conditions:

- Potrero Bl. & 4th St. (#1) – LOS F PM peak hour only
- Distribution Wy. & Prosperity Wy. /Driveway 1 (#2) – LOS F PM peak hour only

With the addition of Project traffic, the following additional study area intersection is anticipated to operate an unacceptable LOS with the addition of Project traffic:

- Nicholas Rd. & 4th St. (#5) – LOS E PM peak hour only

1.5.4 HORIZON YEAR (2045) CONDITIONS

The following study area intersections are anticipated to operate at an unacceptable LOS under Horizon Year (2045) Without Project traffic conditions:

- Potrero Bl. & 4th St. (#1) – LOS F AM and PM peak hours
- Distribution Wy. & Prosperity Wy. /Driveway 1 (#2) – LOS E AM peak hour; F PM peak hour
- Veile Av. & 4th St. (#6) – LOS F AM peak hour; LOS E PM peak hour

Some of the intersection operations are anticipated to improve from the Opening Year Conditions (2025) as the future Potrero Boulevard interchange at the SR-60 Freeway is proposed to be in place and would likely result in reductions to through traffic along 4th Street. The following study area intersection is anticipated to operate at an unacceptable LOS with the addition of Project traffic in addition to the locations previously identified under Horizon Year (2045) Without Project traffic conditions:

- Nicholas Rd. & 4th St. (#5) – LOS E AM peak hour only

1.6 RECOMMENDATIONS

1.6.1 SITE ADJACENT AND SITE ACCESS RECOMMENDATIONS

The following recommendations are based on the minimum improvements needed to accommodate site access and maintain acceptable peak hour operations for the proposed Project. The site adjacent recommendations are shown on Exhibit 1-4. The site adjacent queuing analysis worksheets are provided in Appendix 1.2. No site adjacent queues are anticipated with the proposed improvements.

Recommendation 1 – Distribution Wy. & Prosperity Wy. /Driveway 1 (#2) – The following improvements are necessary to accommodate site access:

- Project to install a stop control on the westbound approach (egress Project traffic) to implement an all-way stop-controlled intersection. Project to accommodate one egress and one ingress lane on the driveway to facilitate site access (two lanes).

Recommendation 2 – Nicholas Rd. & Driveway 2 (#4) – The following improvements are necessary to accommodate site access:

- Project to install a stop control on the eastbound approach (egress Project traffic) to implement an all-way stop-controlled intersection. Project to accommodate one egress and one ingress lane on the driveway to facilitate site access (two lanes).

On-site traffic signing and striping should be implemented agreeable with the provisions of the California Manual on Uniform Traffic Control Devices (CA MUTCD) and in conjunction with detailed construction plans for the Project site.

Sight distance at each project access point should be reviewed with respect to standard Caltrans and City of Beaumont sight distance standards at the time of preparation of final grading, landscape, and street improvement plans.

1.6.2 OFF-SITE RECOMMENDATIONS

The recommended improvements needed to address the deficiencies are summarized in Table 1-3. For those improvements listed in Table 1-3 and not constructed as part of the Project, the Project Applicant's responsibility for the Project's contributions towards deficient intersections is fulfilled through payment of fees or fair share that would be assigned to construction of the identified recommended improvements.

1.7 QUEUING ANALYSIS

The traffic modeling and signal timing optimization software package SimTraffic has been utilized to assess the queues. SimTraffic is designed to model networks of signalized and unsignalized intersections, with the primary purpose of checking and fine-tuning signal operations. SimTraffic uses the input parameters from Synchro to generate random simulations. These random simulations generated by SimTraffic have been utilized to determine the 95th percentile queue lengths observed for each applicable turn lane. A SimTraffic simulation has been recorded up to 5 times, during the weekday AM and weekday PM peak hours, and has been seeded for 15-minute periods with 60-minute recording intervals. The results of the queuing analysis worksheets for the weekday AM and PM peak hours are provided in Appendix 1.2 of this report for Horizon Year (2045) traffic conditions. These results are summarized on Table 1-4.

EXHIBIT 1-4: SITE ACCESS RECOMMENDATIONS

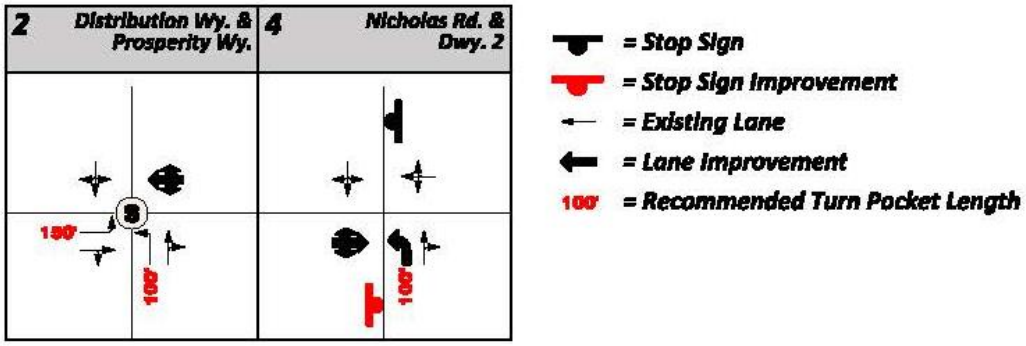


TABLE 1-3: SUMMARY OF IMPROVEMENTS

#	Intersection Location	Jurisdiction	EAP (2025)	2025 With Project	2045 With Project	Improvements in City DIF, County TUMF?[1]	Project Responsibility[2]	Project Fair Share %[3]
1	Potrero Bl. & 4th St.	County of Riverside	None	Add 2nd EB left turn lane[4]	Same	No	Fair Share	0.9%
					Add WB free-right turn lane[6]	No	Fair Share	
					Add NB left turn lane[6]	No	Fair Share	
					Add 3 NB through lanes[6]	No	Fair Share	
					Add NB right turn lane[6]	No	Fair Share	
					Add 2 SB through lanes[6]	Yes	TUMF	
					Add WB left turn lane[6]	No	Fair Share	
					Add 3rd SB left turn lane	No	Fair Share	
					Add SB free-right turn lane	No	Fair Share	
					Add 3rd EB left turn lane	No	Fair Share	
2	Distribution Wy. & Prosperity Wy./Dwy 1	Beaumont	Install a Traffic Signal	Not Applicable[5]	Same	No	Fair Share	42.5%
5	Nicholas Rd. & 4th St.	Beaumont	None	Install a Traffic Signal	Same	No	Fair Share	5.6%

[1] Improvements included in TUMF Nexus, or City of Beaumont DIF fee programs.

[2] Identifies the Project's responsibility to construct an improvement or contribute fair share towards the implementation of the improvements shown.

[3] Program improvements constructed by project may be eligible for fee credit, at discretion of City. See Table 8-1 for fair share calculations.

[4] To be constructed by other development (as it is needed for their site access). However, if the other development is not constructed at the time this Project is constructed, then this Project would be responsible to construct the improvement identified under 2025 With Project

[5] The proposed Project is not anticipated to contribute any trips or a low number of trips during the peak hours for this scenario, thus not requiring any intersection improvements. Denoted as not applicable.

[6] To be constructed by other development (as it is needed for their site access).

TABLE 1-4: PEAK HOUR QUEUING SUMMARY

#	Intersection	Movement	Available Stacking Distance (Feet)	Horizon Year (2040) With Project 95th Percentile Queue (Feet) AM Peak Hour	PM Peak Hour	Acceptable? [1] AM	PM
2	Distribution Wy. & Properity Wy./Dwy 1	NBT/R	1,270	203	191	Yes	Yes
		WBL/T/R	100	31	53	Yes	Yes
4	Nicholas Rd. & Dwy. 2	EBL/T/R	100	31	45	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 25 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

2 METHODOLOGIES

This section of the report presents the methodologies used to perform the traffic analyses summarized in this report. The methodologies described are consistent with City of Beaumont's Guidelines. (1)

2.1 LEVEL OF SERVICE

Traffic operations of roadway facilities are described using the term "Level of Service" (LOS). LOS is a qualitative description of traffic flow based on several factors, such as speed, travel time, delay, and freedom to maneuver. Six levels are typically defined ranging from LOS A, representing completely free-flow conditions, to LOS F, representing breakdown in flow resulting in stop-and-go conditions. LOS E represents operations at or near capacity, an unstable level where vehicles are operating with the minimum spacing for maintaining uniform flow.

2.2 INTERSECTION CAPACITY ANALYSIS

The definitions of LOS for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control. The LOS is typically dependent on the quality of traffic flow at the intersections along a roadway. The 6th Edition Highway Capacity Manual (HCM) methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. (6) The HCM uses different procedures depending on the type of intersection control.

2.2.1 SIGNALIZED INTERSECTIONS

The City of Beaumont requires signalized intersection operations analysis based on the methodology described in the HCM. (6) Intersection LOS operations are based on an intersection's average control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections LOS is related to the average control delay per vehicle and is correlated to a LOS designation as described on Table 2-1.

The traffic modeling and signal timing optimization software package Synchro (Version 11) has been utilized to analyze signalized intersections. Synchro is a macroscopic traffic software program that is based on the signalized intersection capacity analysis as specified in the HCM. Macroscopic level models represent traffic in terms of aggregate measures for each movement at the study intersections. Equations are used to determine measures of effectiveness such as delay and queue length. The level of service and capacity analysis performed by Synchro takes into consideration optimization and coordination of signalized intersections within a network.

TABLE 2-1: SIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0[1]
Operations with very low delay occurring with favorable progression and/or short cycle length.	0 to 10.00	A
Operations with low delay occurring with good progression and/or short cycle lengths.	10.01 to 20.00	B
Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.01 to 35.00	C
Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.01 to 55.00	D
Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.01 to 80.00	E
Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	80.01 and up	F

Source: HCM, 6th Edition

[1] If V/C is greater than 1.0 then LOS is F per HCM.

A saturation flow rate of 1900 has been utilized for all study area intersections located within the study area. The peak hour traffic volumes have been adjusted using a peak hour factor (PHF) to reflect peak 15-minute volumes. Customary practice for LOS analysis is to use a peak 15-minute rate of flow. However, flow rates are typically expressed in vehicles per hour. The PHF is the relationship between the peak 15-minute flow rate and the full hourly volume (e.g., PHF = [Hourly Volume] / [4 x Peak 15-minute Flow Rate]). The use of a 15-minute PHF produces a more detailed analysis as compared to analyzing vehicles per hour. Existing PHFs have been used for all analysis scenarios. Per the HCM, PHF values over 0.95 often are indicative of high traffic volumes with capacity constraints on peak hour flows while lower PHF values are indicative of greater variability of flow during the peak hour. (6)

2.2.2 UNSIGNALIZED INTERSECTIONS

The City of Beaumont requires the operations of unsignalized intersections be evaluated using the methodology described in the HCM. (6) The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 2-2). At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane. Delay for the intersection is reported for the worst individual movement at a two-way stop-controlled intersection. For all-way stop controlled intersections, LOS is computed for the intersection as a whole (average delay).

TABLE 2-2: UNSIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0[1]
Little or no delays.	0 to 10.00	A
Short traffic delays.	10.01 to 15.00	B
Average traffic delays.	15.01 to 25.00	C
Long traffic delays.	25.01 to 35.00	D
Very long traffic delays.	35.01 to 50.00	E
Extreme traffic delays with intersection capacity exceeded.	> 50.00	F

Source: HCM, 6th Edition

[1] If V/C is greater than 1.0 then LOS is F per HCM.

2.3 TRAFFIC SIGNAL WARRANT ANALYSIS METHODOLOGY

The term "signal warrants" refers to the list of established criteria used by Caltrans and other public agencies to quantitatively justify or determine the potential need for installation of a traffic signal at an otherwise unsignalized intersection. This TA uses the signal warrant criteria presented in the latest edition of the Caltrans California Manual on Uniform Traffic Control Devices (CA MUTCD). (7)

The signal warrant criteria for Existing study area intersections are based upon several factors, including volume of vehicular and pedestrian traffic, frequency of accidents, and location of school areas. The CA MUTCD indicates that the installation of a traffic signal should be considered if one or more of the signal warrants are met. (7) Specifically, this TA utilizes the Peak Hour Volume-based Warrant 3 as the appropriate representative traffic signal warrant analysis for existing traffic conditions and for all future analysis scenarios for existing unsignalized intersections. Warrant 3 is appropriate to use for this TA because it provides specialized warrant criteria for intersections with rural characteristics. For the purposes of this study, the speed limit was the basis for determining whether Urban or Rural warrants were used for a given intersection. Rural warrants have been used as posted speed limits on the major roadways with unsignalized intersections are over 40 miles per hour while urban warrants have been used where speeds are 40 miles per hour or below.

Future intersections that do not currently exist have been assessed regarding the potential need for new traffic signals based on future average daily traffic (ADT) volumes, using the Caltrans planning level ADT-based signal warrant analysis worksheets. Similarly, the speed limit has been used as the basis for determining the use of Urban and Rural warrants. Traffic signal warrant analyses were performed for the following study area intersection shown on Table 2-3:

TABLE 2-3: TRAFFIC SIGNAL WARRANT ANALYSIS LOCATIONS

#	Intersections
2	Distribution Wy. & Prosperity Wy./Dwy 1
4	Nicholas Rd. & Dwy 2
5	Nicholas Rd. & 4th St.

The Existing conditions traffic signal warrant analysis is presented in the subsequent section, Section 3 *Area Conditions* of this report. The traffic signal warrant analyses for future conditions are presented in Section 5 *EAP (2025) Traffic Conditions,* Section 6 *Opening Year (2025) Traffic Conditions*, and Section 7 *Horizon Year (2045) Traffic Conditions* of this report. Traffic signal warrant analysis has not been conducted on intersections that are restricted to right-in/right-out access only as these locations would not be suitable for signalization due to inadequate spacing from adjacent intersections. It is important to note that a signal warrant defines the minimum condition under which the installation of a traffic signal might be warranted. Meeting this threshold condition does not require that a traffic control signal be installed at a particular location, but rather, that other traffic factors and conditions be evaluated in order to determine whether the signal is truly justified. It should also be noted that signal warrants do not necessarily correlate with LOS. An intersection may satisfy a signal warrant condition and operate at or above acceptable LOS or operate below acceptable LOS and not meet a signal warrant.

2.4 MINIMUM ACCEPTABLE LEVELS OF SERVICE (LOS)

Minimum Acceptable LOS and associated definitions of intersection deficiencies has been obtained from each of the applicable surrounding jurisdictions.

The City of Beaumont has established LOS D as the minimum level of service for all roadways/intersections within the City (Policy 10 of the General Plan Circulation Element). Therefore, any intersection operating at LOS E or F will be considered deficient for the purposes of this analysis.

2.5 DEFICIENCY CRITERIA

This section outlines the methodology used in this analysis related to identifying circulation system deficiencies. To determine whether the addition of project traffic at a study intersection result in a deficiency, the following thresholds of significance will be utilized:

- Any signalized study intersection operating at an acceptable LOS D or better without project in which the addition of project traffic causes the intersection to degrade to LOS E or F shall identify improvements to improve the operations to LOS D or better.
- Any signalized intersection that is operating at LOS E or F without project traffic where the project increases delay by 5.0 seconds or more shall identify improvements to offset the increase in delay.
- An operational improvement would be required if the study determines that either section a) or both sections b) and c) occur at unsignalized study intersections:

  a) The addition of project related traffic causes the intersection to degrade from an acceptable LOS D or better to LOS E or LOS F.

  OR

  b) The project adds 5.0 seconds or more of delay to an intersection that is already projected to operate without project traffic at LOS E or F,

  AND

  c) The intersection meets the peak hour traffic signal warrant after the addition of project traffic.

  d) If the conditions above are satisfied, improvements should be identified to achieve LOS D or better for case a) above or to pre-project LOS and delay for case b) above.

2.6 PROJECT FAIR SHARE CALCULATION METHODOLOGY

Improvements found to be included in the TUMF and/or DIF will be identified as such. For improvements that do not appear to be in either of the pre-existing fee programs, a fair share contribution based on the Project's proportional share may be imposed in order to address the Project's share of deficiencies in lieu of construction. It should be noted that fair share calculations are for informational purposes only and the City Traffic Engineer will determine the appropriate improvements to be implemented by a project (to be identified in the conditions of approval). The Project's fair share contribution is determined based on the following equation, which is the ratio of Project traffic to net new traffic (where net new traffic is the future traffic less existing traffic):

Project Fair Share % = Project Buildout Traffic / (2045 With Project Total Traffic – Existing Traffic)

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3 AREA CONDITIONS

This section provides a summary of the existing circulation network, the City of Beaumont General Plan Circulation Network, and a review of existing peak hour intersection operations and traffic signal warrant analyses.

3.1 EXISTING CIRCULATION NETWORK

Pursuant to the scoping agreement with City of Beaumont staff (Appendix 1.1), the study area includes a total of 6 existing and future intersections as shown previously on Exhibit 1-3, where the Project is anticipated to contribute 50 or more peak hour trips. Exhibit 3-1 illustrates the study area intersections located near the proposed Project and identifies the number of through traffic lanes for existing roadways and intersection traffic controls.

3.2 CITY OF BEAUMONT GENERAL PLAN CIRCULATION ELEMENT

As noted previously, the Project site is located within the City of Beaumont. The roadway classifications and planned (ultimate) roadway cross-sections of the major roadways within the study area, as identified on City of Beaumont General Plan Circulation Element, are described subsequently. Exhibit 3-2 shows the City of Beaumont General Plan Circulation Element and Exhibit 3-3 illustrates the City of Beaumont General Plan roadway cross-sections.

Urban Arterials are six-lane divided roadways (typically divided by a raised median or painted two-way turn-lane) with a 152-foot right-of-way and a 128-foot curb-to-curb measurement. These roadways serve both regional through-traffic and inter-city traffic and typically direct traffic onto and off-of the freeways. The following study area roadway within the City of Beaumont is classified as an Urban Arterial:

- Potrero Boulevard, north of 4th Street

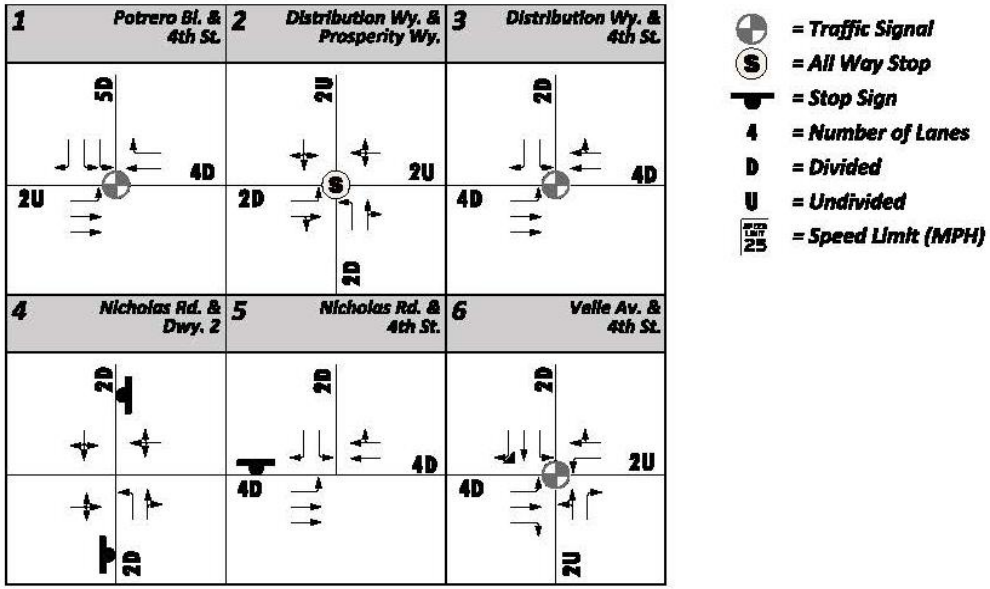
Major Highways are four-lane roadways and may include a painted median. These roadways typically have a 118-foot right-of-way and a 76-foot curb-to-curb measurement. These roadways typically direct traffic through major development areas and serve to move large volumes of inter-city traffic. The following study area roadways within the City of Beaumont are classified as a Major Highways:

- 4th Street, between Potrero Boulevard and Veile Avenue
- Veile Avenue, between north of 4th Street

Secondary Streets are four-lane roadways and may include a painted median. These roadways typically have an 88-foot right-of-way and a 64-foot curb-to-curb measurement. These roadways typically direct traffic through major development areas and a lesser capacity than Major Roadways. The following study area roadway within the City of Beaumont is classified as a Secondary Street:

- 4th Street, east of Veile Avenue

EXHIBIT 3-1: EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS



= Traffic Signal
= All Way Stop
= Stop Sign
4 = Number of Lanes
D = Divided
U = Undivided
= Speed Limit (MPH)

EXHIBIT 3-2: CITY OF BEAUMONT GENERAL PLAN CIRCULATION ELEMENT

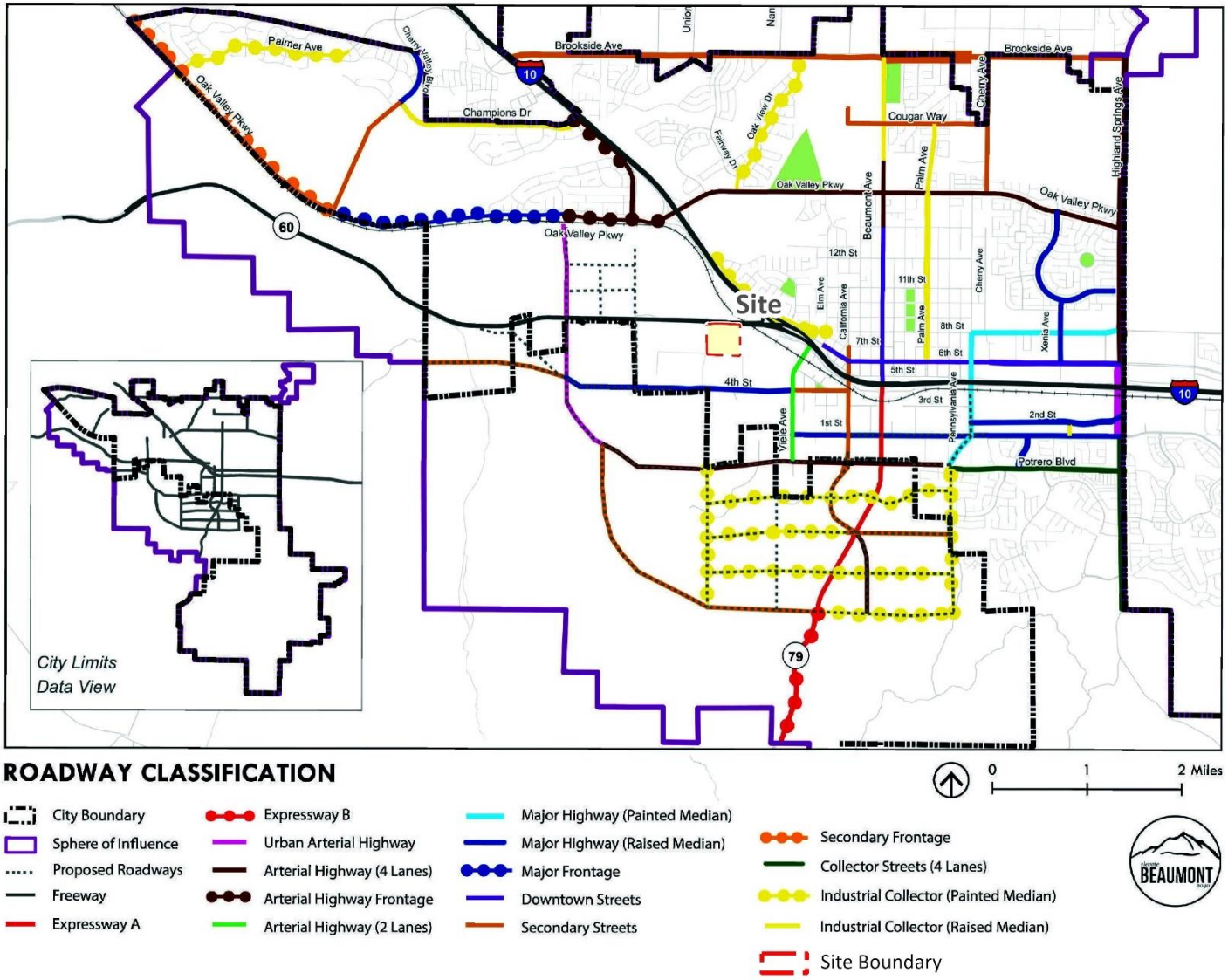
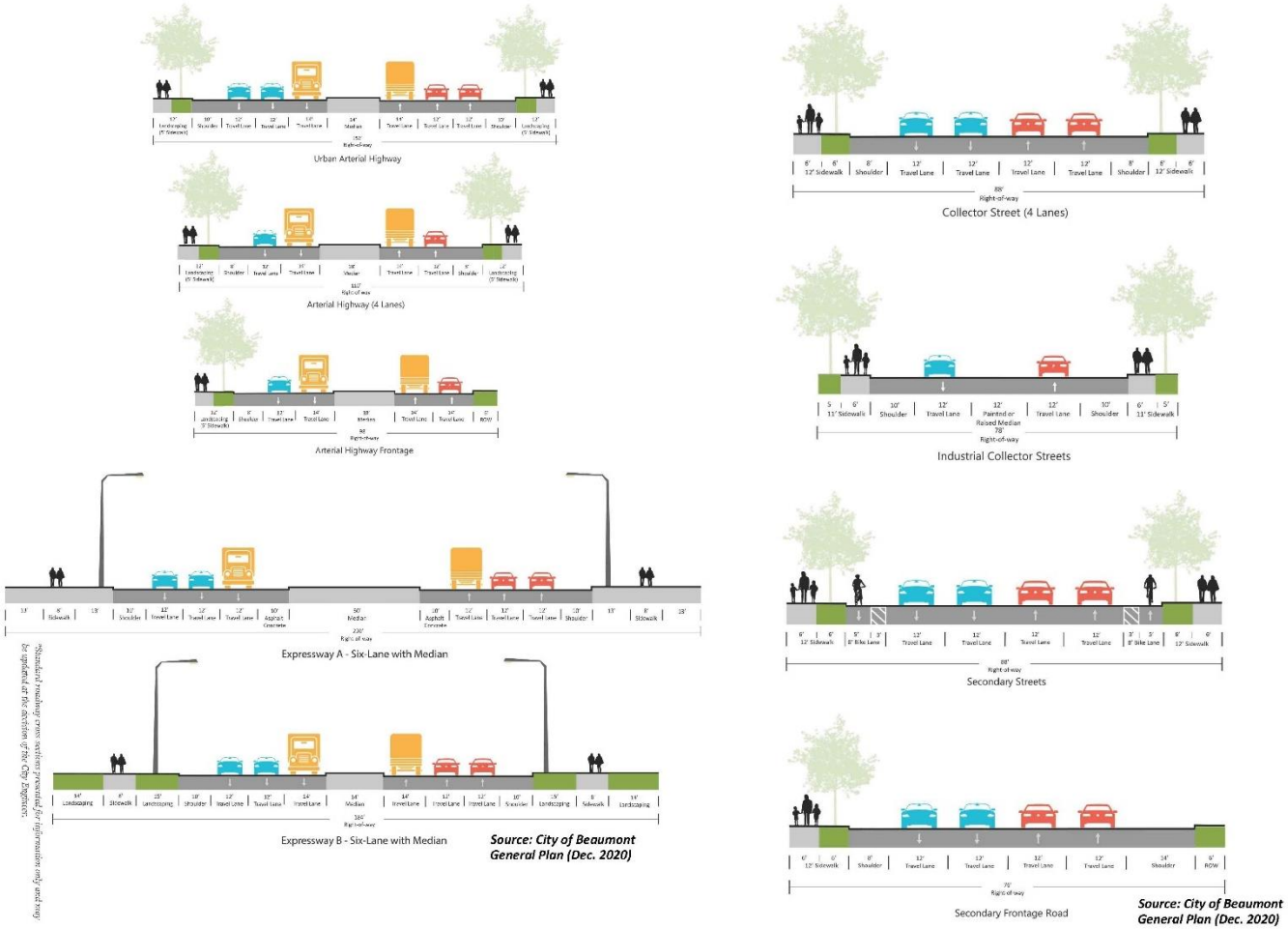
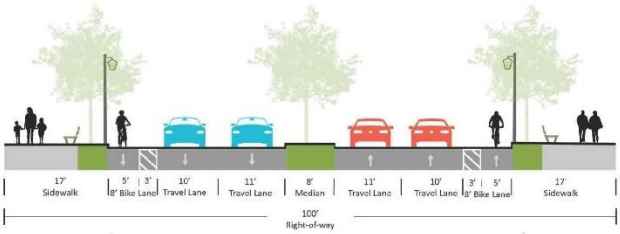


EXHIBIT 3-3: CITY OF BEAUMONT GENERAL PLAN ROADWAY CROSS-SECTIONS

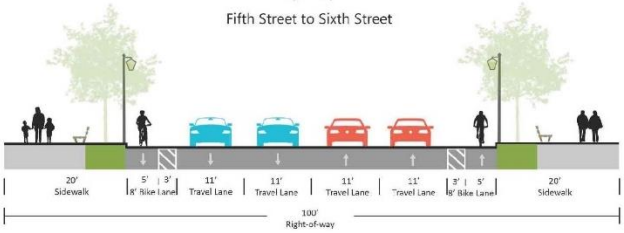


Source: City of Beaumont General Plan (Dec. 2020)

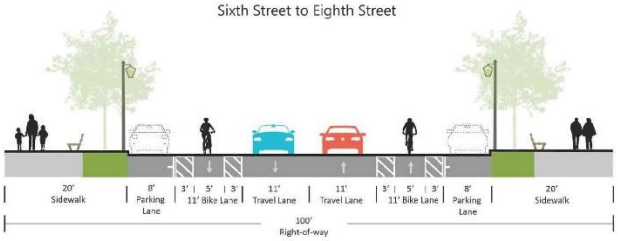
Source: City of Beaumont General Plan (Dec. 2020)



Fifth Street to Sixth Street

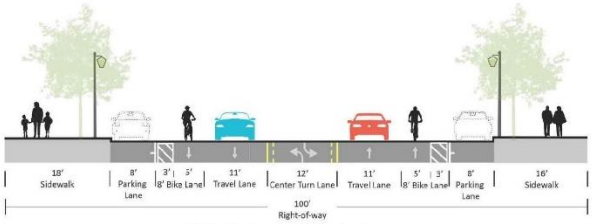


Sixth Street to Eighth Street

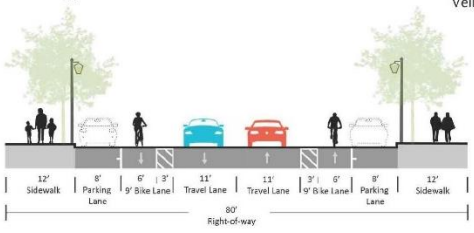


Eighth Street to Twelfth Street

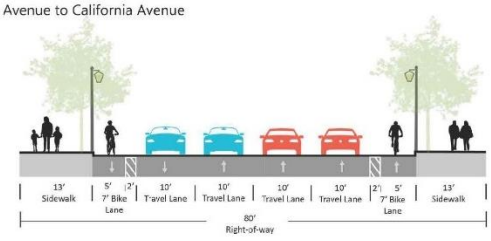
"Standard roadway cross-sections presented for information only and may be updated at the discretion of the City Engineer.



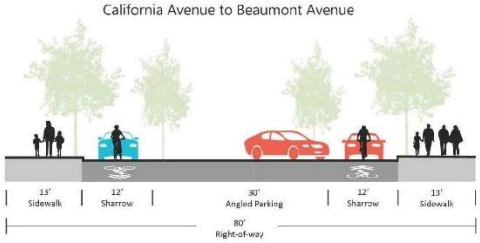
Veile Avenue to California Avenue



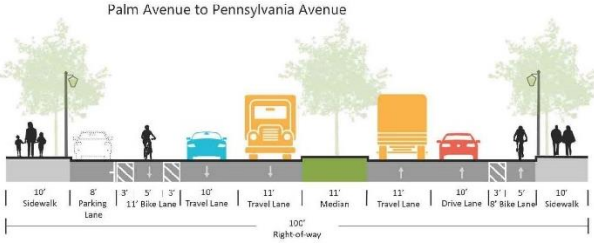
California Avenue to Beaumont Avenue



Palm Avenue to Pennsylvania Avenue



Beaumont Avenue to Palm Avenue



Pennsylvania Avenue to Highland Springs Avenue

Source: City of Beaumont General Plan (Dec. 2020)

Collector Streets are two-lane roadways and provide on-street parking on both sides. These roadways typically have an 88-foot right-of-way and a 64-foot curb-to-curb measurement. These roadways provide connections to secondary streets, arterials, and freeways, with most traffic being through-traffic or intra-city traffic. The following study area roadway within the City of Beaumont is classified as a Collector Street:

- 4th Street, west of Potrero Boulevard

3.3 BICYCLE & PEDESTRIAN FACILITIES

The existing City bike network is shown on Exhibit 3-4. As shown on Exhibit 3-4, there are limited existing bicycle facilities with Class II bike lanes accommodated along Veile Avenue, 4th Street to the east of Veile Avenue, Distribution Way, and Prosperity Way to the west of Distribution Way. As shown on Exhibit 3-5, 4th Street and Potrero Boulevard (north of 4th Street) are proposed pedestrian/bicycle priority facilities with a priority trail identified along 4th Street west of Potrero Boulevard. Exhibit 3-6 illustrates the existing pedestrian facilities, including crosswalks, throughout the study area. As shown on Exhibit 3-6, there are existing sidewalks along Distribution Way, Prosperity Way, and Nicholas Road adjacent to the Project.

3.4 TRANSIT SERVICE

The study area is currently served by Riverside Transit Agency (RTA) with bus service along the SR-60/I-10 Freeway via RTA Route 31. There is currently a bus stop along RTA Route 31 on Beaumont Avenue, just south of 1st Street to the east of the study area; however, there are currently no transit routes or stops along 4th Street near the proposed Project. The transit services are illustrated on Exhibit 3-7. As shown, there are no existing transit routes that could potentially serve the site. Transit service is reviewed and updated by RTA periodically to address ridership, budget, and community demand needs. Changes in land use can affect these periodic adjustments which may lead to either enhanced or reduced service where appropriate. Exhibit 3-8 illustrates the Transit Priority Network, which identifies Potrero Boulevard as a transit priority facility.

3.5 TRUCK ROUTES

The City's Truck Priority Network is shown on Exhibit 3-9. Truck priority routes include Potrero Boulevard, 4th Street, and Veile Avenue. These truck routes serve both the proposed Project and future development projects throughout the study area. Surrounding sensitive land uses have also been taken into consideration as part of determining the best routes for future trucks.

EXHIBIT 3-4: CITY OF BEAUMONT EXISTING BICYCLE NETWORK

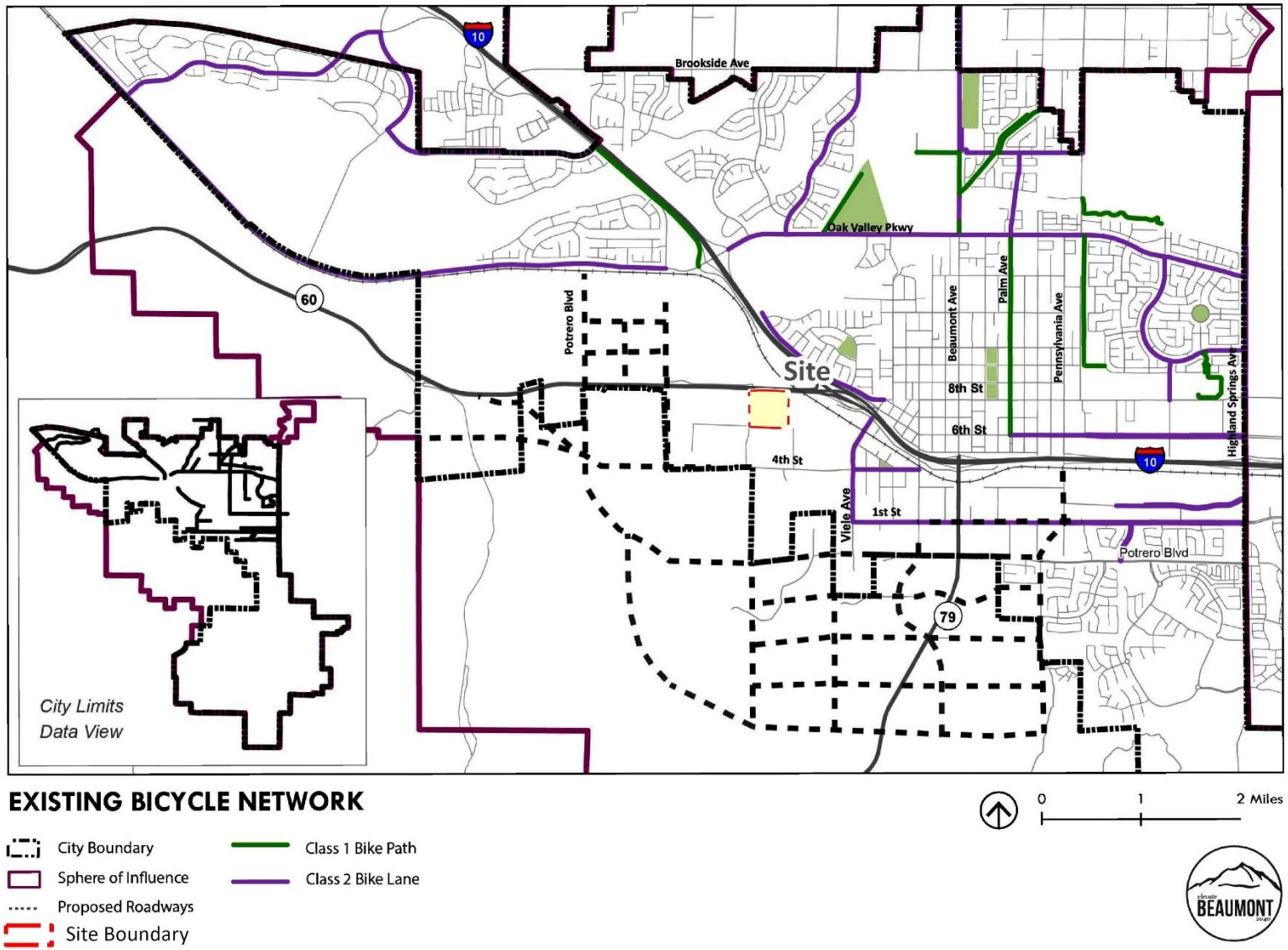


EXHIBIT 3-5: CITY OF BEAUMONT BICYCLE AND PEDESTRIAN PRIORITY NETWORK

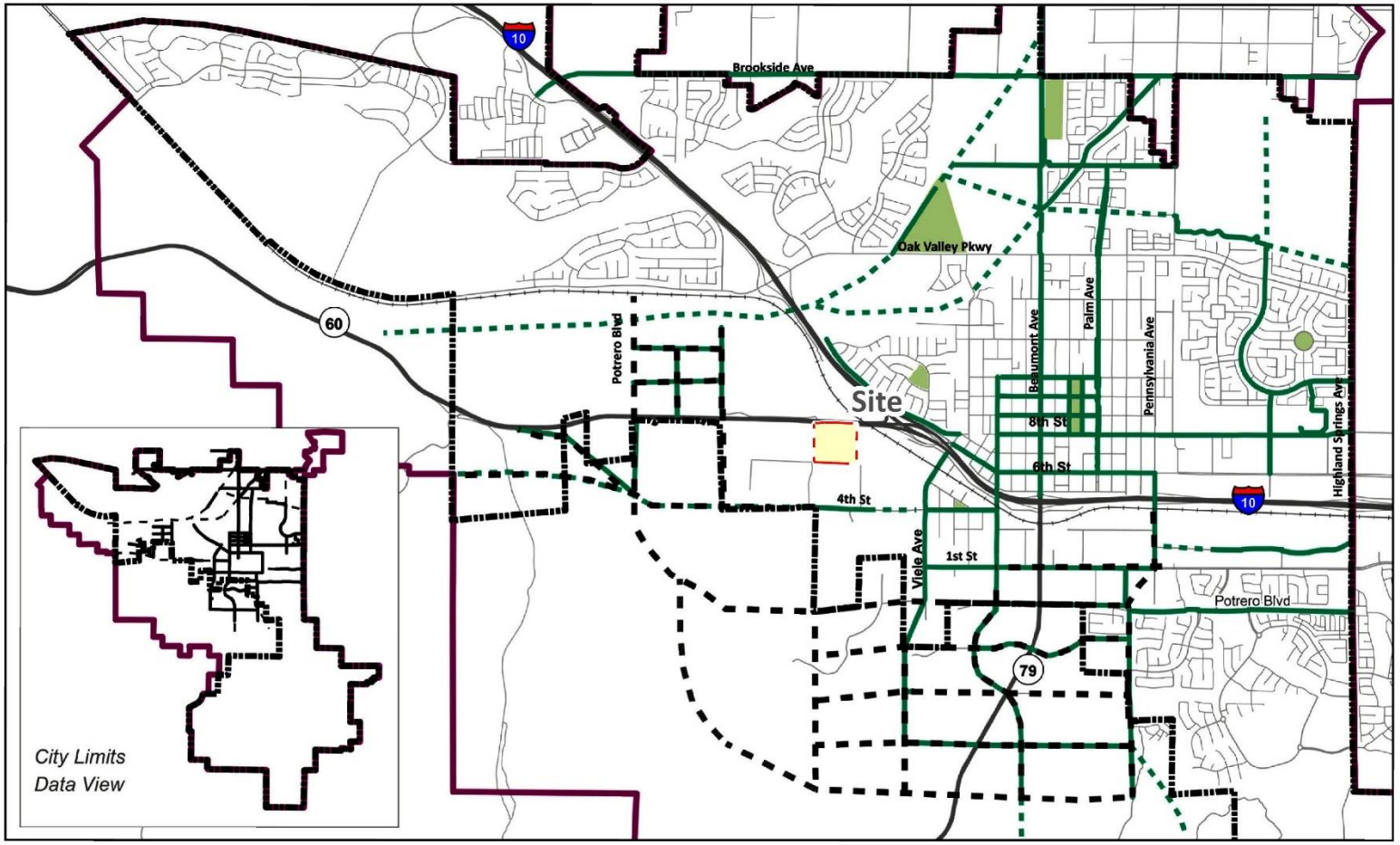


EXHIBIT 3-6: EXISTING PEDESTRIAN FACILITIES

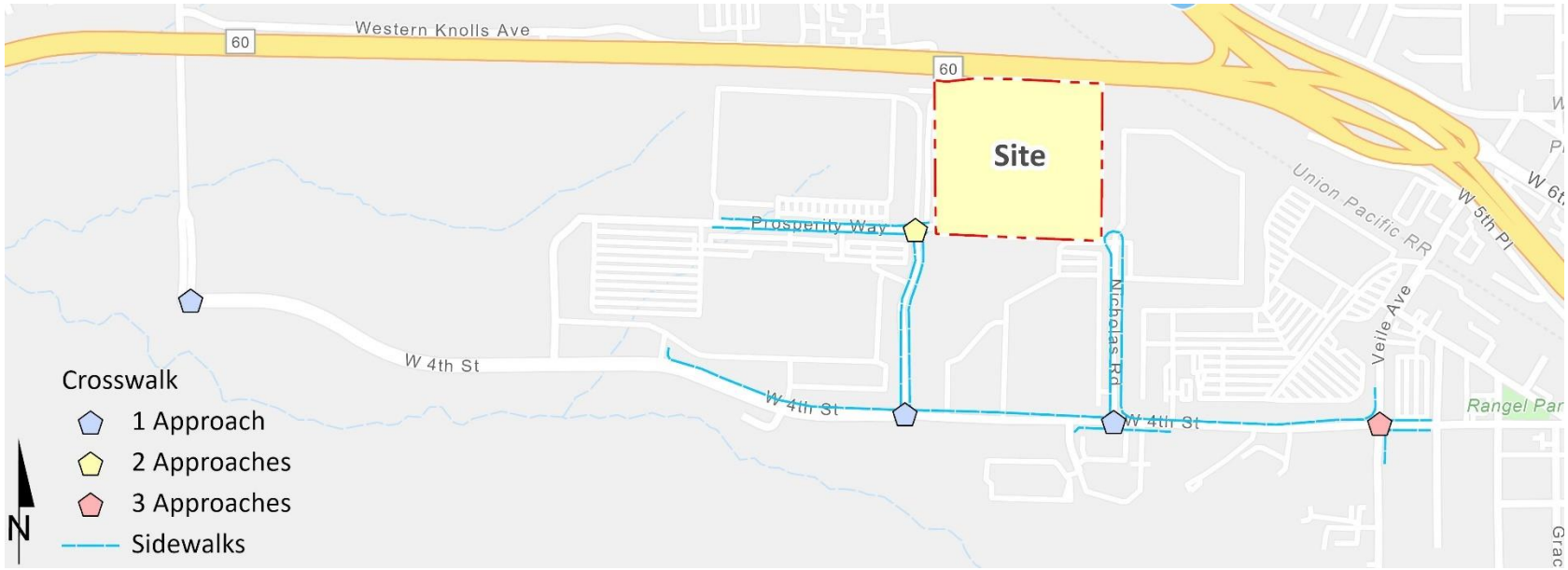


EXHIBIT 3-7: EXISTING RTA TRANSIT ROUTES

EXHIBIT 3-8: CITY OF BEAUMONT TRANSIT PRIORITY NETWORK

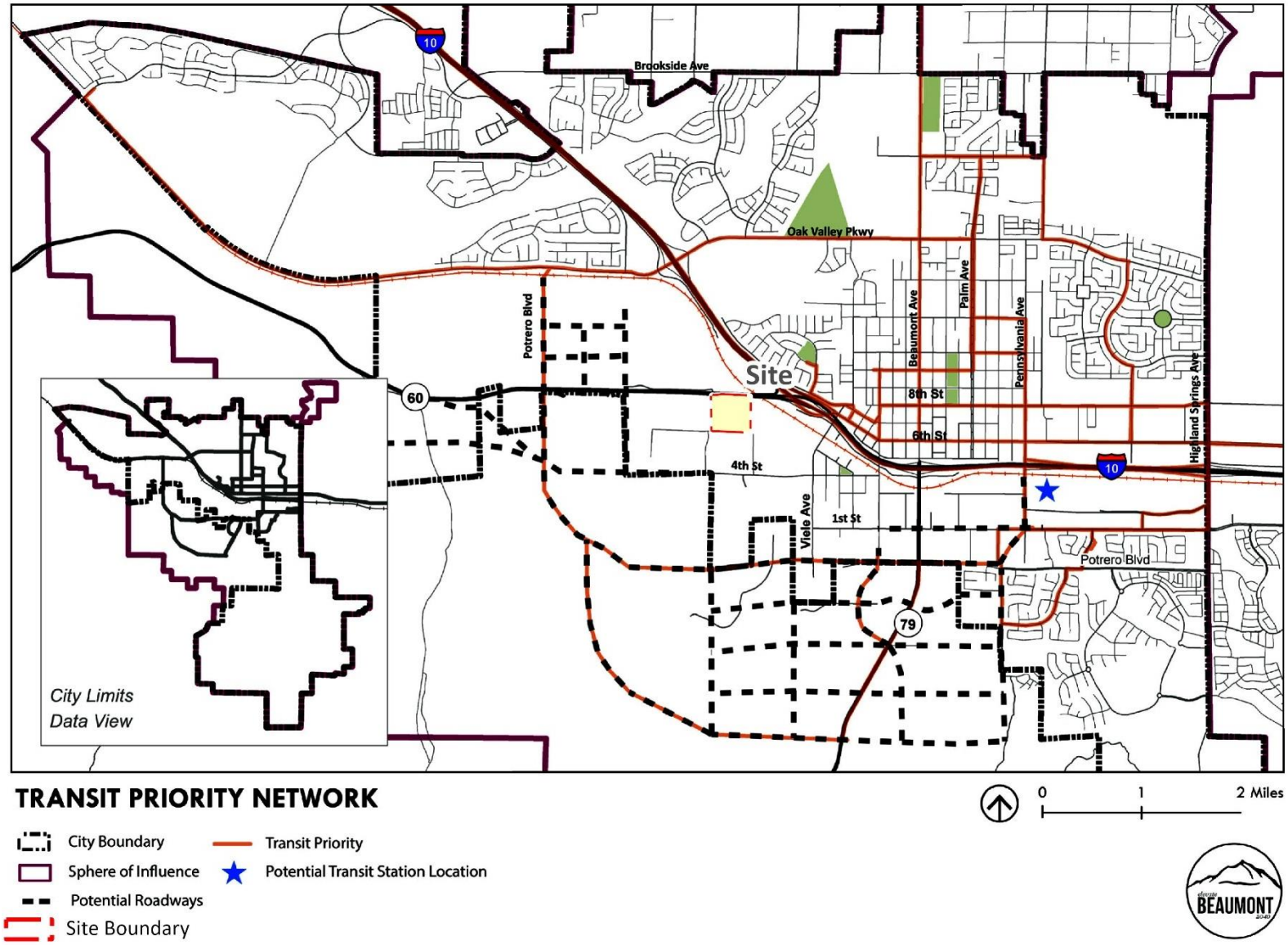
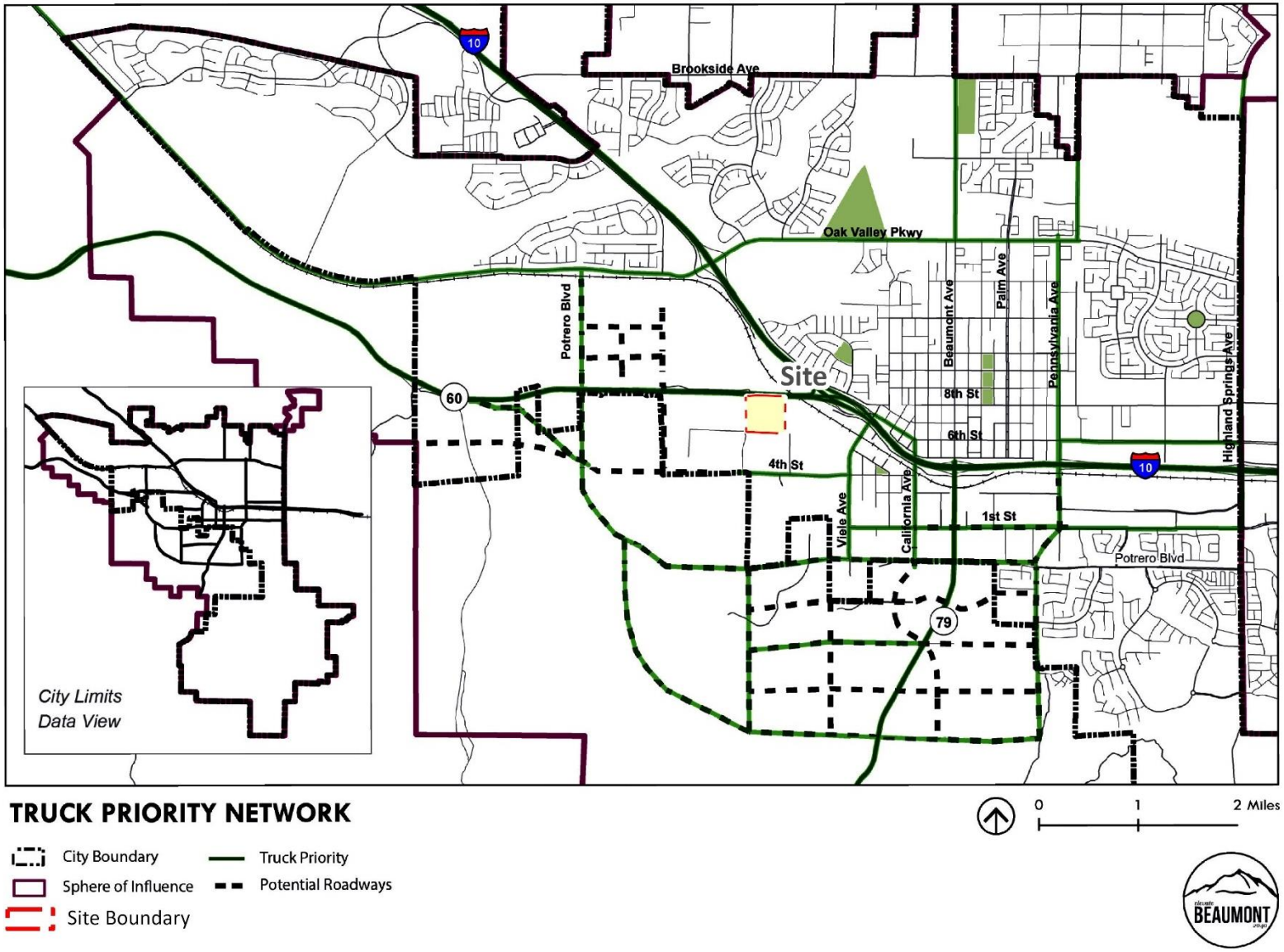


EXHIBIT 3-9: CITY OF BEAUMONT TRUCK PRIORITY NETWORK



3.6 EXISTING (2022) TRAFFIC COUNTS

The intersection LOS analysis is based on the traffic volumes observed during the peak hour conditions using traffic count data collected in May 2022 when local schools were in session and operating on normal bell schedules. The following peak hours were selected for analysis:

- Weekday AM Peak Hour (peak hour between 7:00 AM and 9:00 AM)
- Weekday PM Peak Hour (peak hour between 4:00 PM and 6:00 PM)

There were no observations made in the field that would indicate atypical traffic conditions on the count dates, such as construction activity or detour routes and near-by schools were in session and operating on normal schedules. The raw manual peak hour turning movement traffic count data sheets are included in Appendix 3.1.

Traffic counts collected at two overlapping intersections with an older study where pre-COVID traffic counts data was available are summarized in the table below. The area has experienced growth since 2019 with new infrastructure that has since been implemented such as the signalized intersection at both Potrero Boulevard and Veile Avenue along 4th Street. The May 2022 data was collected while local schools were in session and back to in-person instruction. As shown in Table 3-1, there is significant growth from pre-COVID to May 2022 traffic conditions. As such, the traffic counts utilized for this traffic study are conservative compared to pre-COVID conditions.

TABLE 3-1: TRAFFIC COUNTS COMPARISON

		May 2022		November 2019		Percent Increase	
#	Intersection	AM	PM	AM	PM	AM	PM
1	Potrero Bl. & 4th St.	411	575	39	19	954%	2926%
6	Veile Av. & 4th St.	1,096	1,544	371	466	195%	231%

Existing weekday ADT volumes on arterial highways throughout the study area are shown on Exhibit 3-10. Existing ADT volumes were based upon factored intersection peak hour counts collected by Urban Crossroads, Inc. using the following formula for each intersection leg:

Weekday PM Peak Hour (Approach Volume + Exit Volume) x 9.09 = Leg Volume

A comparison of the PM peak hour and daily traffic volumes of various roadway segments within the study area indicated that the peak-to-daily relationship is approximately 11.0 percent. As such, the above equation utilizing a factor of 9.09 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 11.0 percent (i.e., 1/0.11 = 9.09) and was assumed to sufficiently estimate ADT volumes for planning-level analyses. This factor is consistent with that used for other traffic studies within the study area. Existing weekday AM and weekday PM peak hour intersection volumes are shown on Exhibit 3-10.

EXHIBIT 3-10: EXISTING (2022) TRAFFIC VOLUMES

1 Potrero Bl. & 4th St.

3,650		3,650
↲ 8(2)	↳ 243(242)	↱ 61(278)
		← 15(5)
8(5) →		
13(7) →		
150		

2 Distribution Wy. & Driveway 1

Nominal		Nominal
↲ 1(0)	← 0(3)	← 1(1)
		↰ 0(1)
61(338) ↲		535(453) ↰ ↑ 2(4) ↱ 0(1)
7,200		7,250

3 Distribution Wy. & 4th St.

8,650		12,300
↲ 17(36)	↳ 57(465)	↱ 531(444)
		← 166(222)
3(6) →		
54(223) →		
3,450		

4 Nicolas Rd. & Driveway 2

100		
← 5(2)		
		↰ 3(1) ↑ 2(7) ↱ 2(0)
1(1) ↲		
		100

5 Nicholas Rd. & 4th St.

500		12,400
↲ 5(22)	↳ 13(22)	↱ 35(8)
		← 698(650)
4(4) →		
116(685) →		
12,350		

6 Veile Av. & 4th St.

3,050		3,850
↲ 133(106)	← 24(49) ↳ 5(11)	↱ 9(8)
		← 215(176)
		↰ 5(1)
37(149) →		
41(224) →		404(385) ↰ ↑ 27(14) ↱ 2(1)
71(369) ↲		
12,800		7,450

##(##) AM(PM) Peak Hour Intersection Volumes
Average Daily Trips

Volumes reported on the exhibits are expressed in actual vehicles. However, consistent with the City's Guidelines, the peak hour intersection operations analysis utilizes passenger car equivalent (PCE) volumes. PCEs allow the typical "real-world" mix of vehicle types to be represented as a single, standardized unit, such as the passenger car, to be used for the purposes of capacity and level of service analyses. The PCE factors are consistent with the recommended PCE factors in the City's Guidelines.

3.7 INTERSECTION OPERATIONS ANALYSIS

Existing peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2.2 *Intersection Capacity Analysis* of this report. The intersection operations analysis results are summarized on Table 3-2, which indicates that all existing study area intersections are currently operating at acceptable LOS during the peak hours, with the exception of the following intersection:

- Distribution Wy. & Prosperity Wy. /Driveway 1 (#2) – LOS F PM peak hour only

The intersection operations analysis worksheets are included in Appendix 3.2 of this TA.

TABLE 3-2: INTERSECTION ANALYSIS FOR EXISTING (2022) CONDITIONS

#	Intersection	Traffic Control[1]	Delay[2] (secs.)		Level of Service	
			AM	PM	AM	PM
1	Potrero Bl. & 4th St.	TS	9.6	13.4	A	B
2	Distribution Wy. & Prosperity Wy./Dwy 1	AWS	25.3	**53.8**	D	**F**
3	Distribution Wy. & 4th St.	TS	8.9	20.6	A	C
4	Nicholas Rd. & Dwy 2	CSS	8.4	8.3	A	A
5	Nicholas Rd. & 4th St.	CSS	16.5	22.5	C	C
6	Veile Av. & 4th St.	TS	19.6	30.0	B	C

* **BOLD** = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

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

2 Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

3.8 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for Existing traffic conditions are based on existing peak hour intersection turning volumes. There are no unsignalized study area intersections that currently warrant a traffic signal under Existing traffic conditions. Existing conditions traffic signal warrant analysis worksheets are provided in Appendix 3.3.

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4 PROJECTED FUTURE TRAFFIC

This section presents the traffic volumes estimated to be generated by the Project, as well as the Project's trip assignment onto the study area roadway network. The Project includes the development of 610,000 square foot warehouse use within a single building. For the purposes of the traffic assessment, the building has conservatively been evaluated assuming 10% high-cube cold storage warehousing use (61,000 square feet) and 90% high-cube fulfillment center warehousing use (549,000 square feet). The Project is anticipated to be constructed in one phase by the year 2025. Project traffic will have access to Distribution Way, Nicholas Road, and Prosperity Way.

4.1 PROJECT TRIP GENERATION

Trip generation represents the amount of traffic which is both attracted to and produced by a development. Determining traffic generation for a specific project is therefore based upon forecasting the amount of traffic that is expected to be both attracted to and produced by the specific land uses being proposed for a given development. In order to develop the traffic characteristics of the proposed Project, trip-generation statistics published in the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Edition, 2021) and the High Cube Warehouse Trip Generation Study (WSP, January 2019) were used to estimate the trip generation. (2) (3) For purposes of this analysis, the following land use codes and vehicle mixes have been utilized:

- High-Cube Fulfillment Center Warehouse has been used to derive site specific trip generation estimates for 549,000 square feet of the proposed Project. The ITE Trip Generation Manual has trip generation rates for high-cube fulfillment center use for both non-sort and sort facilities (ITE Land Use Code 155). While there is sufficient data to support use of the trip generation rates for non-sort facilities, the sort facility rate is unreliable (by ITE's standards) because the rates are based on limited data (i.e., one to two surveyed sites whereas ITE recommends a minimum of 3 site but preferably 5). The proposed Project is speculative and whether a non-sort or sort facility end-user would occupy the buildings is not known at this time. Lastly, the ITE Trip Generation Manual recommends the use of local data sources where available. As such, the best available source for high-cube fulfilment center use would be the trip-generation and vehicle mix statistics published in the High-Cube Warehouse Trip Generation Study (WSP, January 29, 2019) which was commissioned by the Western Riverside Council of Governments (WRCOG) in support of the Transportation Uniform Mitigation Fee (TUMF) update in the County of Riverside. The WSP trip generation rates were published in January 2019 and are based on data collected at 11 local high-cube fulfillment center sites located throughout Southern California (specifically Riverside County and San Bernardino County). However, the WSP study does not include a split for inbound and outbound vehicles, as such, the inbound and outbound splits per the ITE Trip Generation Manual for Land Use Code 154 have been utilized.
- ITE land use code 157 (High-Cube Cold Storage Warehouse) has been used to derive site specific trip generation estimates for up to 61,000 square feet of the proposed Project. High-cube cold storage warehouses include warehouses characterized by the storage and/or consolidation of manufactured goods (and to a lesser extent, raw materials) prior to their distribution to retail locations or other warehouses. High-cube cold storage warehouses are facilities typified by temperature-controlled environments for frozen food or other perishable products. The High-Cube Cold Storage Warehouse vehicle mix (passenger cars versus trucks) has been obtained from the ITE's latest Trip Generation Manual. The truck percentages were further broken down by axle type per the following SCAQMD recommended truck mix: 2-Axle = 34.7%; 3-Axle = 11.0%; 4+-Axle = 54.3%.

Trip generation rates are summarized on Table 4-1 for actual vehicles and PCE.

TABLE 4-1: TRIP GENERATION RATES

Land Use	Units[2]	ITE LU Code	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Actual Vehicle Trip Generation Rates									
High-Cube Cold Storage Warehouse[1,3]	TSF	157	0.085	0.025	0.110	0.034	0.086	0.120	2.120
Passenger Cars			0.076	0.004	0.080	0.019	0.071	0.090	1.370
2-Axle Trucks			0.003	0.007	0.010	0.005	0.005	0.010	0.260
3-Axle Trucks			0.001	0.002	0.003	0.002	0.001	0.003	0.083
4+-Axle Trucks			0.005	0.011	0.016	0.008	0.008	0.016	0.407
High-Cube Fulfillment Center Warehouse[4]	TSF	--	0.089	0.033	0.122	0.050	0.115	0.165	2.129
Passenger Cars			0.079	0.024	0.103	0.040	0.104	0.144	1.750
2-4 Axle Trucks			0.004	0.004	0.008	0.005	0.006	0.011	0.162
5+-Axle Trucks			0.005	0.006	0.011	0.005	0.005	0.010	0.217
Passenger Car Equivalent (PCE) Trip Generation									
High-Cube Cold Storage Warehouse[3]	TSF	157	0.085	0.025	0.110	0.034	0.086	0.120	2.120
Passenger Cars			0.076	0.004	0.080	0.019	0.071	0.090	1.370
2-Axle Trucks (PCE = 1.5)			0.005	0.011	0.016	0.008	0.008	0.016	0.390
3-Axle Trucks (PCE = 2.0)			0.002	0.005	0.007	0.004	0.003	0.007	0.165
4+-Axle Trucks (PCE = 3.0)			0.015	0.034	0.049	0.024	0.025	0.049	1.222
High-Cube Fulfillment Center Warehouse[4]	TSF	--	0.089	0.033	0.122	0.050	0.115	0.165	2.129
Passenger Cars			0.079	0.024	0.103	0.040	0.104	0.144	1.750
2-4 Axle Trucks (PCE = 2.0)			0.008	0.008	0.016	0.010	0.012	0.022	0.324
5+-Axle Trucks (PCE = 3.0)			0.016	0.017	0.033	0.014	0.016	0.030	0.651

[1] Trip Generation & Vehicle Mix Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Eleventh Edition (2021).

[2] TSF = thousand square feet

[3] Truck Mix: South Coast Air Quality Management District's (SCAQMD) recommended truck mix, by axle type.
Normalized % - With Cold Storage: 34.7% 2-Axle trucks, 11.0% 3-Axle trucks, 54.3% 4-Axle trucks.

[4] Vehicle Mix Source: High Cube Warehouse Trip Generation Study, WSP, January 29, 2019.
Inbound and outbound split source: ITE Trip Generation Manual, Eleventh Edition (2021) for ITE Land Use Code 154.

The PCE factors are consistent with the recommended PCE factors in the City's Guidelines. The trip generation for the proposed Project is summarized in Table 4-2 based on actual vehicles which shows the Project is anticipated to generate 1,304 two-way trip-ends per day with 73 AM peak hour trips and 97 PM peak hour trips. Per the City's Guidelines, any operations analysis is to utilize the PCE trip generation. As such, the trip generation for the proposed Project is also expressed in PCE (see also Table 4-2). As shown on Table 4-2, the proposed Project is anticipated to generate 1,692 two-way PCE trip-ends per day with 92 PCE AM peak hour trips and 116 PCE PM peak hour trips.

TABLE 4-2: PROJECT TRIP GENERATION SUMMARY

Land Use	Quantity	Units[1]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Actual Vehicles:									
High-Cube Cold Storage	61.000	TSF							
Passenger Cars:			5	0	5	1	4	5	84
2-axle Trucks:			0	0	0	0	0	0	16
3-axle Trucks:			0	0	0	0	0	0	6
4+-axle Trucks:			0	1	1	0	1	1	26
Total Truck Trips (Actual Vehicles):			0	1	1	0	1	1	48
Cold Storage Trips (Actual Vehicles)[2]			5	1	6	1	5	6	132
High-Cube Fulfillment	549.000	TSF							
Passenger Cars:			44	13	57	22	57	79	962
2-4axle Trucks:			2	2	4	3	3	6	90
5+-axle Trucks:			3	3	6	3	3	6	120
Total Truck Trips (Actual Vehicles):			5	5	10	6	6	12	210
Fulfillment Trips (Actual Vehicles)[2]			49	18	67	28	63	91	1,172
Passenger Cars			49	13	62	23	61	84	1,046
Trucks			5	6	11	6	7	13	258
Total Trips (Actual Vehicles)[2]			**54**	**19**	**73**	**29**	**68**	**97**	**1,304**
Passenger Car Equivalent (PCE):									
High-Cube Cold Storage	61.000	TSF							
Passenger Cars:			5	0	5	1	4	5	84
2-axle Trucks:			0	1	1	0	0	0	24
3-axle Trucks:			0	0	0	0	0	0	10
4+-axle Trucks:			1	2	3	1	2	3	76
Total Truck Trips (PCE):			1	3	4	1	2	3	110
Cold Storage Trips (PCE)[2]			6	3	9	2	6	8	194
High-Cube Fulfillment (WSP)	549.000	TSF							
Passenger Cars:			44	13	57	22	57	79	962
2-4axle Trucks:			4	4	8	6	6	12	178
5+-axle Trucks:			9	9	18	8	9	17	358
Total Truck Trips (PCE):			13	13	26	14	15	29	536
Total Trips (PCE)[2]			57	26	83	36	72	108	1,498
Passenger Cars			49	13	62	23	61	84	1,046
Trucks			14	16	30	15	17	32	646
Total Trips (PCE)[2]			**63**	**29**	**92**	**38**	**78**	**116**	**1,692**

[1] TSF = thousand square feet

[2] Total Trips = Passenger Cars + Truck Trips.

4.2 PROJECT TRIP DISTRIBUTION

The Project trip distribution represents the directional orientation of traffic to and from the Project site. Trip distribution is the process of identifying the probable destinations, directions or traffic routes that will be utilized by Project traffic. The potential interaction between the planned land uses and surrounding regional access routes are considered, to identify the route where the Project traffic would distribute. Exhibits 4-1 and 4-2 show the Project truck and passenger car trip distribution patterns for the industrial component, respectively.

The east-west distribution of both passenger cars and trucks can be supported by Street Light data of existing warehouses located along 4th Street for near-term traffic conditions. Similarly, a RIVCOM select zone run for the traffic analysis zone (TAZ) containing the proposed Project indicates the long-range trip distribution patterns with the proposed SR-60/Potrero Road interchange in place would be consistent with the near-term distributions. The supporting Street Light and RIVCOM select zone run distributions are provided in Appendix 4.1.

4.3 MODAL SPLIT

The potential for Project trips (non-truck) to be reduced by the use of public transit, walking or bicycling have not been included as part of the Project's estimated trip generation. Essentially, the Project's traffic projections are "conservative" in that these alternative travel modes would reduce the forecasted traffic volumes.

4.4 PROJECT TRIP ASSIGNMENT

The assignment of traffic from the Project area to the adjoining roadway system is based upon the Project trip generation, trip distribution, and the arterial highway and local street system improvements that would be in place by the time of initial occupancy of the Project. Based on the identified Project traffic generation and trip distribution patterns, the Project only ADT and peak hour intersection turning movement volumes are shown on Exhibit 4-3.

EXHIBIT 4-1: PROJECT (TRUCK) TRIP DISTRIBUTION

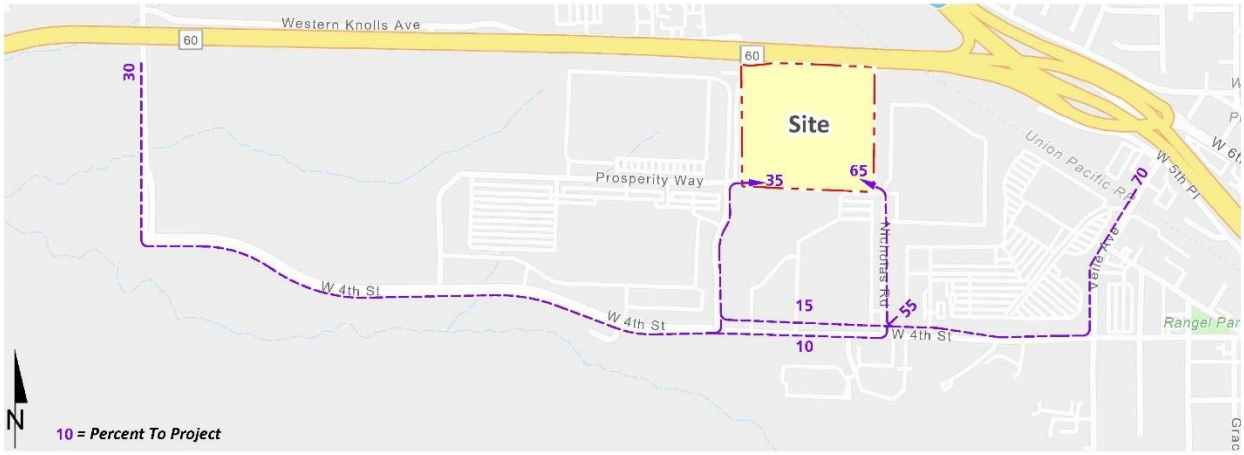


EXHIBIT 4-2: PROJECT (PASSENGER CAR) TRIP DISTRIBUTION

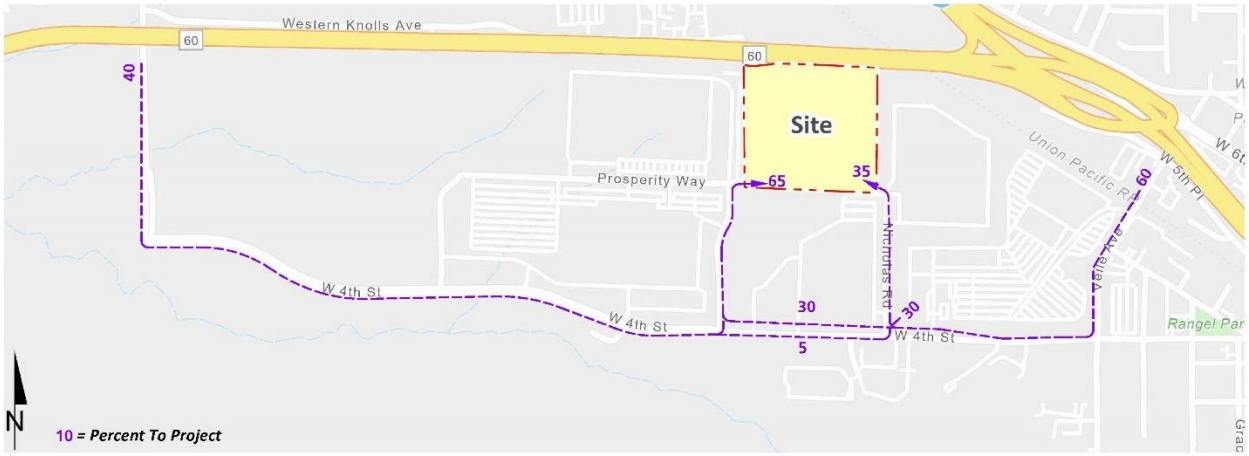
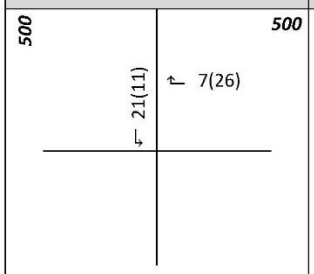
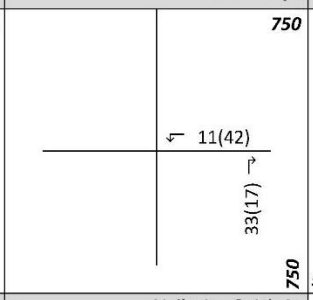


EXHIBIT 4-3: PROJECT ONLY TRAFFIC VOLUMES

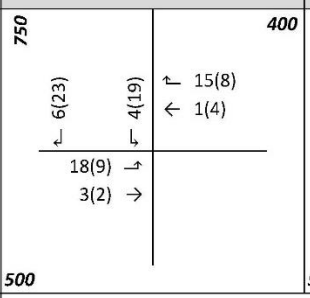
1 Potrero Bl. & 4th St.



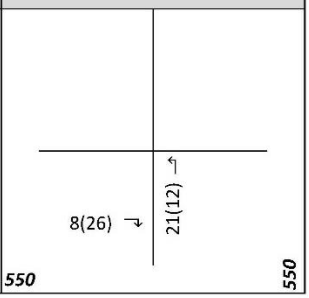
2 Distribution Wy. & Driveway 1



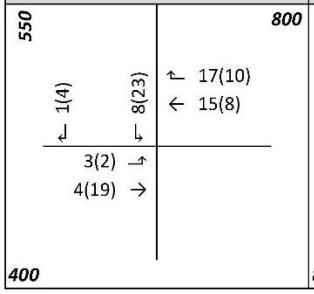
3 Distribution Wy. & 4th St.



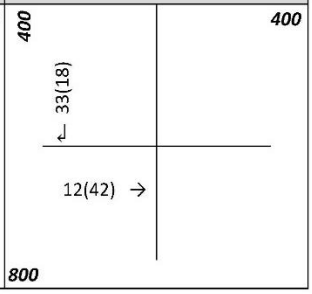
4 Nicolas Rd. & Driveway 2



5 Nicholas Rd. & 4th St.



6 Veile Av. & 4th St.



##(##) AM(PM) Peak Hour Intersection Volumes
Average Daily Trips

4.5 NEAR-TERM TRAFFIC CONDITIONS

4.5.1 BACKGROUND TRAFFIC

Future year traffic forecasts have been based upon background (ambient) growth at 2% per year, compounded annually, for 2025 conditions. The total ambient growth is 6.12% for 2025 traffic conditions (compounded growth of 2 percent per year over 3 years or $1.02^{3\ years}$). The ambient growth factor is intended to approximate regional traffic growth. This ambient growth rate is added to existing traffic volumes to account for area-wide growth not reflected by other development projects. Ambient growth has been added to daily and peak hour traffic volumes on surrounding roadways, in addition to traffic generated by the development of future projects that have been approved but not yet built and/or for which development applications have been filed and are under consideration by governing agencies.

4.5.2 OTHER DEVELOPMENT TRAFFIC

A project list was developed for the purposes of this analysis through consultation with planning and engineering staff from the City of Beaumont and other neighboring agencies. The project list includes known and foreseeable projects that are anticipated to contribute traffic to the study area intersections.

Where applicable, these other development projects anticipated to contribute measurable traffic (i.e., 50 or more peak hour trips) to study area intersections have been manually added to the study area network to generate Opening Year (2025) forecasts. In other words, this list of development projects has been reviewed to determine which projects would likely contribute measurable traffic through the study area intersections (e.g., those development projects in close proximity to the proposed Project). For the purposes of this analysis, the full development projects identified within the study area are shown on Exhibit 4-4 and listed in Table 4-3. Pursuant to discussions with the City of Beaumont, only development projects which are anticipated to be constructed and occupied by the Project's opening year should be included for the purposes of this traffic study. As such, the development projects included in this analysis are listed in Table 4-4.

Any additional traffic generated by other projects not on the projects list is likely accounted for through background ambient growth factors that have been applied to the peak hour volumes at study area intersections as discussed in Section 4.5 *Background Traffic*. Other Development Project Only ADT and peak hour intersection turning movement volumes included in this traffic study analysis, Table 4-4, are shown on Exhibit 4-5.

EXHIBIT 4-4: OTHER DEVELOPMENTPROJECTS LOCATION MAP

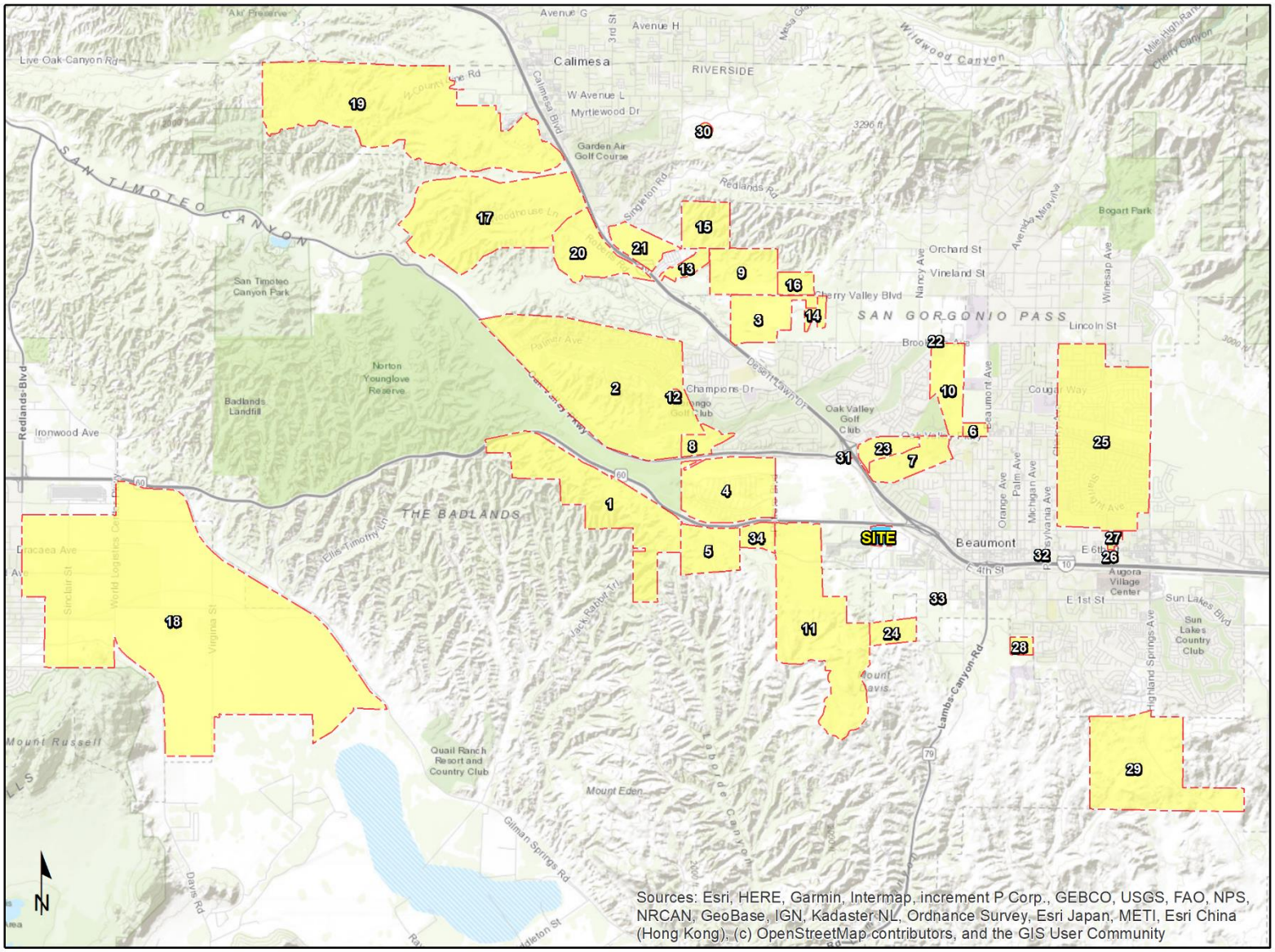
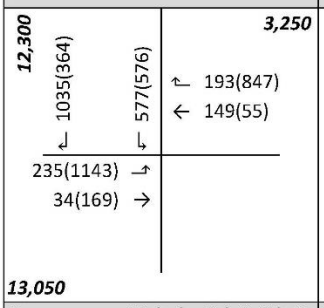
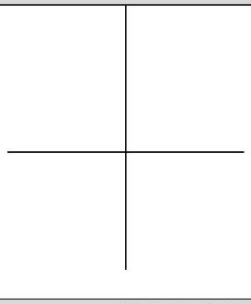


EXHIBIT 4-5: OTHER DEVELOPMENT PROJECT ONLY TRAFFIC VOLUMES

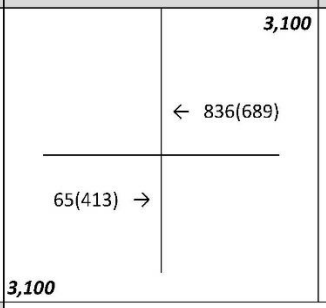
1 Potrero Bl. & 4th St.



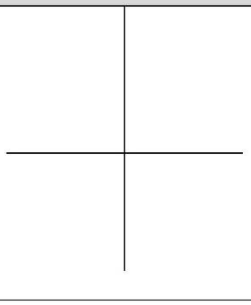
2 Distribution Wy. & Driveway 1



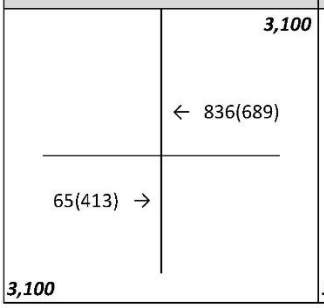
3 Distribution Wy. & 4th St.



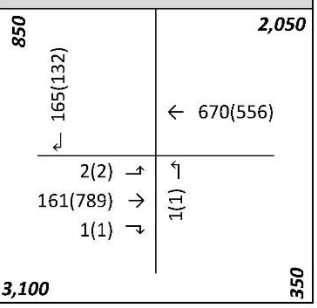
4 Nicolas Rd. & Driveway 2



5 Nicholas Rd. & 4th St.



6 Veile Av. & 4th St.



##(##) AM(PM) Peak Hour Intersection Volumes
Average Daily Trips

TABLE 4-3: OTHER DEVELOPMENT LAND USE SUMMARY

#	Project	Land Use	Quantity[1]
1	Jack Rabbit Trail	High-Cube Fulfillment	4,500.000 TSF
		General Light Industrial	500.000 TSF
		Hotel	125 RM
		Restaurant/Retail	251.000 TSF
2	Fairway Canyon SCPGA	Single Family Residential	1,650 DU
3	Summit Station	Warehousing	2,557.465 TSF
4	Heartland (Olivewood)	Single Family Residential	981 DU
5	Hidden Canyon Industrial	High-Cube Warehouse	2,890.000 TSF
6	Beaumont Village	Commercial	50.810 TSF
7	Kirkwood Ranch	Single Family Residential	403 DU
8	Tournament Hills 3, TM 36307	Single Family Residential	279 DU
9	I-10 Gateway	High-Cube Warehouse	2,560.000 TSF
10	Noble Creek Vistas	Single Family Residential	648 DU
11	Legacy Highlands	High-Cube Warehouse	18,185.400 TSF
		High-Cube Cold Storage	2,020.600 TSF
		Shopping Center	143.000 TSF
12	Beyond Beaumont Commercial	Shopping Center	6.580 TSF
13	Sunset Ranch (TR 31450)	Single Family Residential	231 DU
14	TR 31966	Single Family Residential	60 DU
15	Holbert Ranch (TTM 30545)	Single Family Residential	131 DU
16	Borstein Property	Single Family Residential	209 DU
17	Summerwind Ranch	Single Family Residential	2,537 DU
		Single Family Residential - Attached	411 DU
		Parks	55.1 AC
18	World Logistics Center	High Cube Warehouse	21,450.000 TSF
19	Mesa Verde	Single Family Residential	359 DU
		Multifamily Residential	1,720 DU
		Senior Housing - Detached	239 DU
		Senior Housing - Attached	1,086 DU
		Elementary School	1,200 STU
		Shopping Center	250.000 TSF
		High-Cube Warehouse	4,000.000 TSF
20	Oak Valley Town Center	High-Cube Warehouse	2,250.000 TSF
		Truck/trailer Parking Lot	10.07 AC
		Commercial Retail	751.800 TSF
21	Oak Valley North Specific Plan	High-Cube Warehouse	1,319.606 TSF
		High-Cube Cold Storage	232.900 TSF
		Multifamily Residential	126 DU
22	CUP 03629	Mini-Warehouse	90.000 TSF
23	Oak Valley Village (Mountain Bridge)	Commercial Retail	441.709 TSF
24	Taurek (Tract no. 31162)	Single Family Residential	244 DU
25	Sundance (Remaining)	Senior Housing - Detached	704 DU
26	Tuscany Townhomes	Multifamily Residential	188 DU
27	Beaumont Commons	Single Family Residential	120 DU
	American Villas	Single Family Residential	36 DU
	8th Street Condos	Multifamily Residential	16 DU
	Pennsylvania Avenue Apartments	Multifamily Residential	8 DU
28	Pacific Scene (Tract No. 32850)	Single Family Residential	95 DU
29	Potrero Creek Estates	Single Family Residential	700 DU
30	JP Ranch	Single Family Residential	689 DU
		Shopping Center	72.700 SF
31	Beaumont Landing	Gas Station	18 VFP
		Fast-Food w/ Drive-Thru	4.000 TSF
32	Beyond Beaumont	Gas Station	20 VFP
33	McClure Machine Shop	General Light Industrial	16.823 TSF
34	Potrero Logistics	High-Cube Warehouse	577.920 TSF

[1] AC = Acres; DU = Dwelling Units; RM = Rooms; TSF = Thousand Square Feet; VFP = Vehicle Fueling

TABLE 4-4: OTHER DEVELOPMENT PROJECTS LAND USE SUMMARY (OCCUPIED BY PROJECT OPENING YEAR)

#	Project	Land Use	Quantity[1]
1	Beaumont Pointe	High-Cube Fulfillment	1,379.191 TSF
2	Fairway Canyon SCPGA	Single Family Residential	467 DU
8	Tournament Hills 3, TM 36307	Single Family Residential	279 DU
9	I-10 Gateway	High-Cube Warehouse	2,560.000 TSF
12	Beyond Beaumont Commercial	Shopping Center	6.580 TSF
31	Beaumont Landing	Gas Station	18 VFP
		Fast-Food w/ Drive-Thru	4.000 TSF
33	McClure Machine Shop	General Light Industrial	16.823 TSF
34	Potrero Logistics	High-Cube Warehouse	577.920 TSF

[1] AC = Acres; DU = Dwelling Units; RM = Rooms; TSF = Thousand Square Feet; VFP = Vehicle Fueling

4.5.3 NEAR-TERM SCENARIOS

The "buildup" approach combines existing traffic counts with a background ambient growth factor to forecast EAP (2025) and Opening Year (2025) traffic conditions. An ambient growth factor accounts for background (area-wide) traffic increases that occur over time up to the year 2025 from the year 2022. Traffic volumes generated by the Project are then added to assess the near-term traffic conditions. The 2025 roadway network is similar to the Existing conditions roadway network, with the exception of future driveways proposed to be developed by the Project. The near-term traffic analysis includes the following traffic conditions, with the various traffic components:

- Existing Plus Ambient Growth Plus Project (2025)
  - Existing 2022 counts
  - Ambient growth traffic (6.12%)
  - Project traffic
- Opening Year (2025) Without Project
  - Existing 2022 counts
  - Ambient growth traffic (6.12%)
  - Other Development traffic
- Opening Year (2025) With Project
  - Existing 2022 counts
  - Ambient growth traffic (6.12%)
  - Other Development traffic
  - Project traffic

4.6 HORIZON YEAR TRAFFIC FORECASTS

Traffic projections for Horizon Year conditions were derived from the Riverside County Transportation Model (RIVCOM) regional model using accepted procedures for model forecast refinement and smoothing. The traffic forecasts reflect the area-wide growth anticipated between Existing and Horizon Year traffic conditions. The base model year for the RIVCOM regional model is Year 2018 and the future year model is Year 2040.

In most instances the traffic model zone structure is not designed to provide accurate turning movements along arterial roadways unless refinement and reasonableness checking is performed. Therefore, the Horizon Year peak hour forecasts were refined using the model derived long-range forecasts, base (validation) year model forecasts, along with existing peak hour traffic count data collected at each analysis location.

The refined future peak hour approach and departure volumes obtained from these calculations are then entered into a spreadsheet program consistent with the National Cooperative Highway Research Program (NCHRP Report 765), along with initial estimates of turning movement proportions. A linear programming algorithm is used to calculate individual turning movements which match the known directional roadway segment forecast volumes computed in the previous step. This program computes a likely set of intersection turning movements from intersection approach counts and the initial turning proportions from each approach leg.

Typically, the model growth is prorated and is subsequently added to the existing (base validation) traffic volumes to represent Horizon Year traffic conditions. However, review of the resulting model growth indicates negative growth for some of the study area intersections. In an effort to conduct a conservative analysis, reductions to traffic forecasts from either Existing or Opening Year traffic conditions were not assumed as part of this analysis. As such, in conjunction with the addition of development projects that are not consistent with the General Plan, additional growth has also been applied on a movement-by-movement basis, where applicable, to estimate reasonable Horizon Year forecasts. Horizon Year turning volumes were compared to Opening Year volumes in order to ensure a minimum growth as a part of the refinement process. The minimum growth includes any additional growth between Opening Year and Horizon Year traffic conditions that is not accounted for by the traffic generated by other development projects and ambient growth rates assumed between Existing (2022) and Horizon Year traffic conditions. Future estimated peak hour traffic data was used for new intersections and intersections with an anticipated change in travel patterns to further refine the Horizon Year peak hour forecasts. The only instance when the Opening Year forecasts would not be used to manually adjust the Horizon Year forecasts is if there are new proposed roadway connections/facilities that would explain the change in travel patterns within the study area.

The future Horizon Year Without Project peak hour turning movements were then reviewed by Urban Crossroads for reasonableness, and in some cases, were adjusted to achieve flow conservation, reasonable growth, and reasonable diversion between parallel routes. Flow conservation checks ensure that traffic flow between two closely spaced intersections, such as two freeway ramp locations, is verified in order to make certain that vehicles leaving one intersection are entering the adjacent intersection and that there is no unexplained loss of vehicles. The result of this traffic forecasting procedure is a series of traffic volumes which are suitable for traffic operations analysis. Post-processing worksheets for Horizon Year Without Project traffic conditions are provided in Appendix 4.2.

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5 EAP (2025) TRAFFIC CONDITIONS

This section discusses the traffic forecasts for EAP (2025) conditions and the resulting intersection operations and traffic signal warrant analyses.

5.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for EAP (2025) conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for EAP conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).
- The SR-60 Freeway and Potrero Boulevard interchange is not assumed to be in place.

5.2 EAP (2025) TRAFFIC VOLUME FORECASTS

This scenario includes Existing (2022) traffic volumes plus an ambient growth factor of 6.12% and the addition of Project traffic. The weekday ADT volumes and peak hour volumes which can be expected for EAP (2025) traffic conditions are shown on Exhibit 5-1.

5.3 INTERSECTION OPERATIONS ANALYSIS

EAP (2025) peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 *Methodologies* of this TA. The intersection analysis results are summarized on Table 5-1 for EAP (2025) traffic conditions, which indicates there are no study area intersections anticipated to operate at an unacceptable LOS with the addition of Project traffic under EAP (2025) traffic conditions, in addition to the location identified as deficient for Existing traffic conditions. The intersection operations analysis worksheets for EAP (2025) traffic conditions are included in Appendix 5.1 of this TA.

TABLE 5-1: INTERSECTION ANALYSIS FOR EAP (2025) CONDITIONS

			Existing				EAP (2025)						
			Delay[2] (secs.)		Level of Service		Delay[2] (secs.)		Level of Service		Change in Delay		Project-Related
#	Intersection	Traffic Control[1]	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	Deficiency?[3]
1	Potrero Bl. & 4th St.	TS	9.6	13.4	A	B	9.9	14.2	A	B	0.3	0.8	No
2	Distribution Wy. & Prosperity Wy./Dwy 1	AWS	25.3	**53.8**	D	**F**	31.6	**75.6**	D	**F**	6.3	**21.8**	**Yes**
3	Distribution Wy. & 4th St.	TS	8.9	20.6	A	C	11.6	29.3	B	C	2.7	8.7	No
4	Nicholas Rd. & Dwy 2	CSS	8.4	8.3	A	A	8.5	8.5	A	A	0.1	0.2	No
5	Nicholas Rd. & 4th St.	CSS	16.5	22.5	C	C	18.7	31.2	C	D	2.2	8.7	No
6	Veile Av. & 4th St.	TS	19.6	30.0	B	C	21.5	34.0	C	C	1.9	4.0	No

* **BOLD** = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

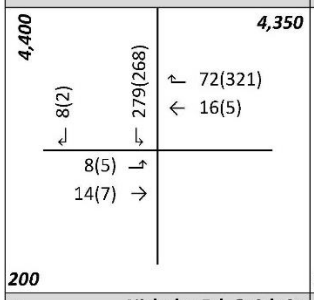
[1] TS = Traffic Signal; CSS = Cross-Street Stop; AWS = All-Way Stop

[2] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

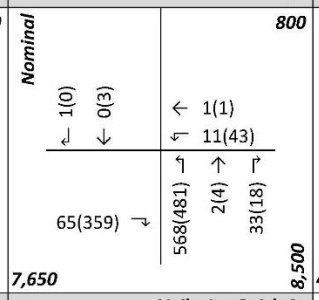
[3] Per the City's Guidelines, increase in delay is calculated for intersections to determine Project-related deficiencies.

EXHIBIT 5-1: EAP (2025) TRAFFIC VOLUMES

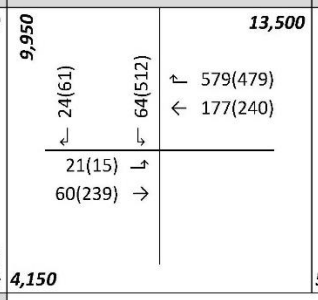
1 Potrero Bl. & 4th St.



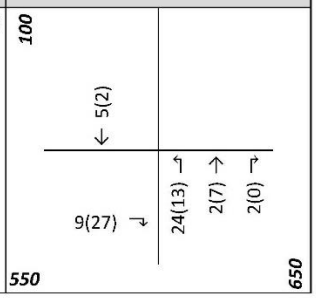
2 Distribution Wy. & Driveway 1



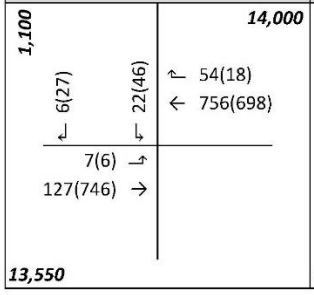
3 Distribution Wy. & 4th St.



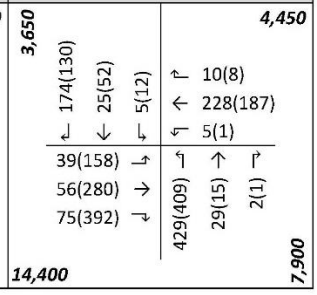
4 Nicolas Rd. & Driveway 2



5 Nicholas Rd. & 4th St.



6 Veile Av. & 4th St.



##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

5.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

The traffic signal warrant analysis for EAP (2025) traffic conditions are based on the peak hour volumes or planning level ADT volume-based traffic signal warrants. There are no unsignalized study area intersections anticipated to meet traffic signal warrants for EAP (2025) traffic conditions (see Appendix 5.2).

5.5 PROJECT DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

This section provides a summary of deficiencies under EAP (2025) traffic conditions and improvements necessary to improve these deficiencies back to acceptable levels. Based on the City of Beaumont deficiency criteria discussed in Section 2.5 *Deficiency Criteria*, the following intersection was found to be deficient. Improvements necessary to improve EAP traffic deficiencies are also discussed below. The intersection operations analysis worksheets for EAP (2025) traffic conditions, with improvements, are included in Appendix 5.3 of this TA.

Table 5-2 indicates the improvements needed to address LOS deficiencies at each of the study area intersections under EAP (2025) traffic conditions. The following improvements are recommended to improve Project deficiencies back to acceptable levels.

- ***Distribution Wy. & Prosperity Wy. /Driveway 1 (#2)*** – The deficiency at the intersection is due to a high northbound left turn and eastbound right turn volume during the PM peak hour associated with existing uses. A traffic signal is not warranted based on the peak hour volumes; however, a traffic signal is the only physical improvement that can improve the intersection's peak hour operations. The intersection should be monitored, and a traffic signal should be installed at the City Traffic Engineer's discretion when applicable warrants are met.

TABLE 5-2: SUMMARY OF INTERSECTION ANALYSIS FOR EAP (2025) CONDITIONS WITH IMPROVEMENTS

			Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
		Traffic	Northbound			Southbound			Eastbound			Westbound						
#	Intersection	Control[3]	L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
2	Distribution Wy. & Prosperity Wy./Dwy 1																	
	- With Improvements	**TS**	1	1	0	0	1	0	1	1	0	0	1	0	7.2	20.1	A	C

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; **1** = Improvement

[2] Per the Highway Capacity Manual 6th Edition, overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal; **TS** = Improvement

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6 OPENING YEAR (2025) TRAFFIC CONDITIONS

This section discusses the traffic forecasts for Opening Year (2025) conditions and the resulting intersection operations and traffic signal warrant analyses.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Opening Year (2025) conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for Opening Year (2025) conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).
- Driveways and those facilities assumed to be constructed by other developments to provide site access are also assumed to be in place for Opening Year (2025) conditions only (e.g., intersection and roadway improvements along the other development's frontages).
- The SR-60 Freeway at Potrero Boulevard interchange is not assumed to be completed for Opening Year (2025) traffic conditions.

6.2 OPENING YEAR (2025) WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes Existing (2022) traffic volumes plus an ambient growth factor of 6.12% and traffic from pending and approved development projects. The weekday ADT volumes and peak hour volumes which can be expected for Opening Year (2025) Without Project traffic conditions are shown on Exhibit 6-1.

6.3 OPENING YEAR (2025) WITH PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes Existing (2022) traffic volumes plus an ambient growth factor of 6.12%, traffic from pending and approved development projects, and the addition of Project traffic. The weekday ADT volumes and peak hour volumes which can be expected for Opening Year (2025) With Project traffic conditions are shown on Exhibit 6-2.

EXHIBIT 6-1: OPENING YEAR (2025) WITHOUT PROJECT TRAFFIC VOLUMES

1 Potrero Bl. & 4th St.

16,200		7,100
↲ 1043(366)	↳ 835(833)	↱ 258(1142)
		← 165(60)
243(1148) →		
48(176) →		
13,250		

2 Distribution Wy. & Driveway 1

Nominal			Nominal
↲ 1(0)	↳ 0(3)		← 1(1)
			↰ 0(1)
		↰ 568(481)	↑ 2(4) ↱ 0(1)
65(359) ↲			7,700
7,650			

3 Distribution Wy. & 4th St.

9,150		16,150
↲ 18(38)	↳ 60(493)	↱ 564(471)
		← 1012(925)
3(6) →		
122(650) →		
6,800		

4 Nicolas Rd. & Driveway 2

		↓ 5(2)
		↰ 3(1) ↑ 2(1) ↱ 2(0)
1(1) ↲		

5 Nicholas Rd. & 4th St.

550		16,250
↲ 5(23)	↳ 14(23)	↱ 37(8)
		← 1577(1379)
4(4) →		
188(1140) →		
16,250		

6 Veile Av. & 4th St.

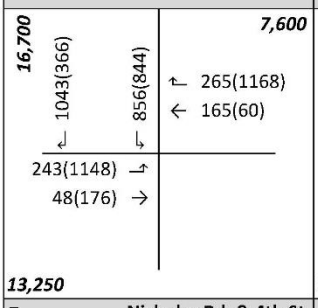
4,100			6,100
↲ 306(244)	↓ 25(52)	↳ 5(12)	↱ 9(8)
			← 898(743)
			↰ 5(1)
41(160) →			
205(1027) →			
76(393) ↲		↰ 430(410)	↑ 29(15) ↱ 2(1)
16,700			8,250

##(##) AM(PM) Peak Hour Intersection Volumes

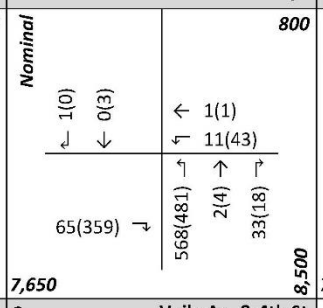
Average Daily Trips

EXHIBIT 6-2: OPENING YEAR (2025) WITH PROJECT TRAFFIC VOLUMES

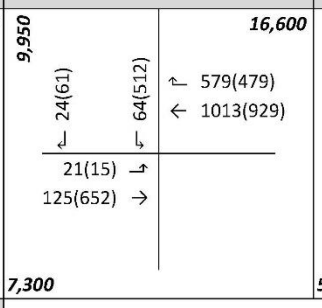
1 Potrero Bl. & 4th St.



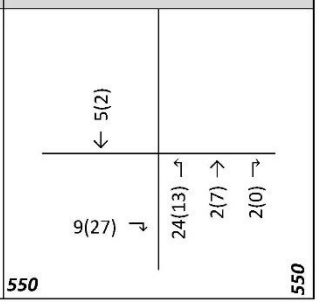
2 Distribution Wy. & Driveway 1



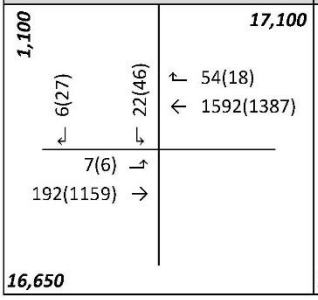
3 Distribution Wy. & 4th St.



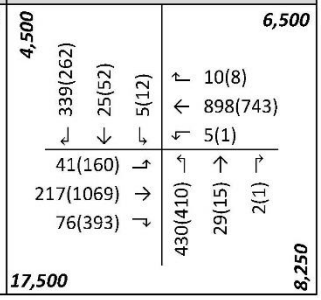
4 Nicolas Rd. & Driveway 2



5 Nicholas Rd. & 4th St.



6 Veile Av. & 4th St.



##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

6.4 INTERSECTION OPERATIONS ANALYSIS

LOS calculations were conducted for the study intersections to evaluate their operations under Opening Year (2025) traffic conditions with roadway and intersection geometrics consistent with Section 6.1 *Roadway Improvements*. As shown on Table 6-1, the following study area intersections are anticipated to operate at an unacceptable LOS under Opening Year (2025) Without Project traffic conditions:

- Potrero Bl. & 4th St. (#1) – LOS F PM peak hour only
- Distribution Wy. & Prosperity Wy. /Driveway 1 (#2) – LOS F PM peak hour only

With the addition of Project traffic, the following additional study area intersection is anticipated to operate an unacceptable LOS with the addition of Project traffic:

- Nicholas Rd. & 4th St. (#5) – LOS E PM peak hour only

The intersection operations analysis worksheets for Opening Year (2025) Without and With Project traffic conditions are included in Appendix 6.1 and Appendix 6.2 of this TA, respectively.

TABLE 6-1: INTERSECTION ANALYSIS FOR OPENING YEAR (2025) CONDITIONS

#	Intersection	Traffic Control[1]	2025 Without Project Delay[2] (secs.)		2025 Without Project Level of Service		2025 With Project Delay[2] (secs.)		2025 With Project Level of Service		Change in Delay		Project-Related Deficiency?[3]
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	
1	Potrero Bl. & 4th St.	TS	48.5	**>200.0**	D	**F**	48.8	**>200.0**	D	**F**	0.3	**32.6**	**Yes**
2	Distribution Wy. & Prosperity Wy./Dwy 1	AWS	29.8	**70.9**	D	**F**	31.1	**75.5**	D	**F**	1.3	4.6	No
3	Distribution Wy. & 4th St.	TS	8.8	23.9	A	C	10.4	27.8	B	C	1.6	3.9	No
4	Nicholas Rd. & Dwy 2	CSS	8.3	8.3	A	A	8.4	8.5	A	A	0.1	0.2	No
5	Nicholas Rd. & 4th St.	CSS	17.9	28.1	C	D	18.9	**35.1**	C	**E**	1.0	**7.0**	**Yes**
6	Veile Av. & 4th St.	TS	25.0	48.4	C	D	25.1	49.2	C	D	0.1	0.8	No

* **BOLD** = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] TS = Traffic Signal; CSS = Cross-Street Stop; AWS = All-Way Stop

[2] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] Per the City's Guidelines, increase in delay is calculated for intersections to determine Project-related deficiencies.

6.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

The traffic signal warrant analysis for Opening Year (2025) traffic conditions are based on the peak hour volumes or planning level ADT volume-based traffic signal warrants. There are no study area intersections anticipated to meet a traffic signal warrant under Opening Year (2025) Without Project and With Project traffic conditions (see Appendices 6.3 and 6.4, respectively).

6.6 NEAR-TERM DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

This section provides a summary of deficiencies, based on the City of Beaumont's deficiency criteria discussed in Section 2.5 *Deficiency Criteria*, and improvements needed to improve operations back to acceptable levels. Based on these criteria, only the following intersections require improvements:

- Potrero Bl. & 4th St. (#1)
- Nicholas Rd. & 4th St. (#5)

The effectiveness of the recommended improvement strategies to address Opening Year (2025) traffic deficiencies are presented in Table 6-2. Worksheets for Opening Year (2025) With Project conditions, with improvements, HCM calculation worksheets are provided in Appendix 6.5.

The intersection improvements are discussed below:

- Potrero Bl. & 4th St. (#1): Add 2nd EB left turn lane
- Nicholas Rd. & 4th St. (#5): Install a traffic signal.

TABLE 6-2: INTERSECTION ANALYSIS FOR OPENING YEAR (2025) CONDITIONS WITH IMPROVEMENTS

			Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
		Traffic	Northbound			Southbound			Eastbound			Westbound						
#	Intersection	Control[3]	L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	Potrero Bl. & 4th St.																	
	- With Improvements	TS	0	0	0	2	0	1	**2**	2	0	0	1	1	17.0	44.6	B	D
5	Nicholas Rd. & 4th St.																	
	- With Improvements	**TS**	0	0	0	1	0	1	1	2	0	0	2	0	6.3	7.6	A	A

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; 1 = Improvement

[2] Per the Highway Capacity Manual 6th Edition, overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal; **TS** = Improvement

[4] Improvement also includes restriping the SB approach with a left and shared left-right turn lane.

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7 HORIZON YEAR (2045) TRAFFIC CONDITIONS

This section discusses the traffic forecasts for Horizon Year (2045) conditions and the resulting intersection operations and traffic signal warrant analyses.

7.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Horizon Year (2045) conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for Horizon Year (2045) conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).
- Driveways and those facilities assumed to be constructed by other developments to provide site access are also assumed to be in place for Horizon Year (2045) conditions only (e.g., intersection and roadway improvements along the other development's frontages). This includes the southern extension of Potrero Boulevard south of 4th Street.
- The SR-60 Freeway at Potrero Boulevard interchange has been assumed to be completed with improvements in place for Horizon Year (2045) traffic conditions.
- Other parallel facilities, that although not evaluated for the purposes of this analysis, are anticipated to be in place for Horizon Year traffic conditions and would affect the travel patterns within the study area.

7.2 HORIZON YEAR (2045) WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes the refined post-process volumes obtained from the RIVCOM (see Section 4.8 *Horizon Year Traffic Forecasts* of this TA for a detailed discussion on the post-processing methodology). The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Horizon Year (2045) Without Project traffic conditions are shown on Exhibit 7-1.

7.3 HORIZON YEAR (2045) WITH PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes the refined post-process volumes obtained from the RIVCOM plus the traffic generated by the buildout of the proposed Project. The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Horizon Year (2045) With Project traffic conditions are shown on Exhibit 7-2.

EXHIBIT 7-1: HORIZON YEAR (2045) WITHOUT PROJECT TRAFFIC VOLUMES

1 Potrero Bl. & 4th St.

55,250 | 21,600
8(2) ↲ | 243(242) ↳ | ↱ 61(278) | ← 15(5)
8(5) ↳
13(7) →
23,250 | 24,350

2 Distribution Wy. & Driveway 1

Nominal | Nominal
1(0) ↲ | 0(3) ↓ | ← 1(1) | ↰ 0(1)
61(338) ↲ | 535(453) ↰ | 2(4) ↑ | 0(1) ↱
8,000 | 8,100

3 Distribution Wy. & 4th St.

10,100 | 29,200
17(36) ↲ | 57(465) ↳ | ↱ 531(444) | ← 166(222)
3(6) ↳
54(223) →
18,850

4 Nicolas Rd. & Driveway 2

5(2) ↓
1(1) ↲ | 3(1) ↰ | 2(7) ↑ | 2(0) ↱

5 Nicholas Rd. & 4th St.

750 | 30,600
5(22) ↲ | 13(22) ↳ | ↱ 35(8) | ← 698(650)
4(4) ↳
116(685) →
30,400

6 Veile Av. & 4th St.

4,150 | 19,850
133(106) ↲ | 24(49) ↓ | 5(11) ↳ | ↱ 9(8) | ← 215(176) | ↰ 5(1)
37(149) ↳
41(224) →
71(369) ↲ | 404(385) ↰ | 27(14) ↑ | 2(1) ↱
31,100 | 29,800

##(##) AM(PM) Peak Hour Intersection Volumes
Average Daily Trips

EXHIBIT 7-2: HORIZON YEAR (2045) WITH PROJECT TRAFFIC VOLUMES

1 Potrero Bl. & 4th St.

55,750 | 22,100
8(2) ↲ | 243(242) ↳ | ↱ 61(278) | ← 15(5)
8(5) ↳
13(7) →
23,250 | 24,350

2 Distribution Wy. & Driveway 1

Nominal | 800
1(0) ↲ | 0(3) ↓ | ← 1(1) | ↰ 0(1)
61(338) ↲ | 535(453) ↰ | 2(4) ↑ | 0(1) ↱
8,000 | 8,850

3 Distribution Wy. & 4th St.

10,850 | 29,600
17(36) ↲ | 57(465) ↳ | ↱ 531(444) | ← 166(222)
3(6) ↳
54(223) →
19,350

4 Nicolas Rd. & Driveway 2

5(2) ↓
1(1) ↲ | 3(1) ↰ | 2(7) ↑ | 2(0) ↱
550 | 550

5 Nicholas Rd. & 4th St.

1,300 | 31,400
5(22) ↲ | 13(22) ↳ | ↱ 35(8) | ← 698(650)
4(4) ↳
116(685) →
30,800

6 Veile Av. & 4th St.

4,550 | 20,250
133(106) ↲ | 24(49) ↓ | 5(11) ↳ | ↱ 9(8) | ← 215(176) | ↰ 5(1)
37(149) ↳
41(224) →
71(369) ↲ | 404(385) ↰ | 27(14) ↑ | 2(1) ↱
31,900 | 29,800

##(##) AM(PM) Peak Hour Intersection Volumes
Average Daily Trips

7.4 INTERSECTION OPERATIONS ANALYSIS

LOS calculations were conducted for the study intersections to evaluate their operations under Horizon Year (2045) traffic conditions with roadway and intersection geometrics consistent with Section 7.1 *Roadway Improvements*. As shown on Table 7-1, the following study area intersections are anticipated to operate at an unacceptable LOS under Horizon Year (2045) Without Project traffic conditions:

- Potrero Bl. & 4th St. (#1) – LOS F AM and PM peak hours
- Distribution Wy. & Prosperity Wy. /Driveway 1 (#2) – LOS E AM peak hour; F PM peak hour
- Veile Av. & 4th St. (#6) – LOS F AM peak hour; LOS E PM peak hour

Some of the intersection operations are anticipated to improve from the Opening Year Conditions (2025) as the future Potrero Boulevard interchange at the SR-60 Freeway is proposed to be in place and would likely result in reductions to through traffic along 4th Street. The following study area intersection is anticipated to operate at an unacceptable LOS with the addition of Project traffic in addition to the locations previously identified under Horizon Year (2045) Without Project traffic conditions:

- Nicholas Rd. & 4th St. (#5) – LOS E AM peak hour only

The intersection operations analysis worksheets for Horizon Year (2045) Without and With Project traffic conditions are included in Appendix 7.1 and Appendix 7.2 of this TA, respectively.

TABLE 7-1: INTERSECTION ANALYSIS FOR HORIZON YEAR (2045) CONDITIONS

			2045 Without Project				2045 With Project						
			Delay[2] (secs.)		Level of Service		Delay[2] (secs.)		Level of Service		Change in Delay		Project-Related
#	Intersection	Traffic Control[1]	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	Deficiency?[3]
1	Potrero Bl. & 4th St.	TS	**>200.0**	**>200.0**	**F**	**F**	**>200.0**	**19.9**	**F**	**F**	**5.0**	**7.1**	**Yes**
2	Distribution Wy. & Prosperity Wy./Dwy 1	AWS	**39.0**	**87.3**	**E**	**F**	**38.7**	**92.3**	**E**	**F**	-0.3	**5.0**	**Yes**
3	Distribution Wy. & 4th St.	TS	11.5	33.4	B	C	14.3	40.6	B	D	2.8	7.2	No
4	Nicholas Rd. & Dwy 2	CSS	8.4	8.3	A	A	8.5	8.5	A	A	0.1	0.2	No
5	Nicholas Rd. & 4th St.	CSS	31.0	20.4	D	C	**36.1**	24.8	**E**	C	5.1	4.4	**Yes**
6	Veile Av. & 4th St.	TS	**>200.0**	**69.0**	**F**	**E**	**>200.0**	**71.2**	**F**	**E**	2.6	2.2	No

* **BOLD** = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] TS = Traffic Signal; CSS = Cross-Street Stop; AWS = All-Way Stop

[2] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] Per the City's Guidelines, increase in delay is calculated for intersections to determine Project-related deficiencies.

7.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

The traffic signal warrant analysis for Horizon Year (2045) traffic conditions are based on the peak hour volumes or planning level ADT volume-based traffic signal warrants. There are no new study area intersections anticipated to warrant a traffic signal under Horizon Year (2045) Without and With Project traffic conditions in addition to those warranted under Opening Year (2025) traffic conditions (see Appendix 7.3 and Appendix 7.4).

7.6 LONG-RANGE DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

This section provides a summary of deficiencies, based on the City of Beaumont's deficiency criteria discussed in Section 2.5 *Deficiency Criteria*, and improvements needed to improve operations back to acceptable levels. Based on these criteria, only the following intersections require improvements:

- Potrero Bl. & 4th St. (#1)
- Distribution Wy. & Prosperity Wy. /Driveway 1 (#2)
- Nicholas Rd. & 4th St. (#5)

The effectiveness of the recommended improvement strategies to address Horizon Year (2045) traffic deficiencies are presented in Table 7-2. Worksheets for Horizon Year (2045) With Project conditions, with improvements, HCM calculation worksheets are provided in Appendix 7.5.

The intersection improvements are discussed below:

- Potrero Bl. & 4th St. (#1): Add a northbound left turn lane, 3 northbound through lanes, a northbound right turn lane, a 3rd southbound left turn lane, 2 southbound through lanes, a southbound free-right turn lane, a 3rd eastbound through lane, and a westbound free-right turn lane.
- Distribution Wy. & Prosperity Wy. /Driveway 1 (#2): Install a traffic signal.
- Nicholas Rd. & 4th St. (#5): Install a traffic signal.

TABLE 7-3: INTERSECTION ANALYSIS FOR HORIZON YEAR (2045) CONDITIONS WITH IMPROVEMENTS

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1] Northbound L	T	R	Southbound L	T	R	Eastbound L	T	R	Westbound L	T	R	Delay[2] (secs.) AM	PM	Level of Service AM	PM
1	Potrero Bl. & 4th St.																	
	- With Improvements	TS	**1**	**3**	**1**	**3**	**2**	**1>>**	**3**	2	0	**1**	1	**1>>**	23.3	53.7	C	D
2	Distribution Wy. & Prosperity Wy./Dwy 1																	
	- With Improvements	**TS**	1	1	0	0	1	0	1	1	0	0	1	0	7.5	24.3	A	C
5	Nicholas Rd. & 4th St.																	
	- With Improvements[4]	**TS**	0	0	0	1	0	1	1	2	0	0	2	0	7.6	8.4	A	A

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; **1** = Improvement

[2] Per the Highway Capacity Manual 6th Edition, overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal; CSS = Cross-Street Stop; AWS = All-Way Stop; TS = Improvement

[4] Improvement also includes implementing a 125-second cycle length during the PM peak hour only.

[5] No physical improvements recommended from the SR-60/Potrero Boulevard Interchange Project, however, a 120-second cycle length for the AM peak hour and 90-second cycle length for the PM peak hour.

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8 LOCAL AND REGIONAL FUNDING MECHANISMS

Transportation improvements within the City of Beaumont are funded through a combination of improvements constructed by the Project, development impact fee programs. Fee programs applicable to the Project are described below.

8.1 RIVERSIDE COUNTY TRANSPORTATION UNIFORM MITIGATION FEE (TUMF)

The TUMF program is administered by the WRCOG based upon a regional Nexus Study most recently updated in 2016 to address major changes in right of way acquisition and improvement cost factors. (4) This regional program was put into place to ensure that development pays its fair share, and that funding is in place for construction of facilities needed to maintain the requisite level of service and critical to mobility in the region. TUMF is a truly regional mitigation fee program and is imposed and implemented in every jurisdiction in Western Riverside County. The only study area segment that is identified as a TUMF facility is Potrero Boulevard, north of 4th Street. The payment of the Project's TUMF fees would go towards the implementation of the identified TUMF improvements.

8.2 CITY OF BEAUMONT DEVELOPMENT IMPACT FEE (DIF) PROGRAM

The City of Beaumont has created its own local DIF program to impose and collect fees from new residential, commercial, and industrial development for the purpose of funding roadways and intersections necessary to accommodate City growth as identified in the City's General Plan Circulation Element. The City's DIF includes Street & Bridges Impact Fee, Traffic Signal Impact Fee, and Railroad Crossing Impact Fee. Under the City's DIF program, the City may grant to developers a credit against specific components of fees when those developers construct certain facilities and landscaped medians identified in the list of improvements funded by the DIF program.

The Project Applicant will be subject to the City's DIF fee program and will pay the requisite City DIF fees at the rates then in effect. The Project Applicant's payment of the requisite DIF fees at the rates then in effect pursuant to the DIF Program will mitigate its impacts to DIF-funded facilities. None of the recommended improvements are currently identified as DIF facilities, however, the Project would still be subject to paying the requisite DIF fees. If improvements identified in this TA are later added to the City's DIF program, then the Project's payment of DIF fees would qualify as its fair share contribution towards those improvements and additional fair share contributions would not be collected for those same improvements.

8.3 MEASURE A

Although not a transportation mitigation fee, another source for regional transportation improvements is Measure A. Measure A, Riverside County's half-cent sales tax for transportation, was adopted by voters in 1988 and extended in 2002. It will continue to fund transportation improvements through 2038. Measure A funds a wide variety of transportation projects and services throughout the County. Riverside County Transportation Commission (RCTC) is responsible for administering the program. Measure A dollars are spent in accordance with a voter-approved expenditure plan that was adopted as part of the 1988 election.

8.4 FAIR SHARE CONTRIBUTION

Project improvements may include a combination of fee payments to established programs, construction of specific improvements, payment of a fair share contribution toward future improvements or a combination of these approaches. Improvements constructed by development may be eligible for a fee credit or reimbursement through the program where appropriate (to be determined at the City's discretion). When off-site improvements are identified with a minor share of responsibility assigned to proposed development, the approving jurisdiction may elect to collect a fair share contribution or require the development to construct improvements. These fair share contributions are applicable to improvements that are not included in any pre-existing fee program. Fair share funds collected are allocated to the respective locations. Per City staff, the locations identified below do not currently have any existing fair share funds. (8) Detailed fair share calculations, for each peak hour, have been provided in Table 8-1 for the applicable deficient study area intersection.

TABLE 8-1: PROJECT FAIR SHARE CALCULATIONS

#	Intersection		Existing	Project Only	2045 With Project	Net New Traffic	Project Fair Share of Net New Traffic
1	Potrero Bl. & 4th St.						
		AM:	411	34	5,437	5,026	0.7%
		PM:	575	44	5,704	5,129	**0.9%**
2	Distribution Wy. & Prosperity Wy./Dwy 1						
		AM:	607	51	727	120	**42.5%**
		PM:	804	65	961	157	41.4%

#	Intersection		Existing	Project Only	2025 With Project	Net New Traffic	Project Fair Share of Net New Traffic
5	Nicholas Rd. & 4th St.						
		AM:	979	63	2,164	1,185	5.3%
		PM:	1,431	80	2,737	1,306	**5.6%**

BOLD = Denotes highest fair share percentage.

9 REFERENCES

1. **Western Riverside Council of Governments.** *Recommended Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment.* WRCOG : s.n., Updated January 2020.
2. **Institute of Transportation Engineers.** *Trip Generation Manual.* 11th Edition. 2021.
3. **WSP.** *TUMF High-Cube Warehouse Trip Generation Study.* County of Riverside : s.n., January 29, 2019.
4. **Western Riverside Council of Governments.** *TUMF Nexus Study, 2016 Program Update.* July 2017.
5. **VRPA Technologies, Inc. for Riverside County Transportation Commission.** *Riverside County Long Range Transportation Study.* County of Riverside : VRPA Technologies, Inc., December 2019.
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10 CERTIFICATIONS

The contents of this TA report represent an accurate depiction of the operational deficiencies associated with the proposed Orchard Logistics Center. The information contained in this TA report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at cso@urbanxroads.com.

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