Appendix F

Transportation Analysis

1535-1575 Industrial Avenue

Transportation Analysis

Prepared for:

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Executive Summary

This report presents the results of the transportation analysis (TA) conducted for the proposed development at 1535-1575 Industrial Avenue in San Jose, California. The project, as proposed, would demolish the existing buildings on-site and construct a 71,550 square foot (s.f.) storage and distribution facility and ancillary office space. Access to the site would be provided via two driveways along Industrial Avenue.

The transportation analysis of the project was evaluated following the standards and methodologies set forth in the City of San Jose's Transportation Analysis Policy (Council Policy 5-1), the City of San Jose's *Transportation Analysis Handbook 2018*, the Santa Clara Valley Transportation Authority (VTA) Congestion Management Program's *Transportation Impact Guidelines* (October 2014), and by the California Environmental Quality Act (CEQA). Per the requirements of the City of San Jose's Transportation Policy and *Transportation Analysis Handbook 2018*, the TA report for the project consists of a CEQA vehicle-miles-traveled (VMT) analysis and a supplemental Local Transportation Analysis (LTA). The LTA includes an evaluation of weekday AM and PM peak-hour traffic conditions for two unsignalized intersections. The LTA also includes analyses of vehicle queuing at selected intersections, site access and on-site circulation, parking, and potential effects to transit, bicycle, and pedestrian facilities.

CEQA Transportation Analysis

Project-Level VMT Impact Analysis

The results of the VMT evaluation, using the City's VMT Evaluation Tool, indicate that the proposed project is projected to generate 14.69 VMT per employee. The project exceeds the 14.37 VMT per employee threshold by 2.2%. Therefore, the project would result in a significant transportation impact on VMT, and mitigation measures are required to reduce the VMT impact.

The following mitigation measures can be implemented to reduce the significant VMT impact:

Option 1:

- Traffic Calming Measures (Roadway Narrowing): City staff have indicated that the project could mitigate its VMT impact by reducing the roadway width along Industrial Avenue from 44 feet to 40 feet.
  AND
- Commute Trip Reduction Marketing/Education: Alternative commute information should be provided to future employees. Alternative commute education can include, but is not limited to bike maps, carpooling options, transit maps, etc. Providing information for alternative commute methods can encourage employees to commute to work by walking, bicycling, or transit.

The implementation of the above mitigation measures would reduce the project VMT to 14.11 per employee, which is below the threshold of 14.37 per employee, reducing the project impact to less than significant.

Option 2:

- Commute Trip Reduction Marketing/Education: Alternative commute information should be provided to future employees. Alternative commute education can include, but is not limited to bike maps, carpooling options, transit maps, etc. Providing information for alternative commute methods can encourage employees to commute to work by walking, bicycling, or transit.
  AND
- Implement Ride-Sharing Programs: Organize a program to match individuals interested in carpooling who have similar commutes for at least 1% of the project employees. This measure promotes the use of carpooling and reduces the number of drive-alone trips.

The implementation of the above mitigation measures would reduce the project VMT to 14.32 per employee, which is below the threshold of 14.37 per employee, reducing the project impact to less than significant.

Local Transportation Analysis

Project Trip Generation

Based on trip generation rates published by the Institute of Transportation Engineers, and after subtracting trips generated by the existing use on site, the proposed project is estimated to generate 91 net new daily vehicle trips, with 24 net new trips (18 inbound and 6 outbound) occurring during the AM peak hour and 26 net new trips (8 inbound and 18 outbound) occurring during the PM peak hour.

Intersection Traffic Operations

The operations of two unsignalized intersections were evaluated during the AM and PM peak hours. Since the City of San Jose does not have a formally-adopted level of service standard, this analysis is presented for informational purposes only. The analysis finds that the intersection of I-880 Northbound Ramps and Gish Road would operate at an unacceptable level of service during both AM and PM peak hours both with and without the proposed project. The other study intersection at Industrial Avenue and Gish Road would operate with moderate delay equivalent to LOS C during the AM and PM peak hours both with and without the proposed project.

Table ES-1
Intersection Level of Service Summary

#	Intersection	Peak Hour	No Project Worst-Movement Delay (sec)	No Project LOS	Existing with Project Worst-Movement Delay (sec)	Existing with Project LOS	Existing with Project Incr. in Critical Delay (sec)	Existing with Project Incr. in Critical V/C
1	I-880 Northbound Ramps & Gish Road[1,2]	AM	**--**	**F**	**--**	**F**	--	0.013
		PM	**120+**	**F**	**120+**	**F**	36.5	0.222
2	Industrial Avenue & Gish Road[1]	AM	15.3	C	15.6	C	0.2	0.012
		PM	17.8	C	18.1	C	0.3	0.020

Bold indicates a substandard level of service.
Note:
[1] Denotes a one-way or two-way stop-controlled intersection. Worst leg delay is reported.
[2] Delay cannot be calculated because intersection exceeds capacity during the AM Peak Hour.

An operational analysis of a traffic signal and a roundabout were evaluated for the intersection of I-880 Northbound Ramps and Gish Road. Based on the results of the analysis, both options would allow the intersection to operate at LOS B. Vehicular queues along the south leg (northbound approach) would extend to near the upstream intersection at Old Bayshore Highway and Gish Road during the busiest signal cycles. Therefore, a roundabout would be the preferential traffic control at the I-880 Northbound Ramps & Gish Road intersection.

Other Transportation Items

The project would not have an adverse effect on the existing pedestrian, bicycle, or transit facilities in the area. The proposed site plan shows adequate site access and on-site circulation, and no significant operational issues are expected to occur as a result of the project.

Recommendations:

- The proposed project is estimated to add four vehicle trips to the US 101/Oakland Road interchange during the PM peak hour. Therefore, the project will be required to pay the US 101/Oakland/Mabury Transportation Development Policy traffic impact fee.
- The results of the signal warrant analysis indicates that the I-880 Northbound Ramps/Gish Road intersection currently meets the peak-hour signal warrant and would continue to do so with the project. The project applicant should coordinate with City of San Jose staff to determine if there are any plans to signalize this intersection or install a roundabout. If so, it would be appropriate for the project to make a fair share monetary contribution toward the planned intersection improvements.
- The project applicant should coordinate with City staff to paint 25 feet of red curb on both sides of each driveway along Industrial Avenue
- The project applicant should revise the site plan to provide adequate long-term bicycle parking spaces.
- The project applicant should estimate the employment on site after completion of the proposed project to allow City Staff to determine whether the provided bicycle parking is adequate.

1. Introduction

This report presents the results of the transportation analysis (TA) conducted for the proposed development at 1535-1575 Industrial Avenue in San Jose, California (see Figure 1). The project, as proposed, would demolish the existing buildings on-site and construct a 71,550 square foot (s.f.) storage and distribution facility and ancillary office space. Access to the site would be provided via two driveways along Industrial Avenue. The proposed site plan is shown on Figure 2.

The transportation analysis of the project was evaluated following the standards and methodologies set forth in the City of San Jose's Transportation Analysis Policy (Council Policy 5-1), the City of San Jose's *Transportation Analysis Handbook 2018*, the Santa Clara Valley Transportation Authority (VTA) Congestion Management Program's *Transportation Impact Guidelines* (October 2014), and by the California Environmental Quality Act (CEQA). Per the requirements of the City of San Jose's Transportation Policy and *Transportation Analysis Handbook 2018*, the TA report for the project consists of a CEQA vehicle-miles-traveled (VMT) analysis and a supplemental Local Transportation Analysis (LTA).

CEQA Transportation Analysis Policy

Historically, transportation analysis has utilized delay and congestion on the roadway system as the primary metric for the identification of traffic impacts and potential roadway improvements to relieve traffic congestion that may result due to proposed/planned growth. However, the State of California has recognized the limitations of measuring and mitigating only vehicle delay at intersections and in 2013 passed Senate Bill (SB) 743, which requires jurisdictions to stop using congestion and delay metrics, such as Level of Service (LOS), as the measurement for CEQA transportation analysis. With the adoption of SB 743 legislation, public agencies are required to base the determination of transportation impacts on vehicle miles traveled (VMT) rather than level of service.

In adherence to SB 743, the City of San Jose has adopted a new Transportation Analysis Policy, Council Policy 5-1. The policy replaces its predecessor (Policy 5-3) and establishes the thresholds for transportation impacts under the CEQA based on VMT instead of LOS. The intent of this change is to shift the focus of transportation analysis under CEQA from vehicle delay and roadway auto capacity to a reduction in vehicle emissions, and the creation of robust multimodal networks that support integrated land uses. The new transportation policy aligns with the currently adopted General Plan, which seeks to focus new development growth within Planned Growth Areas, bringing together office, residential, and supporting service land uses to internalize trips and reduce VMT. All new development projects are required to analyze transportation impacts using the VMT metric and conform to Council Policy 5-1.

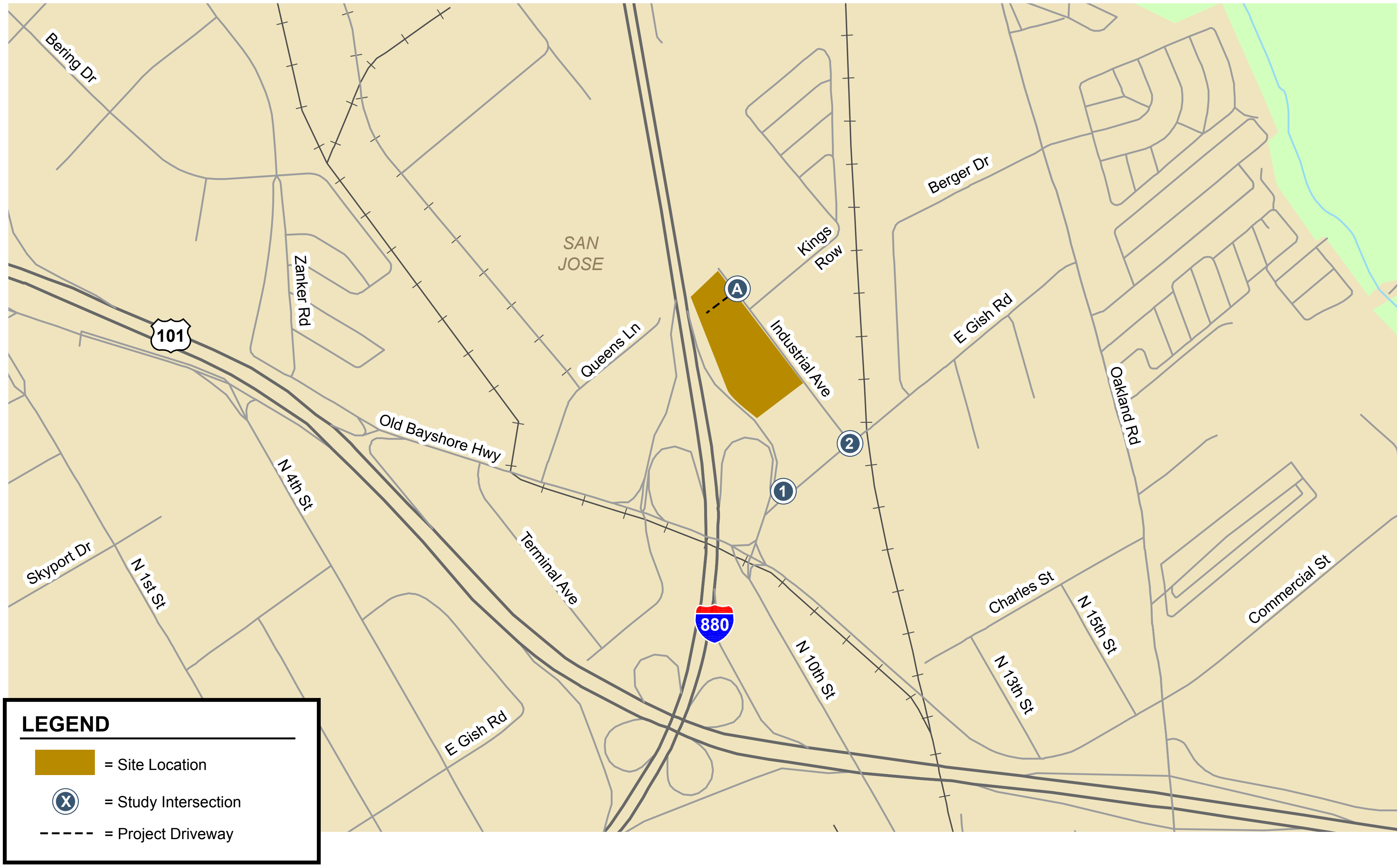

Figure 1
Site Location and Study Intersections

HEXAGON

NORTH
Not to Scale

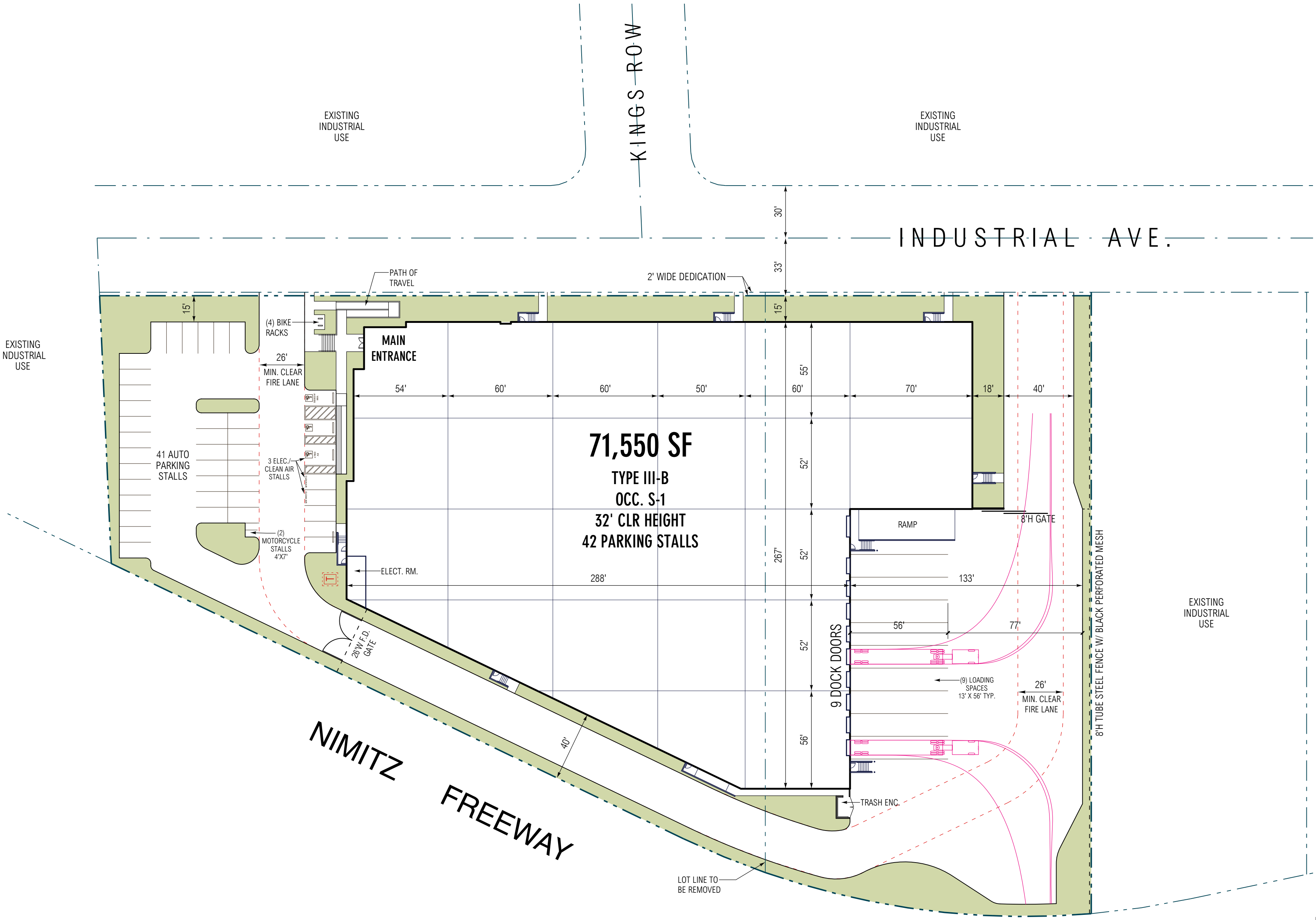

Figure 2
Site Plan

HEXAGON

NORTH
Not to Scale

The Circulation Element of the *Envision San José 2040 General Plan* includes a set of balanced, long-range, multi-modal transportation goals and policies that provide for a transportation network that is safe, efficient and sustainable (minimizes environmental, financial, and neighborhood impacts). These transportation goals and policies are intended to improve multi-modal accessibility to all land uses and create a city where people are less reliant on driving to meet their daily needs. The Envision San Jose 2040 General Plan contains the following policies to encourage the use of non-automobile transportation modes to minimize vehicle trip generation and reduce VMT:

- Accommodate and encourage the use of non-automobile transportation modes to achieve San Jose's mobility goals and reduce vehicle trip generation and VMT (TR-1.1).
- Consider impacts on overall mobility and all travel modes when evaluating transportation impacts of new developments or infrastructure projects (TR-1.2).
- Through the entitlement process for new development, projects shall be required to fund or construct needed transportation improvements for all transportation modes, giving first consideration to improvement of bicycling, walking and transit facilities and services that encourage reduced vehicle travel demand (TR-1.4).
- Require new development where feasible to provide on-site facilities such as bicycle storage and showers, provide connections to existing and planned facilities, dedicate land to expand existing facilities or provide new facilities such as sidewalks and/or bicycle lanes/paths, or share in the cost of improvements (TR-2.8).
- As part of the development review process, require that new development along existing and planned transit facilities consist of land use and development types and intensities that contribute towards transit ridership, and require that new development is designed to accommodate and provide direct access to transit facilities (TR-3.3).
- Balance business viability and land resources by maintaining an adequate supply of parking to serve demand while avoiding excessive parking supply that encourages automobile use (TR-8.2).
- Discourage, as part of the entitlement process, the provision of parking spaces significantly above the number of spaces required by code for a given use (TR-8.4).
- Within new development, create and maintain a pedestrian-friendly environment by connecting the internal components with safe, convenient, accessible, and pleasant pedestrian facilities and by requiring pedestrian connections between building entrances, other site features, and adjacent public streets (CD-3.3).
- Create a pedestrian-friendly environment by connecting new residential development with safe, convenient, accessible, and pleasant pedestrian facilities. Provide such connections between new development, its adjoining neighborhood, transit access points, schools, parks, and nearby commercial areas (LU-9.1).

CEQA Transportation Analysis Scope

The CEQA transportation analysis for the project consists of a project-level VMT impact analysis using the City's VMT tool and a cumulative impact analysis that demonstrates the project's consistency with the Envision San Jose 2040 General Plan.

The City of San Jose's Transportation Analysis Policy establishes procedures for determining project impacts on VMT based on project description, characteristics, and/or location. The City's VMT methodology also includes screening criteria that are used to identify types, characteristics, and/or locations of projects that would not exceed the CEQA thresholds of significance. If a project meets the screening criteria, it is then presumed that the project would result in a less-than-significant VMT impact and a VMT analysis is not required.

To determine whether a project would result in CEQA transportation impacts related to VMT, the City has developed the San Jose VMT Evaluation Tool to streamline the analysis for development projects. For non-residential or non-office projects, very large projects, or projects that can potentially shift travel patterns, the City's Travel Demand Forecasting (TDF) model can be used to determine project VMT. The City's VMT tool was used to estimate VMT for employment uses proposed by the project. Because the proposed project is relatively small and would not significantly alter existing traffic patterns, the VMT evaluation tool was used to estimate the project VMT and determine whether the project would result in a significant VMT impact. A CEQA-level transportation analysis that evaluates the project's effects on VMT is required for the project and is presented in Chapter 3.

Local Transportation Analysis Scope

A local transportation analysis (LTA) supplements the CEQA VMT analysis and identifies transportation and traffic operational issues that may arise due to a development project. The LTA includes an evaluation of the effects of the project on transportation, access, circulation, and related safety elements in the proximate area of the project.

The LTA includes the evaluation of weekday AM and PM peak hour operations at a limited number of intersections for the purpose of identifying operational issues (queuing and potential multi-modal issues) at intersections in the general vicinity of the project site. However, the determination of project impacts per CEQA requirements is based solely on the VMT analysis.

The LTA comprises an analysis of AM and PM peak-hour traffic conditions for two intersections in the vicinity of the project site.

Study Intersections

1. I-880 Northbound On/Off Ramps and E. Gish Road (unsignalized)
2. Industrial Avenue and E. Gish Road (unsignalized)

Traffic conditions at the study intersections were analyzed for both the weekday AM and PM peak hours of adjacent street traffic. The AM peak hour typically occurs between 7:00 AM and 9:00 AM and the PM peak hour typically occurs between 4:00 PM and 6:00 PM on a regular weekday. These are the peak commute hours during which most weekday traffic congestion occurs on the roadways in the study area.

Intersection operations conditions were evaluated for the following scenarios:

- ***Existing Conditions**.* Existing AM and PM peak hour traffic volumes at all signalized study intersections were obtained from the City of San Jose. For intersections where count data was more than two years old, a compounded growth factor of 1% per year was applied.

- ***Existing Plus Project Conditions**.* Existing plus project conditions reflect projected traffic volumes on the planned roadway network with completion of the project.

The LTA also includes a vehicle queuing analysis, an evaluation of potential project impacts on bicycle, pedestrian, and transit facilities, and a review of site access, on-site circulation, and parking demand.

Intersection Operations Analysis Methodology

This section presents the methods used to determine the traffic conditions at the study intersections and the potential adverse operational effects due to the project. It includes descriptions of the data requirements, the analysis methodologies, the applicable intersection level of service standards, and the criteria used to determine adverse effects on intersection operations.

Data Requirements

The data required for the analysis were obtained from prior transportation studies in the area and field observations. The following data were collected from these sources:

- existing traffic volumes
- existing lane configurations

Intersection Level of Service Standards and Analysis Methodologies

Traffic conditions at the study intersections were evaluated using level of service (LOS). *Level of Service* is a qualitative description of operating conditions ranging from LOS A, or free-flow conditions with little or no delay, to LOS F, or jammed conditions with excessive delays. The various analysis methods are described below.

Unsignalized Intersections

Level of service analysis at unsignalized intersections is generally used to determine the need for modification in the type of intersection control (i.e., all-way stop or signalization). As part of the evaluation, traffic volumes, delays, and traffic signal warrants are evaluated to determine if the existing intersection control is appropriate.

The study analyzes two unsignalized intersections. The intersections were analyzed using the TRAFFIX software. TRAFFIX evaluates unsignalized intersections on the basis of average stopped delay for all-way stop controlled intersections, and for the worst-case approach for one-way and two-way stop-controlled intersections.

The City of San Jose does not have a formally-adopted level of service standard for unsignalized intersections. For the purposes of analyses, a standard of LOS D or better is considered acceptable. Table 1 shows the level of service definitions for unsignalized intersections.

Table 1
Unsignalized Intersection Level of Service Denfinitions Based on Control Delay

Level of Service	Description	Average Delay Per Vehicle (Sec.)
A	Little or no traffic delay	10.0 or less
B	Short traffic delays	10.1 to 15.0
C	Average traffic delays	15.1 to 25.0
D	Long traffic delays	25.1 to 35.0
E	Very long traffic delays	35.1 to 50.0
F	Extreme traffic delays	greater than 50.0

Source: Transportation Research Board, *2000 Highway Capacity Manual* (Washington, D.C., 2000) p17-2.

Intersection Vehicle Queuing Analysis

The analysis of intersection operations was supplemented with a vehicle queuing analysis at intersections where the project would add a substantial number of trips to the left-turn movements or stop-controlled approaches. The queuing analysis is presented for informational purposes only, since the City of San Jose has not defined a policy related to queuing. Vehicle queues were calculated using a Poisson probability distribution, which estimates the probability of “n” vehicles for a vehicle movement using the following formula:

$$P\,(x=n) \quad = \quad \frac{\lambda^n e^{-(\lambda)}}{n!}$$

Where:

P (x=n) = probability of “n” vehicles in queue per lane
n = number of vehicles in the queue per lane
λ = average # of vehicles in the queue per lane (vehicles per hr per lane/average delay per hr)

The basis of the analysis is as follows: (1) the Poisson probability distribution is used to estimate the 95th percentile maximum number of queued vehicles for a particular movement; (2) the estimated maximum number of vehicles in the queue is translated into a queue length, assuming 25 feet per vehicle; and (3) the estimated maximum queue length is compared to the existing or planned available storage capacity for the movement. This analysis thus provides a basis for estimating future turn pocket storage requirements at intersections. Vehicle queuing at unsignalized intersections is evaluated based on the delay experienced by the specific study turn movement.

Report Organization

This report has a total of five chapters. Chapter 2 describes the existing roadway network, transit service, bicycle and pedestrian facilities. Chapter 3 describes the CEQA transportation analysis, including VMT analysis methodology, baseline and potential project VMT impacts, mitigation measures to reduce the VMT impact, and potential cumulative transportation impacts. Chapter 4 describes the local transportation analysis including the method by which project traffic is estimated, intersection operations analysis, any adverse intersection traffic effects caused by the project, intersection vehicle queuing analysis, site access and on-site circulation review, effects on bicycle, pedestrian, and transit facilities, and parking. Chapter 5 presents the conclusions of the transportation analysis.

2.
Existing Conditions

This chapter describes the existing conditions of the transportation system within the project study area. It describes the roadway network, transit service, and pedestrian and bicycle facilities in the vicinity of the project site.

Existing Roadway Network

Regional access to the project site is provided by Interstate 880 (I-880) and US 101. Local access to the project site is provided via Oakland Road, Old Bayshore Highway, Gish Road, and Industrial Avenue. These facilities are described below.

I-880 is a north-south freeway that extends through the Bay Area, connecting Oakland to San Jose. Near the vicinity of the project site, I-880 is eight lanes wide with three mixed-flow lanes and one HOV lane in each direction. I-880 provides site access via a full interchange at Old Bayshore Highway.

US 101 is a ten-lane freeway (four mixed-flow lanes and one HOV lane in each direction) in the vicinity of the site. US 101 extends northward through San Francisco and southward through Gilroy. Access to and from the site is provided via full interchanges at Oakland Road and I-880.

Oakland Road is a six-lane, north-south arterial street that services the surrounding commercial and residential uses. In the immediate vicinity of the proposed project, Oakland Road contains three mixed-flow lanes in each direction with a center turn lane. Oakland Road transitions from 13th Street at Hedding Street, and extends north to Montague Expressway, where it transitions into Main Street. Access to the project site from Oakland Road is provided via Gish Road

Old Bayshore Highway is an east-west arterial street extending from 13th Street and Commercial Street to Zanker Road. East of 13th Street, Old Bayshore Highway transitions to Commercial Street. Old Bayshore Highway is a four-lane roadway. Access to the project site from Old Bayshore Highway is provided via Gish Road.

Gish Road is a two-lane roadway that extends westward from Oakland Road and then turns southward to intersect Old Bayshore Highway near I-880. Access to the project site from Gish Road is via Industrial Avenue.

Industrial Avenue is a two-lane roadway that extends northward from Gish Road to a dead-end near the project site. On street parking is permitted along both sides of Industrial Avenue and the posted speed limit is 25 mph. The project proposes two driveways located along Industrial Avenue.

Existing Intersection Lane Configurations

The existing lane configurations at the study intersections were determined by observations in the field and are shown on Figure 3.

Existing Pedestrian, Bicycle, and Transit Facilities

San Jose desires to provide a safe, efficient, fiscally, economically, and environmentally sensitive transportation system that balances the needs of bicyclists, pedestrians, and public transit riders with those of automobiles and trucks. The existing pedestrian, bicycle, and transit facilities in the study area are described below.

Existing Pedestrian Facilites

Pedestrian facilities consist of sidewalks, crosswalks, and pedestrian signals at signalized intersections. In the vicinity of the project site, sidewalks exist only on the west side of Industrial Avenue from Gish Road to Kings Row, while sidewalks exist along both sides of Industrial Avenue between Kings Row and the dead end. Sidewalks are also present along both sides of Gish Road for a distance of about 700 feet west of Oakland Road. Beyond that point, sidewalks continue along the north side of Gish to I-880 with a short gap in the sidewalk between Industrial Avenue and the railroad tracks. There are no sidewalks along the segment of Gish Road between I-880 and Old Bayshore Highway or along Old Bayshore Highway in the vicinity of Gish Road.

The overall network of sidewalks and crosswalks in the study area provides limited connectivity. There are gaps in the pedestrian routes between the project site and the nearest bus route on Oakland Road. Furthermore, there are few commercial services (restaurants, banks, shops, etc), parks or trails within walking distance of the project site.

Existing Bicycle Facilites

Class II bikeways are located along several streets within the study area. Class II bikeways are striped bike lanes on roadways that are marked by signage and pavement markings. Within the vicinity of the project site, striped bike lanes are present on the following roadway segments:

- Oakland Road, between Gish Road and Commercial Street
- Old Bayshore Highway, between 10th Street and Zanker Road
- Berger Drive, between Oakland Road and Gish Road

In addition, buffered bike lanes with a designated buffer space separating the bicycle lane from the adjacent motor vehicle travel lane are present on the following roadway segment:

- Oakland Road, between Gish Road and Montague Expressway

Although Industrial Avenue and Gish Road do not provide bike lanes and are not designated as bike routes, due to their low traffic volume and low speeds, they are conducive to bicycle usage. The existing bicycle facilities within the study area are shown on Figure 4.

Existing Transit Services

Existing transit services near the project site are provided by the Santa Clara Valley Transportation Authority (VTA) (See Figure 5). The project site is not accessible by transit since there are no transit routes within normal walking distance (one-quarter mile). The study area has one local bus route, Route 66. The nearest bus stop is located approximately 0.6 miles from the project site at the intersection of Gish Road and Oakland Road. Route 66 runs from Kaiser Permanente Medical Center in South San Jose to Milpitas from 5:14 AM to 12:08 AM with a headway of 15 to 20 minutes during peak commute hours.

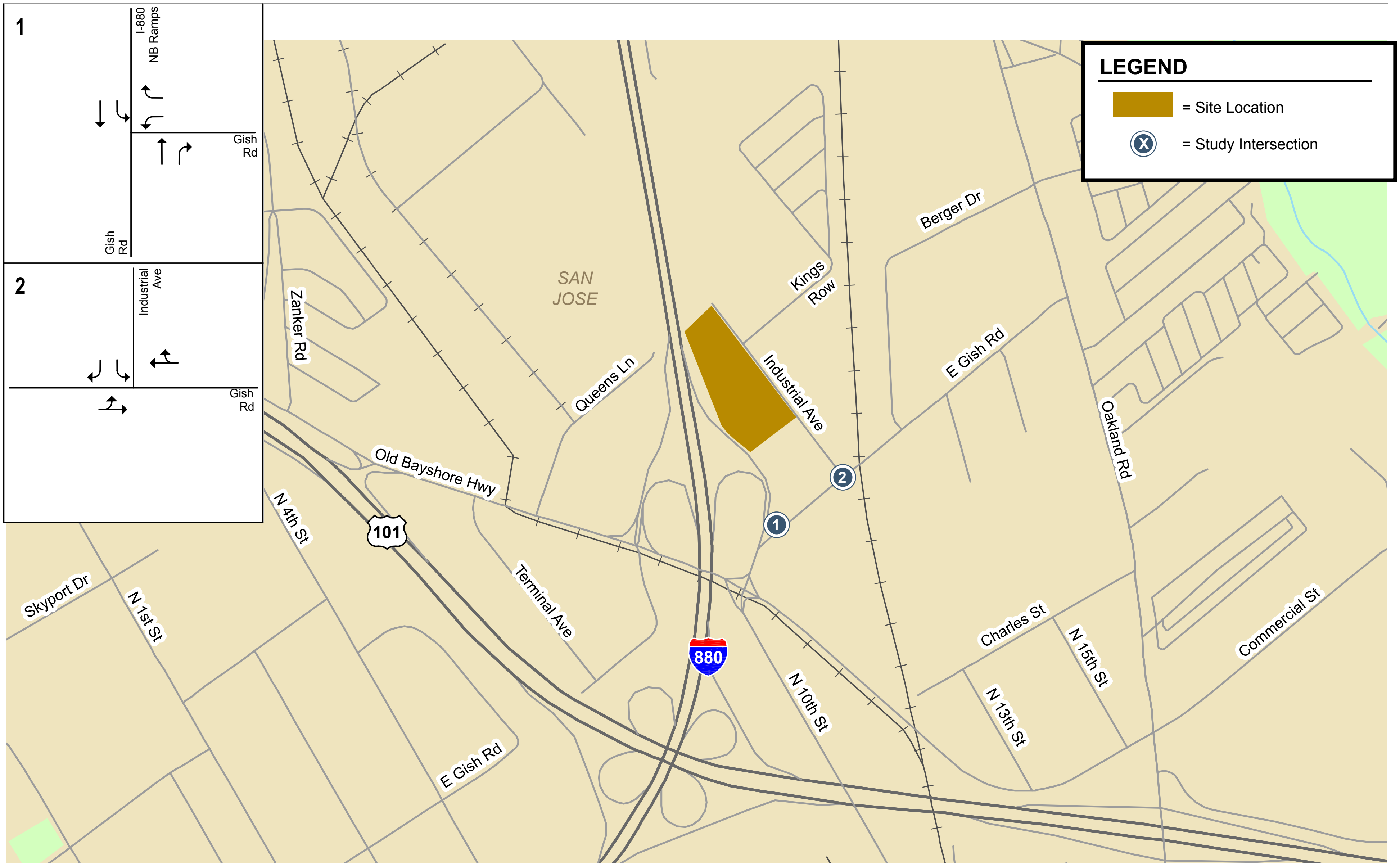

Figure 3
Existing Lane Configurations

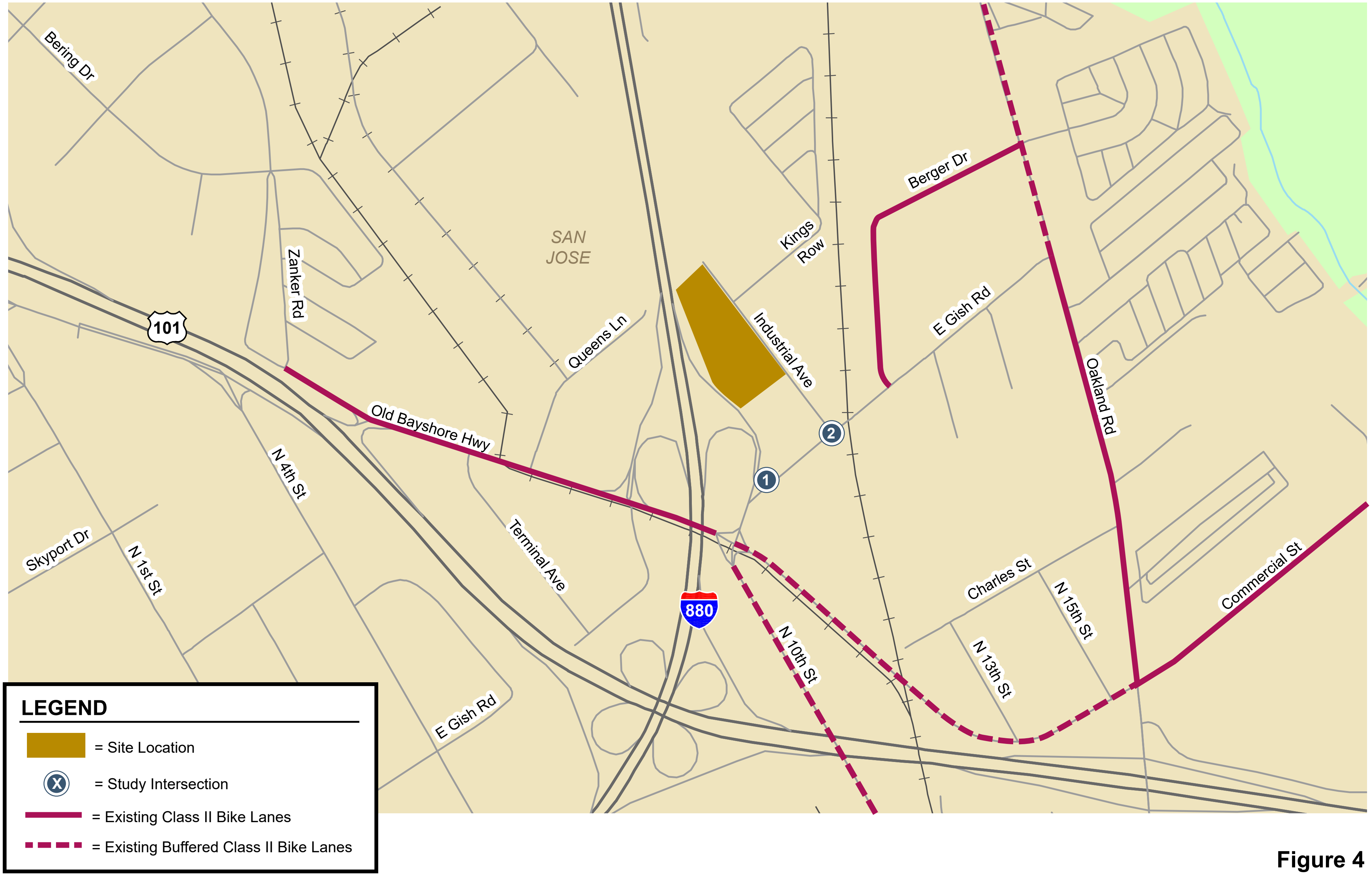

Figure 4
Existing Bicycle Facilities

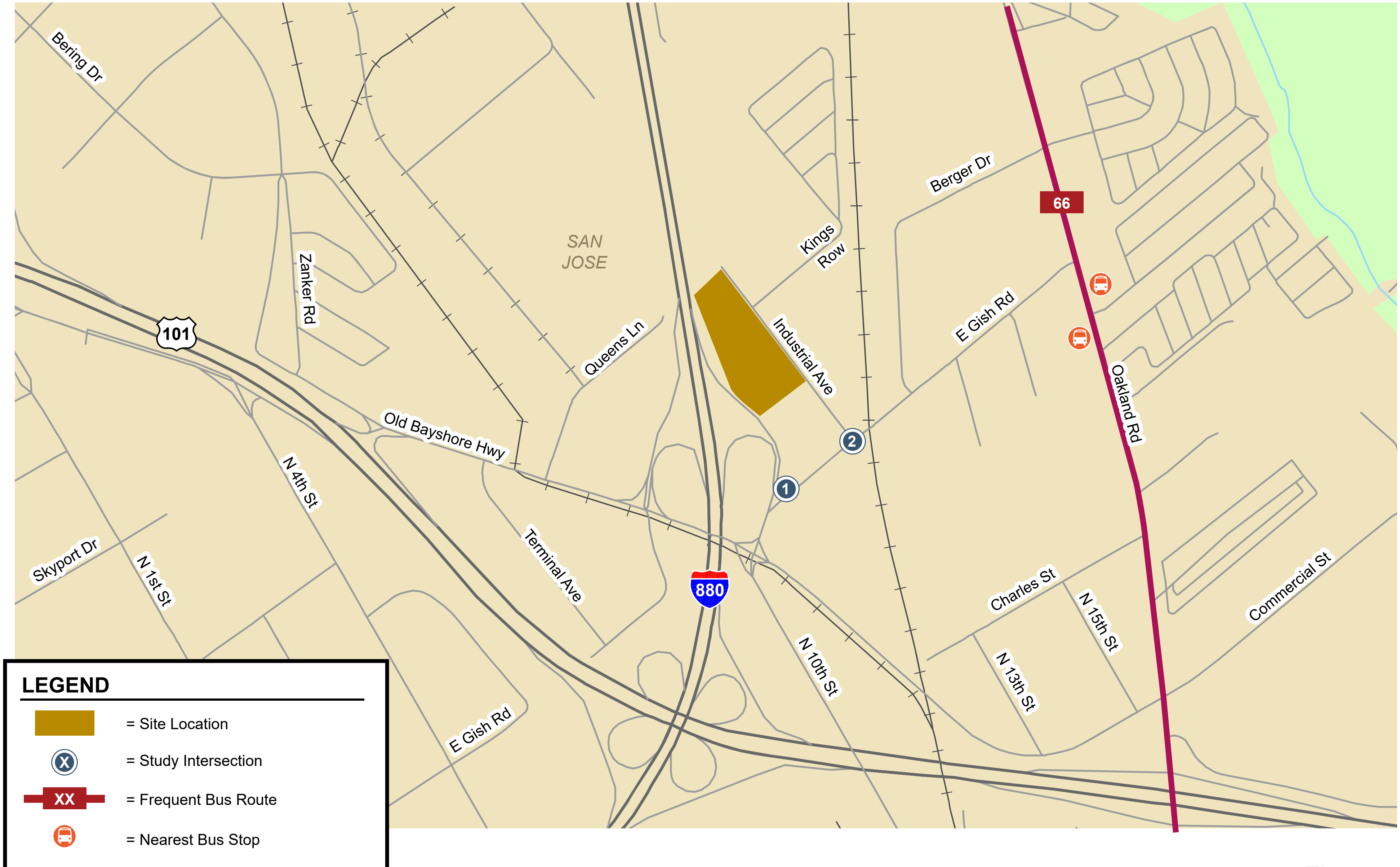

Figure 5
Existing Transit Services

3.
CEQA Transportation Analysis

This chapter describes the CEQA transportation analysis, including the VMT analysis methodology and significance criteria, potential project impacts on VMT, mitigation measures recommended to reduce significant impacts, and an evaluation of consistency with the City of San Jose's General Plan.

CEQA Transportation Analysis Screening Criteria

The City of San Jose *Transportation Analysis Handbook* identifies screening criteria that determine whether a CEQA transportation analysis would be required for development projects. The criteria are based on the type of project, characteristics, and/or location. If a project meets the City's screening criteria, it is presumed that the project would result in a less-than-significant transportation impact and a detailed VMT analysis is not required. The type of development projects that may meet the screening criteria include the following:

(1) small infill projects
(2) local-serving retail
(3) local-serving public facilities
(4) projects located in *Planned Growth Areas* with low VMT and *High-Quality Transit*
(5) deed-restricted affordable housing located in *Planned Growth Areas* with *High-Quality Transit*

Table 2 summarizes the screening criteria for each type of development project as identified in the City of San Jose Transportation Analysis Handbook.

Evaluation of Screening Criteria

Since the project is industrial in nature, the only screening criteria the project would be eligible for is small infill projects. However, since the proposed project exceeds the screening criteria of 30,000 square feet, a CEQA level VMT analysis is required.

Table 2
CEQA VMT Analysis Screening Criteria for Development Projects

Type	Screening Criteria
Small Infill Projects	• Single-family detached housing of 15 units or less; OR • Single-family attached or multi-family housing of 25 units or less; OR • Office of 10,000 square feet of gross floor area or less; OR • Industrial of 30,000 square feet of gross floor area or less
Local-Serving Retail	• 100,000 square feet of total gross floor area or less without drive-through operations
Local-Serving Public Facilities	• Local-serving public facilities
Residential/Office Projects or Components	• **Planned Growth Areas:** Located within a Planned Growth Area as defined in the Envision San José 2040 General Plan; AND • **High-Quality Transit:** Located within ½ a mile of an existing major transit stop or an existing stop along a high-quality transit corridor; AND • **Low VMT:** Located in an area in which the per capita VMT is less than or equal to the CEQA significance threshold for the land use; AND • **Transit-Supporting Project Density**: o Minimum Gross Floor Area Ratio (FAR) of 0.75 for office projects or components; o Minimum of 35 units per acre for residential projects or components; o If located in a Planned Growth Area that has a maximum density below 0.75 FAR or 35 units per acre, the maximum density allowed in the Planned Growth Area must be met; AND • **Parking:** o No more than the minimum number of parking spaces required; o If located in Urban Villages or Downtown, the number of parking spaces must be adjusted to the lowest amount allowed; however, if the parking is shared, publicly available, and/or "unbundled", the number of parking spaces can be up to the zoned minimum; AND • **Active Transportatio**n: Not negatively impact transit, bike or pedestrian infrastructure.
Restricted Affordable Residential Projects or Components	• **Affordability:** 100% restricted affordable units, excluding unrestricted manager units; affordability must extend for a minimum of 55 years for rental homes or 45 years for for-sale homes; AND • **Planned Growth Areas:** Located within a Planned Growth Area as defined in the Envision San José 2040 General Plan; AND • **High Quality Transit:** Located within ½ a mile of an existing major transit stop or an existing stop along a high quality transit corridor; AND • **Transit-Supportive Project Density**: o Minimum of 35 units per acre for residential projects or components; o If located in a Planned Growth Area that has a maximum density below 35 units per acre, the maximum density allowed in the Planned Growth Area must be met; AND • **Transportation Demand Management (TDM):** If located in an area in which the per capita VMT is higher than the CEQA significance threshold, a robust TDM plan must be included; AND • **Parking:** o No more than the minimum number of parking spaces required; o If located in Urban Villages or Downtown, the number of parking spaces must be adjusted to the lowest amount allowed; however, if the parking is shared, publicly available, and/or "unbundled", the number of parking spaces can be up to the zoned minimum; AND • **Active Transportation:** Not negatively impact transit, bike or pedestrian infrastructure.

Source: City of San José Transportation Analysis Handbook, April 2018.

VMT Evaluation Methodology and Criteria

Per Council Policy 5-1, the effects of the proposed project on VMT is evaluated using the methodology outlined in the City's *Transportation Analysis Handbook*. The City of San Jose defines VMT as the total miles of travel by personal motorized vehicles a project is expected to generate in a day. VMT is calculated using the Origin-Destination VMT method, which measures the full distance of personal motorized vehicle-trips with one end within the project. A project's VMT is compared to established thresholds of significance based on the project location and type of development.

Typically, development projects that are farther from other, complementary land uses (such as a business park far from housing) and in areas without transit or active transportation infrastructure (bike lanes, sidewalks, etc.) generate more driving than development near complementary land uses with more robust transportation options. Therefore, developments located in a central business district with high density and diversity of complementary land uses and frequent transit services are expected to internalize trips and generate shorter and fewer vehicle trips than developments located in a suburban area with low density of residential developments and no transit service in the project vicinity.

When assessing a residential project, the project's VMT is divided by the number of residents expected to occupy the project to determine the VMT per capita. When assessing an office or industrial project, the project's VMT is divided by the number of employees. Non-residential and non-employment uses, such as retail and hotel uses are assessed based on their effects on total VMT.

VMT Evaluation Tool

To determine whether a project would result in CEQA transportation impacts related to VMT, the City has developed the San Jose VMT Evaluation Tool to streamline the analysis for development projects. Based on the assessor's parcel number (APN) of a project, the VMT evaluation tool identifies the existing average VMT per capita and employee for the project area. Based on the project location, type of development, project description, and proposed trip reduction measures, the VMT evaluation tool calculates the project VMT.

Projects located in areas where the existing VMT is greater than the established threshold are referred to as being in “high-VMT areas”. Projects in high-VMT areas are required to include a set of VMT reduction measures that would reduce the project VMT to the greatest extent possible. The VMT Evaluation tool evaluates a list of selected VMT reduction measures that can be applied to a project to reduce the project VMT. There are four strategy tiers whose effects on VMT can be calculated with the VMT Evaluation tool:

1. Project characteristics (e.g. density, diversity of uses, design, and affordability of housing) that encourage walking, biking and transit uses.
2. Multimodal network improvements that increase accessibility for transit users, bicyclists, and pedestrians,
3. Parking measures that discourage personal motorized vehicle-trips, and
4. Transportation demand management (TDM) measures that provide incentives and services to encourage alternatives to personal motorized vehicle-trips.

The first three strategies – land use characteristics, multimodal network improvements, and parking – are physical design strategies that can be incorporated into the project design. TDM includes programmatic measures that aim to reduce VMT by decreasing personal motorized vehicle mode share and by encouraging more walking, biking, and riding transit. TDM measures should be enforced through annual trip monitoring to assess the project's status in meeting the VMT reduction goals.

Baseline VMT Estimates

The thresholds of significance for industrial projects, as established in the Transportation Analysis Policy, are based on the existing regional average VMT level for industrial uses. The regional average VMT level for industrial uses is 14.37 VMT per employee.

Thresholds of Significance

If a project is found to have a significant impact on VMT, the impact must be reduced by modifying the project to reduce its VMT to an acceptable level (below the established thresholds of significance applicable to the project) and/or mitigating the impact through multimodal transportation improvements or establishing a Trip Cap. Table 3 shows the VMT thresholds of significance for development projects, as established in the Transportation Analysis Policy.

Table 3
CEQA VMT Analysis Significant Impact Criteria for Development Projects

Project Types	Significance Criteria	Current Level	Threshold
Residential Uses	Project VMT per capita exceeds existing citywide average VMT per capita minus 15 percent, or existing regional average VMT per capita minus 15 percent, whichever is lower.	11.91 VMT per capita (Citywide Average)	10.12 VMT per capita
General Employment Uses	Project VMT per employee exceeds existing regional average VMT per employee minus 15 percent.	14.37 VMT per employee (Regional Average)	12.21 VMT per employee
Industrial Employment Uses	Project VMT per employee exceeds existing regional average VMT per employee.	14.37 VMT per employee (Regional Average)	14.37 VMT per employee
Retail / Hotel / School Uses	Net increase in existing regional total VMT.	Regional Total VMT	Net Increase
Public / Quasi-Public Uses	In accordance with most appropriate type(s) as determined by Public Works Director.	Appropriate levels listed above	Appropriate thresholds listed above
Mixed-Uses	Evaluate each land use component of a mixed-use project independently, and apply the threshold of significance for each land use type included.	Appropriate levels listed above	Appropriate thresholds listed above
Change of Use / Additions to Existing Development	Evaluate the full site with the change of use or additions to existing development, and apply the threshold of significance for each project type included.	Appropriate levels listed above	Appropriate thresholds listed above
Area Plans	Evaluate each land use component of the Area Plan independently, and apply the threshold of significance for each land use type included.	Appropriate levels listed above	Appropriate thresholds listed above

Source: City of San Jose, *2018 Transportation Analysis Handbook* , Table 2.

The applicable impact criteria for the project are as follows:

- Projects that include industrial uses are said to create a significant adverse impact when the estimated project-generated VMT exceeds the existing regional average VMT per employee. Currently, the reported regional average is 14.37 VMT per employee.

Projects that trigger a VMT impact can assess a variety of the four strategies described above to reduce impacts. A significant impact is said to be satisfactorily mitigated when the strategies and VMT reductions implemented render the VMT impact less than significant.

VMT of Existing Land Uses

The results of the VMT analysis using the VMT Evaluation Tool indicate that the existing VMT for industrial employment uses in the project area is 15.00 per employee. As shown in Table 3, the current regional average VMT for industrial employment uses is 14.37 per employee. Therefore, the existing VMT levels for industrial employment uses in the project area currently exceed the regional average VMT levels. Appendix A presents the VMT Evaluation Tool summary report for the project.

Project-Level VMT Impact Analysis

The City's Transportation Policy identifies an impact threshold exceeding the industrial employment regional average. Thus, the proposed project would result in a significant impact if it results in a project VMT of 14.37 VMT per employee.

The results of the VMT evaluation, using the City's VMT Evaluation Tool, indicate that the proposed project is estimated to generate 14.69 VMT per employee. The project-generated VMT per employee is lower than the average VMT per employee in this area (15.00) due to the project size and design features. The project would exceed the 14.37 VMT per employee threshold by 2.2%. Therefore, the proposed project would have an impact on the transportation system based on the City's VMT impact criteria. Figure 6 shows the VMT evaluation summary generated by the City of San Jose's VMT Evaluation Tool.

Project Impacts and Mitigation Measures

Project Impact: Since the VMT generated by the project (14.69 per employee) would exceed the threshold of 14.37 VMT per employee, the project would result in a significant transportation impact on VMT, and mitigation measures are required to reduce the VMT impact. According to the *Transportation Analysis Handbook*, projects located in areas where the existing VMT is above the established threshold are referred to as being in "high-VMT areas", and projects in high-VMT areas are required to include a set of VMT reduction measures that would reduce the project VMT to the greatest extent possible.

Mitigation Measures

The following mitigation measures can be implemented to reduce the significant VMT impact:

Option 1:

- Traffic Calming Measures (Roadway Narrowing): City staff have indicated that the project could mitigate its VMT impact by reducing the roadway width along Industrial Avenue from 44 feet to 40 feet.
  AND
- Commute Trip Reduction Marketing/Education: Alternative commute information should be provided to future employees. Alternative commute education can include, but is not limited to bike maps, carpooling options, transit maps, etc. Providing information for alternative commute methods can encourage employees to commute to work by walking, bicycling, or transit.

The implementation of the above mitigation measures would reduce the VMT generated by the project by providing traffic calming to reduce vehicle speeds and encourage pedestrians to walk. Additionally, it would encourage employees to use alternative modes or carpooling to work. The implementation of the above mitigation measures would reduce the project VMT to 14.11 per employee, which is below the threshold of 14.37 per employee, reducing the project impact to less than significant. Appendix A presents the VMT Evaluation Tool summary report for the project with the mitigation measures.

Option 2:

- Commute Trip Reduction Marketing/Education: Alternative commute information should be provided to future employees. Alternative commute education can include, but is not limited to bike maps, carpooling options, transit maps, etc. Providing information for alternative commute methods can encourage employees to commute to work by walking, bicycling, or transit.
  AND
- Implement Ride-Sharing Programs: Organize a program to match individuals interested in carpooling who have similar commutes for at least 1% of the project employees. This measure promotes the use of carpooling and reduces the number of drive-alone trips.

The implementation of the above mitigation measures would reduce the VMT generated by the project by encouraging employees to use alternative modes or carpooling to work. The implementation of the above mitigation measures would reduce the project VMT to 14.32 per employee, which is below the threshold of 14.37 per employee, reducing the project impact to less than significant. Appendix A presents the VMT Evaluation Tool summary report for the project with the mitigation measures.

Cumulative (GP Consistency) Evaluation

Projects must demonstrate consistency with the *Envision San José 2040 General Plan* to address cumulative impacts. Consistency with the City's General Plan is based on the project's density, design, and conformance to the General Plan goals and policies. If a project is determined to be inconsistent with the General Plan, a cumulative impact analysis is required per the City's *Transportation Analysis Handbook*.

The project site is located within the East Gish Employment Area. The area was designated as a planned growth area in the *Envision San José 2040 General Plan*. The general plan designates employment areas for significant job growth.

The project site is located within the Heavy Industrial zone. Heavy Industrial developments can develop at a FAR of up to 1.5. Based on the existing lot area of 156,950 square feet, the project is allowed to develop up to 235,425 square feet (477,580 s.f. x 1.5 FAR = 235,425 s.f.).

The project as proposed would construct a light industrial, one-story building comprised of 71,550 gross square feet of warehouse space. This equates to a FAR of 0.46 (71,550 s.f. ÷ 156,950 s.f. = 0.46).

The project is consistent with the General Plan goals and policies for the following reasons:

- The project site is near bicycle lanes on Oakland Road.
- The project would provide bicycle parking on the ground level near the project entrance to encourage employee use of alternative transportation modes.
- The project would implement a TDM plan that includes commute trip reduction marketing and education aimed at reducing VMT.
- The project promotes economic development and completion of the General Plan transportation network through the US-101/Mabury Transportation Development Policy (TDP)

- The project maintains, enhances, and develops the employment lands within an identified key employment area (the East Gish and Mabury industrial area) (FS-4.2)
- The proposed project site would increase the intensity of employment.

Therefore, based on the project description, the proposed project would be consistent with the *Envision San José 2040 General Plan*. Thus, the project would be considered as part of the cumulative solution to meet the General Plan's long-range transportation goals and would result in a less-than-significant cumulative impact.

CITY OF SAN JOSE VEHICLE MILES TRAVELED EVALUATION TOOL SUMMARY REPORT

EMPLOYMENT ONLY

The tool estimates that the project would generate per non-industrial worker VMT below the City's threshold. There are selected strategies that require coordination with the City of San Jose to implement.

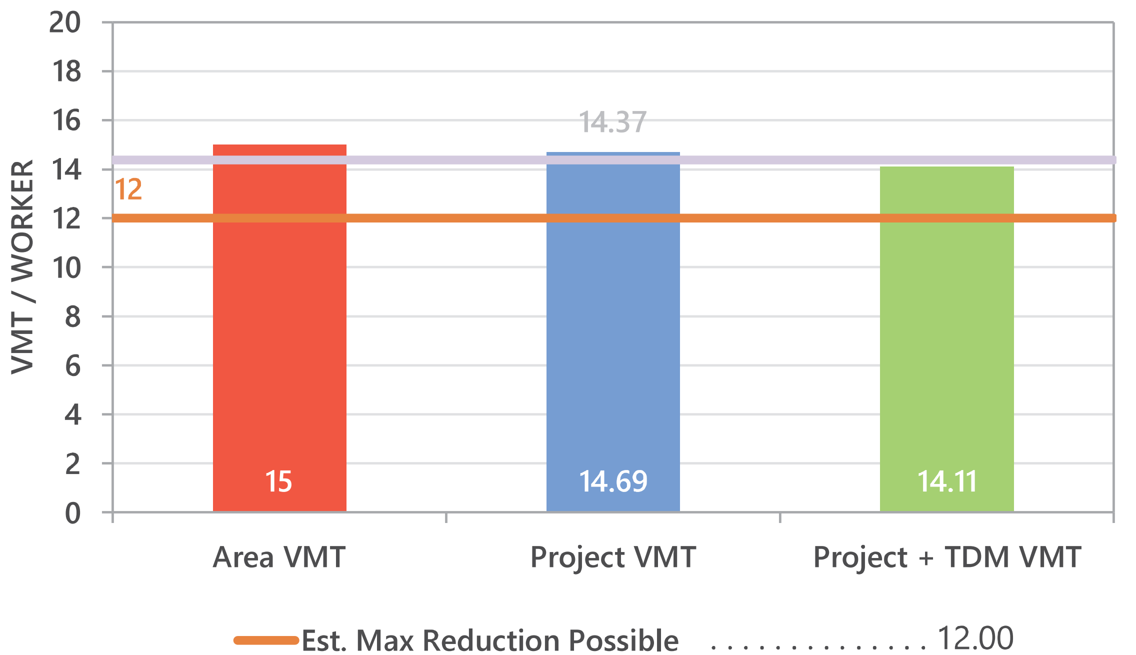

Figure 6
VMT Analysis

NORTH
Not to Scale

4.
Local Transportation Analysis

This chapter describes the local transportation analysis (LTA) including the method by which project traffic is estimated, intersection operations analysis, any adverse effects to intersection level of service caused by the project, site access and on-site circulation review, parking, and effects on bicycle, pedestrian and transit facilities.

Intersection Operations Analysis

The intersection operations analysis is intended to quantify the operations of intersections in the project vicinity and to identify potential negative effects due to the addition of project traffic. Information required for the intersection operations analysis related to project trip generation, trip distribution, and trip assignment are presented in this section. The study intersections are evaluated based on the intersection level of service analysis methodology and standards described in Chapter 1.

Project Trip Estimates

The magnitude of traffic produced by a new development and the locations where that traffic would appear are estimated using a three-step process: (1) trip generation, (2) trip distribution, and (3) trip assignment. In determining project trip generation, the magnitude of traffic entering and exiting the site is estimated for the AM and PM peak hours. As part of the project trip distribution, the directions to and from which the project trips would travel are estimated. In the project trip assignment, the project trips are assigned to specific streets and intersections. These procedures are described below.

Proposed Project Trips

Through empirical research, data have been collected that indicate the amount of traffic that can be expected to be generated by common land uses. Project trip generation was estimated by applying to the size and uses of the development the appropriate trip generation rates. The fitted curve equation rates for Warehousing (Land Use 150) as published in the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10th Edition* (2017) were applied to the proposed use.

Trip Reductions

In accordance with San Jose's *Transportation Analysis Handbook* (April 3018, Section 4.8, "Intersection Operations Analysis"), the project is eligible for adjustments and reductions from the baseline (gross) trip generation described above. Based on the 2018 San Jose guidelines, the project also qualifies for a location-based adjustment. The location-based adjustment reflects the project's vehicle mode share based on the place type in which the project is located per the San Jose Travel Demand Model. The project's place type was obtained from the *San Jose VMT Evaluation Tool.* Based on the Tool, the project site is located within a suburb area with multi-family homes. Therefore, the baseline project trips were adjusted to reflect a suburb area mode share. Suburb with multi-family homes is characterized as an area with average accessibility, vacancy, and low single-family homes.

Industrial developments located in suburb with multi-family home areas have a vehicle mode share of 92%. Thus, an 8% reduction was applied to the trips generated by the proposed project. Additionally, trip credits were taken for the existing industrial uses on site. The average rates for Industrial Park (Land Use 130) were utilized for the existing use on site.

Net Project Trips

After applying the ITE trip rates, the proposed project is estimated to generate 91 net new daily vehicle trips, with 24 net new trips (18 inbound and 6 outbound) occurring during the AM peak hour and 26 net new trips (8 inbound and 18 outbound) occurring during the PM peak hour (see Table 4).

Table 4
Project Trip Generation Estimates

Land Use	ITE Land Use Code	Reduction %	Size	Daily Rate	Daily Trip	AM Peak Hour Rate	AM Trip In	AM Trip Out	AM Trip Total	PM Peak Hour Rate	PM Trip In	PM Trip Out	PM Trip Total
Proposed Land Uses													
Warehousing[1]	**150**		**71,550** Square Feet	2.216	159	0.474	26	8	34	0.509	10	26	36
Location-Based Adjustment[2]		***8%***			*-13*		*-2*	*-1*	*-3*		*-1*	*-2*	*-3*
Total Project Trips					**146**		**24**	**7**	**31**		**9**	**24**	**33**
Existing Land Uses													
Industrial Park[3]	**130**		**16,400** Square Feet	3.370	55	0.400	-6	-1	-7	0.400	-1	-6	-7
Net Project Trips					**91**		**18**	**6**	**24**		**8**	**18**	**26**

Source: ITE Trip Generation Manual, 10th Edition 2017
Notes:
[1]Rates per 1,000 s.f. (square feet) based on fitted curve equation for Land Use 150 (Warehousing) from the ITE Trip Generation Manual, 10th Edition.
[2]Trip reduction percentages obtained from the City of San Jose *Transportation Analysis Handbook* (2018). Place type from the City of San Jose VMT Evaluation Tool, 2019
[3]Existing use trip generation estimated based on rates per 1,000 .s.f based on average rates for Land Use 130 (Industrial Park) from the ITE Trip Generation Manual, 10th Edition.

Trip Distribution and Assignment

The trip distribution pattern for the project was estimated based on existing travel patterns on the surrounding roadway system and the locations of complementary land uses. The peak hour vehicle trips generated by the project were assigned to the roadway network in accordance with the trip distribution pattern. Figure 7 shows the trip distribution pattern for the project site. Figure 8 shows the trip assignment for the project site.

Traffic Volumes Under All Scenarios

Existing Traffic Volumes

Existing traffic volumes were obtained from previous transportation studies in the area. Because the count data is from 2018 and is older than two years, a 1% compounded annual growth factor was used to escalate traffic volumes to existing conditions. Turning movement counts from 2018 can be found in Appendix B.

The existing peak-hour intersection volumes after applying the growth factor are shown on Figure 9.

Existing Plus Project Traffic Volumes

Project trips were added to existing traffic volumes to obtain project traffic volumes (see Figure 10).

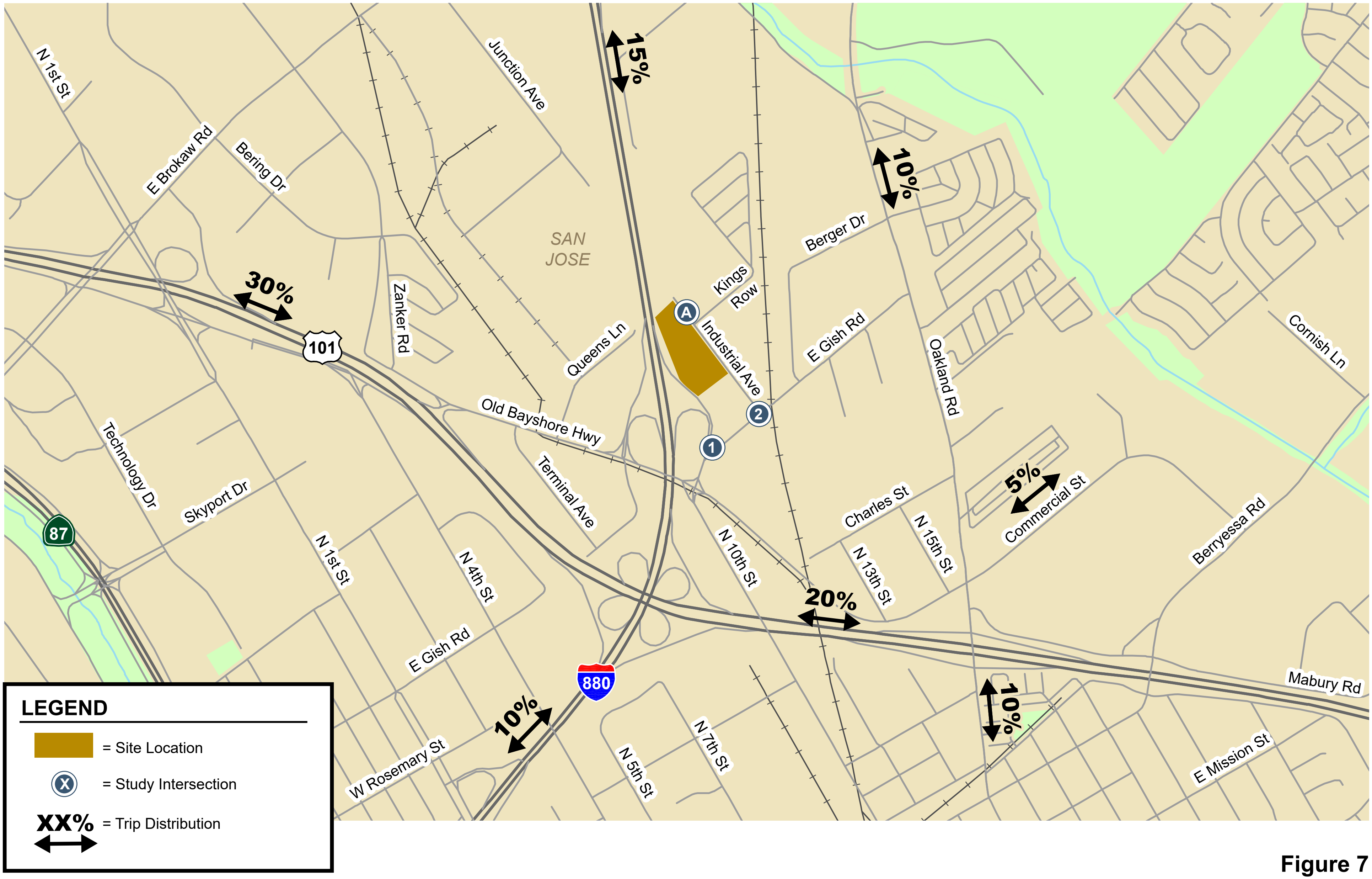

Figure 7
Trip Distribution

HEXAGON

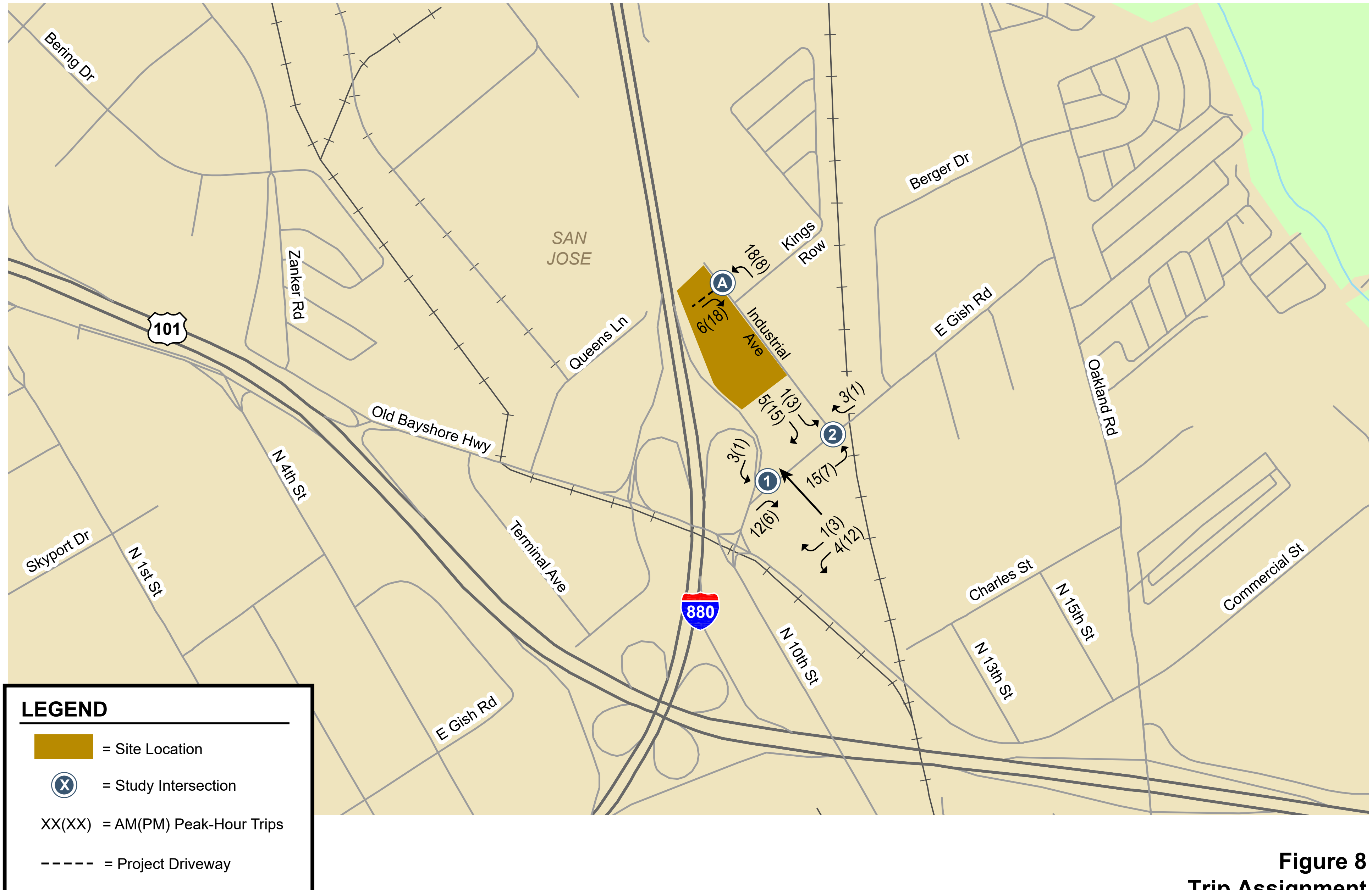

Figure 8
Trip Assignment

HEXAGON

NORTH
Not to Scale

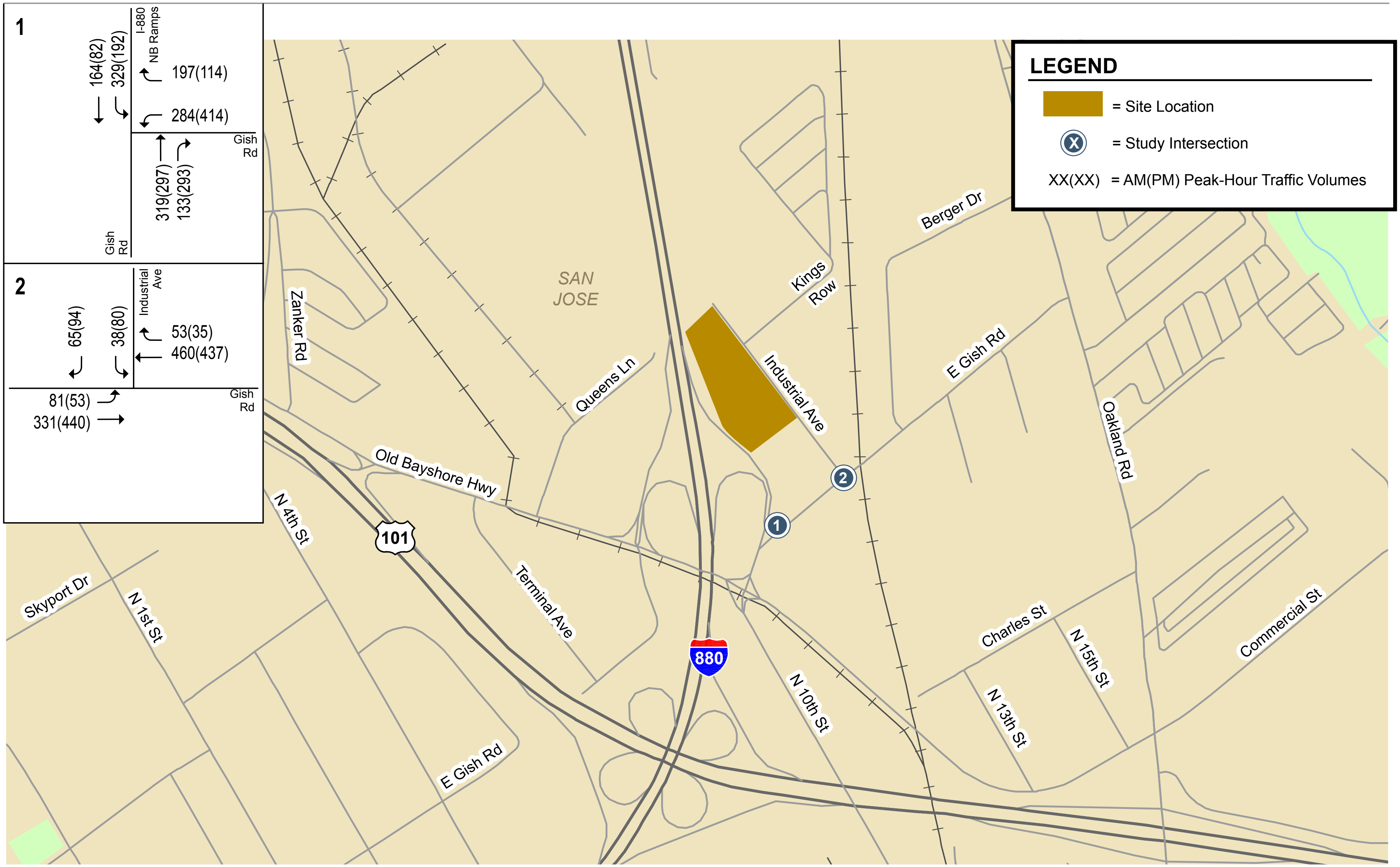

Figure 9
Existing Traffic Volumes

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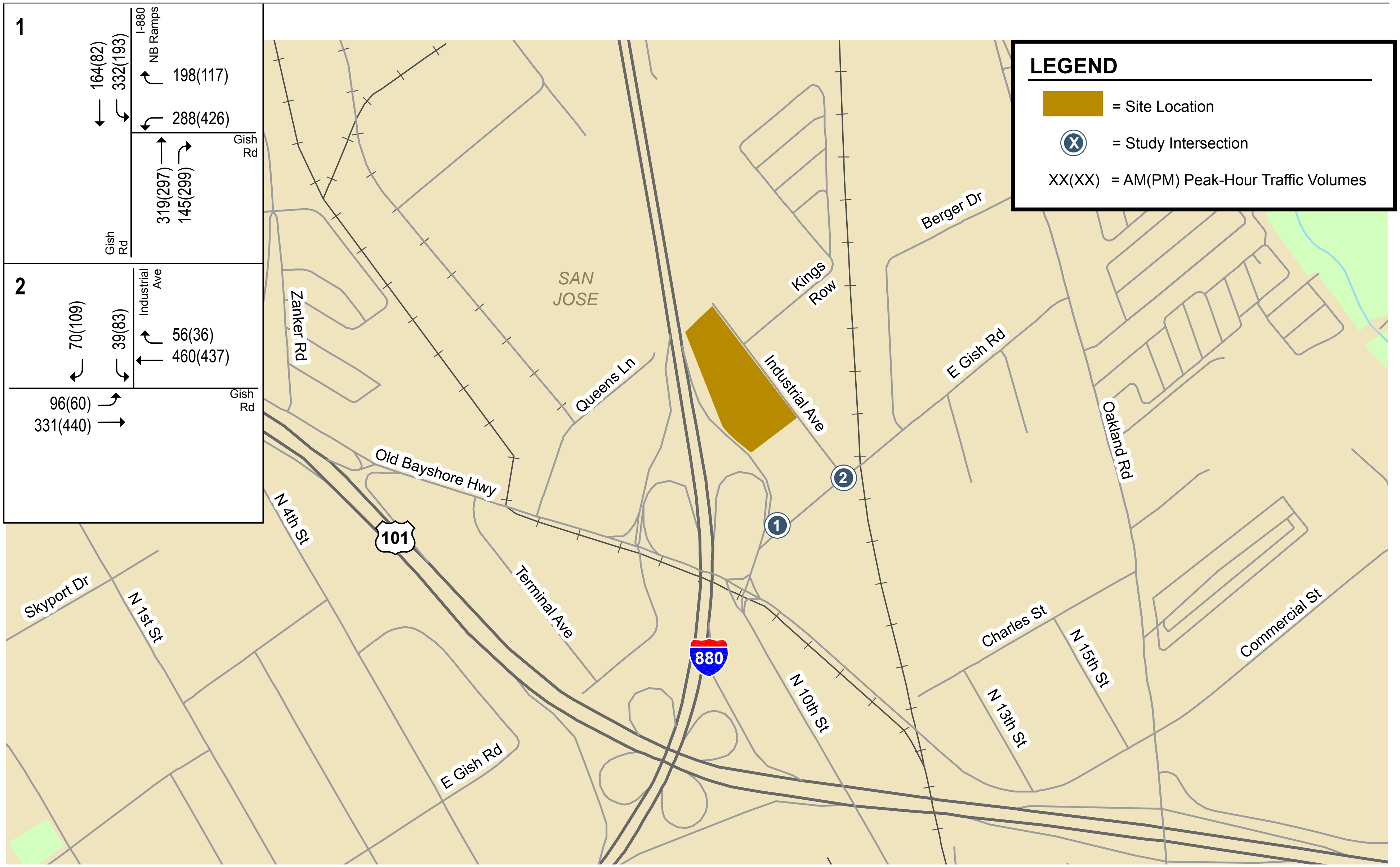


Figure 10
Existing Plus Project Traffic Volumes

Intersection Traffic Operations

Study intersections were evaluated for levels of service during the AM and PM peak hours. Since the City of San Jose does not have a formally-adopted level of service standard for unsignalized intersections, this analysis is presented for informational purposes only. Additionally, a discussion on vehicle queuing and a signal warrant analysis is provided below to determine whether the existing control at study intersections are appropriate.

Table 5 shows the results of the level of service analysis. The detailed intersection level of service calculation sheets are included in Appendix C. The analysis finds that the intersection of I-880 Northbound Ramps & Gish Road currently operates at an unacceptable level of service during both AM and PM peak hours. The northbound movement at the intersection operates at an unacceptable LOS F during the AM peak hour. The westbound movement operates at an unacceptable LOS F during both the AM and PM peak hours. Additionally, the westbound movement at the intersection exceeds capacity during the AM peak hour. The trips generated by the proposed project would exacerbate the existing congestion at this intersection. The other study intersection is expected to operate with moderate levels of delay equivalent to LOS C during both the AM and PM peak hours.

Table 5
Intersection Level of Service Summary

			Existing					
			No Project		with Project			
#	Intersection	Peak Hour	Worst-Movement Delay (sec)	LOS	Worst-Movement Delay (sec)	LOS	Incr. in Critical Delay (sec)	Incr. in Critical V/C
1	I-880 Northbound Ramps & Gish Road[1,2]	AM	**--**	**F**	**--**	**F**	--	0.013
		PM	**120+**	**F**	**120+**	**F**	36.5	0.222
2	Industrial Avenue & Gish Road[1]	AM	15.3	C	15.6	C	0.2	0.012
		PM	17.8	C	18.1	C	0.3	0.020

Bold indicates a substandard level of service.

Note:

[1] Denotes a one-way or two-way stop-controlled intersection. Worst leg delay is reported.

[2] Delay cannot be calculated because intersection exceeds capacity during the AM Peak Hour.

Signal Warrant Analysis

The unsignalized study intersections were analyzed to determine whether a traffic signal is warranted based on the Peak-Hour Signal Warrant, described in the California *Manual on Uniform Traffic Control Devices* (MUTCD), 2014 Edition. This method provides an indication whether peak-hour traffic volumes are, or would be, sufficient to justify installation of a traffic signal. Intersections that meet the peak hour warrant are subject to further analysis before determining that a traffic signal is necessary. Additional analysis may include unsignalized intersection level of service analysis and/or operational analysis such as evaluating vehicle queuing and delay. Other options such as traffic control devices, signage, or geometric changes may be preferable based on existing field conditions. The signal warrant analysis sheets can be found in Appendix D.

I-880 Northbound Ramps and Gish Road

For the intersection of I-880 Northbound Ramps and Gish Road, the I-880 off ramp is considered the major (uncontrolled) road and Gish Road (northbound and westbound approaches) is considered the minor (stop-controlled) road. The intersection meets all three parts of Part A of the Peak-Hour Signal

Warrant under existing conditions, with and without the project. It should be noted that the highest minor street average delay cannot be calculated for the AM peak hour because it exceeds capacity. It is assumed that the minor street total delay would exceed more than 5 vehicle-hours during the AM peak hour.

Recommendation: The project applicant should coordinate with City of San Jose staff to determine if there are any plans to signalize this intersection or install a roundabout. If so, it would be appropriate for the project to make a fair share monetary contribution toward the planned intersection improvements.

Industrial Avenue and Gish Road

For the intersection of Industrial Avenue and Gish Road, Gish Road is the major road and Industrial Avenue is the minor road. The analysis revealed that the signal warrant is not met under existing conditions. The project would add several trips to both the major and minor roads but would not change traffic operations at this intersection in any noticeable way and would not result in the need for signalization or other traffic control changes.

Vehicle Queuing Analysis

The analysis of intersection operations was supplemented with a vehicle queuing analysis at intersections where the project would add a substantial number of trips to left-turn movements. The queuing analysis is presented for informational purposes only, since the City of San Jose has not defined a policy related to queuing. Vehicle queues were estimated using a Poisson probability distribution, which estimates the probability of “n” vehicles for a vehicle movement using the following formula:

$$P\ (x=n) = \frac{\lambda^n e^{-(\lambda)}}{n!}$$

Where:
P (x=n) = probability of “n” vehicles in queue per lane
n = number of vehicles in the queue per lane
λ = average # of vehicles in the queue per lane (vehicles per hr per lane/average delay)

The basis of the analysis is as follows: (1) the Poisson probability distribution is used to estimate the 95th percentile maximum number of queued vehicles for a particular left-turn movement; (2) the estimated maximum number of vehicles in the queue is translated into a queue length, assuming 25 feet per vehicle; and (3) the estimated maximum queue length is compared to the existing or planned available storage capacity for the left-turn movement. This analysis thus provides a basis for estimating future turn pocket storage requirements at intersections.

The 95th percentile queue length value indicates that during the peak hour, a queue of this length or less would occur on 95 percent of the time. Thus, turn pocket storage designs based on the 95th percentile queue length would ensure that storage space would be exceeded only 5 percent of the time for a movement. Vehicle queuing at unsignalized intersections is evaluated based on the delay experienced at the specific study turn movement. The operations analysis is based on vehicle queuing for high-demand movements at intersections (see Table 6).

I-880 Northbound Ramps and Gish Road

At the intersection of the I-880 Northbound Ramps and Gish Road, the southbound left-turn movement has a one lane with approximately 160 feet of queue storage, which can accommodate about 6 vehicles seeking to turn left from the I-880 off ramp onto eastbound Gish Road. This left-turn movement is uncontrolled while traffic from the south and east approaches are under stop control. Thus, the delay for traffic turning left from the freeway off-ramp onto Gish Road is quite low. As a result, the 95th

percentile queue length is estimated to be only one vehicle during the AM and PM peak hours under existing conditions. The project would add three trips during the AM peak hour and one trip during the PM peak hour to the southbound left-turn movement, which would have a negligible effect on delay and queue length on the freeway off ramp.

The northbound right-turn movement is channelized and controlled with a yield pavement marking. There is approximately 100 feet of queue space in the channelized right-turn lane. For the purposes of determining control delay, it is assumed that the right-turn movements are controlled by a stop sign. The estimated 95th percentile queue is calculated to be two and three vehicles during the AM and PM peak hours, respectively. The project would add 12 trips and 6 trips to the northbound right turn movement during the AM and PM peak hours, respectively. The addition of project generated trips would not lengthen the 95th percentile queue for this movement.

The queue lengths for the westbound movement cannot be analyzed using the Poisson methodology because the traffic volumes exceed the movement capacity. On the westbound Gish Road approach, the project is expected to add four vehicles during the AM peak hour and twelve vehicles during the PM peak hour. It should be noted that field observations at the intersection in 2018 found that the westbound queue length often extends past the Industrial Avenue/Gish Road intersection. The addition of project generated trips would exacerbate the westbound queue length. A signal warrant analysis performed for this study determined that peak-hour traffic volumes warrant signalization, which may alleviate the queuing issues at this intersection.

Gish Road and Industrial Avenue

At the intersection of Gish Road and Industrial Avenue, the southbound movement contains one left-turning lane and one de-facto right-turning lane. The approach storage length of 100 feet is the distance to the first driveway. The queuing analysis shows that the approach storage is adequate and that the addition of project generated trips would not extend the queue for the southbound movements. However, it should be noted that during the AM peak hour, the Industrial Avenue and Gish Road intersection could be affected by queues that spillback from the adjacent intersections at the I-880 Ramps and at Berger Drive.

The eastbound Gish Road approach has one lane, which is shared by left-turn and through traffic. The approach storage length of 550 feet is the distance to the upstream intersection at the I-880 Northbound On/Off Ramps and Gish Road. The queuing analysis shows that the approach storage is adequate and that the addition of project generated trips would not extend the queue for the eastbound movements. However, it should be noted that during the AM peak hour, the Industrial Avenue and Gish Road intersection could be affected by queues that spillback from the adjacent intersections at the I-880 Ramps and at Berger Drive.

Table 6
Queuing Analysis

Measurement	I-880 Northbound Ramps & Gish Road SBL AM	I-880 Northbound Ramps & Gish Road SBL PM	I-880 Northbound Ramps & Gish Road NBR AM	I-880 Northbound Ramps & Gish Road NBR PM	Industrial Avenue & Gish Road SBL AM	Industrial Avenue & Gish Road SBL PM	Industrial Avenue & Gish Road SBR AM	Industrial Avenue & Gish Road SBR PM	Industrial Avenue & Gish Road[3] EBL AM	Industrial Avenue & Gish Road[3] EBL PM
Existing										
Control Delay [1] (sec)	7.8	7.5	11.2	11.4	21	24.7	11.9	12	8.7	8.4
Volume (vphpl)	329	192	133	293	38	80	65	94	412	493
95th %. Queue (veh/ln.)	2	2	2	3	1	2	1	1	3	3
95th %. Queue (ft./ln) [2]	50	50	50	75	25	50	25	25	75	75
Storage (ft./ ln.)	160	160	100	100	100	100	100	100	160	160
Adequate (Y/N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Existing Plus Project										
Control Delay [1] (sec)	7.8	7.5	11.3	11.5	22.2	25.8	12	12.2	8.7	8.5
Volume (vphpl)	332	193	145	299	39	83	70	109	427	500
95th %. Queue (veh/ln.)	2	2	2	3	1	2	1	2	3	3
95th %. Queue (ft./ln) [2]	50	50	50	75	25	50	25	50	75	75
Storage (ft./ ln.)	160	160	100	100	100	100	100	100	160	160
Adequate (Y/N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Notes:
SBL = southbound left movement, NBR = northbound right movement, SBR = southbound right movement, EBL = eastbound left movement.
[1] Vehicle queue calculations based on control delay for unsignalized intersections.
[2] Assumes 25 Feet Per Vehicle Queued.
[2] Eastbound movement at Industrial Avenue & Gish Road is a shared through-left. Volume represent left-turning and through traffic.

Operational Analysis at I-880 Northbound Ramps & Gish Road

Since the intersection of I-880 Northbound Ramps & Gish Road warrants signalization, an operational analysis of a traffic signal and a roundabout was completed to determine the best control option. The intersection control delay for a roundabout was calculated using Synchro software. The result of the analysis is summarized in Table 7.

Table 7
I-880 Northbound Ramps & Gish Road Operational Analysis

Intersection Control	Peak Hour	Existing No Project Average Delay (sec)	LOS	95th Percentile Queue (veh) WB	NB	SB	Existing with Project Average Delay (sec)	LOS	95th Percentile Queue (veh) WB	NB	SB
Signal (60s cycle)	AM	17.5	B	12	12	13	17.5	B	12	12	13
	PM	15.0	B	14	11	9	15.1	B	14	11	9
Roundabout	AM	10.9	B	3	3	3	11.1	B	4	3	3
	PM	10.8	B	4	4	2	11.1	B	4	4	2

Both a traffic signal and a roundabout would allow the intersection to operate at an acceptable level of service. As reported in TRAFFIX, the northbound movement would have a 95th percentile queue of 12 vehicles with a 60 second signal cycle. Longer signal cycles would result in longer queues as vehicles would need to wait at a red light for longer. The northbound movement has approximately 300 feet of queuing space to the upstream intersection, which is enough space for about 12 vehicles. Similarly, the southbound left-turn movement would have a 95th percentile queue of 13 vehicles in the AM peak hour. Due to the larger number of left-turning vehicles relative to through vehicles, the left-turn queue may occasionally block vehicles wanting to proceed through the intersection towards Old Bayshore Highway. The southbound queue would extend along the freeway ramp but would not extend onto the freeway mainline.

Since the northbound queue would extend to near the upstream intersection at Old Bayshore Highway and Gish Road under signal control, a roundabout would be the preferential traffic control at the I-880 Northbound Ramps & Gish Road intersection.

US 101/Oakland/Mabury Transportation Development Policy

The City of San Jose has identified operational problems along the Oakland Road corridor at the US 101 interchange that are due primarily to the capacity constraints of the interchange. As a result, the City has identified two key capital improvement projects: 1) modification of the US 101/Oakland Road interchange, including improvements to the Oakland Road/Commercial Street intersection, and 2) construction of a new US 101/Mabury Road interchange. To fund these interchange improvements, the City has developed the US 101/Oakland/Mabury Transportation Development Policy (TDP).

As part of the Policy, a fee to fund the planned interchange improvements has been adopted. Any project that would add traffic to the US 101/Oakland Road interchange is required to participate in the TDP program. The fee for the US 101/Oakland/Mabury TDP is based on the number of PM peak hour vehicular trips that a project would add to the US 101/Oakland Road interchange. The TDP traffic impact fee (as of August 2022) is $43,696 per each new PM peak hour vehicle trip that would be added to the US 101/Oakland Road interchange. The signalized intersections of Oakland Road/US 101 (South), Oakland Road/US 101 (North), and Oakland Road/Commercial Street make up the US 101/Oakland Road interchange.

Based on the net project trip assignment, it is estimated that the proposed project will add four vehicle trips to the US 101/Oakland Road interchange during the PM peak hour. Therefore, the project will be required to pay the US 101/Oakland/Mabury TDP traffic impact fee.

Vehicular Access and Circulation

The site access and circulation evaluation is based on the May 2021 site plan prepared by RGA Office of Architectural Design (see Figure 2 in Chapter 1). Site access was evaluated to determine the adequacy of the site's driveways with regard to the following: traffic volume, geometric design, sight distance and operations (e.g., queuing and delay). On-site vehicular circulation was reviewed in accordance with generally accepted traffic engineering standards.

Site Access

Vehicular access to the project site would be provided via two driveways along Industrial Avenue. The northern driveway accesses the vehicle parking area. The southern driveway accesses the loading docks. According to the City of San Jose Department of Transportation (DOT) Geometric Design Guidelines (Addendum Drawing No. R-7), the typical width for a driveway that serves a commercial development is 16 to 32 feet wide. The northern driveway along Industrial Avenue is shown to be 26 feet wide, thus, would meet the City guidelines. The southern driveway, which is designated for larger freight trucks, measures 40 feet in width. The project should discuss with city staff to determine whether the driveway width is appropriate. Truck access will be discussed below.

<u>Traffic Operations at Project Driveways</u>

The project-generated trips that are estimated to occur at the project driveways are 24 inbound trips and 7 outbound trips during the AM peak hour, and 9 inbound trips and 24 outbound trips during the PM peak hour (see Table 8). Assuming a worst-case scenario where only one driveway is open, this would equate to one vehicle entering and leaving the project site every 2.5 minutes. It is unlikely any significant operational issues would occur due to vehicular queuing. Some minor on-site vehicle queuing may occur due to the random occurrence of gaps in traffic along Industrial Avenue.

Table 8
Project Site Trip Generation

						AM Peak Hour				PM Peak Hour			
				Daily			Trip				Trip		
Land Use	ITE Land Use Code	Reduction %	Size	Rate	Trip	Rate	In	Out	Total	Rate	In	Out	Total
Proposed Land Uses													
Warehousing[1]	**150**		**71,550** Square Feet	2.216	159	0.474	26	8	34	0.509	10	26	36
Location-Based Adjustment[2]		***8%***			*-13*		*-2*	*-1*	*-3*		*-1*	*-2*	*-3*
Total Project Trips					**146**		**24**	**7**	**31**		**9**	**24**	**33**

Source: ITE Trip Generation Manual, 10th Edition 2017
<u>Notes:</u>
[1]Rates per 1,000 s.f. (square feet) based on fitted curve equation for Land Use 150 (Warehousing) from the ITE Trip Generation Manual, 10th Edition.

<u>Sight Distance at Project Driveways</u>

The project driveways should be free and clear of any obstructions to provide adequate sight distance, thereby ensuring that exiting vehicles can see pedestrians on the sidewalk and vehicles and bicycles traveling on Industrial Avenue. Any landscaping and signage should be located in such a way to ensure an unobstructed view for drivers exiting the site. Providing the appropriate sight distance reduces the likelihood of a collision at a driveway and provides drivers with the ability to locate sufficient gaps in traffic and exit a driveway.

The minimum acceptable sight distance is considered the Caltrans stopping sight distance. Sight distance requirements vary depending on roadway speeds. For the project driveways along Industrial Avenue, which has a posted speed limit of 25 mph, the Caltrans stopping sight distance is 200 feet (based on a design speed of 30 mph). Thus, a driver must be able to see 200 feet in both directions to locate a sufficient gap to turn out of the driveway.

Since on-street parking is allowed along Industrial Avenue and red curb is lacking at driveways, parked vehicles may block exiting drivers view of oncoming vehicles. City staff have indicated that the project will be required to reconstruct the curb, gutter, and sidewalk along the project frontage. The project applicant should coordinate with the City to paint 25 feet of red curb on both sides of each driveway.

<u>Recommendation:</u> The project applicant should coordinate with City staff to paint 25 feet of red curb on both sides of each driveway along Industrial Avenue

On-Site Circulation

On-site vehicular circulation was reviewed in accordance with the City of San Jose Zoning Code and generally accepted traffic engineering standards. In general, the current proposed site plan would provide vehicle traffic with adequate connectivity through the parking areas. The project would provide 90-degree parking stalls throughout the surface lot. The City's standard minimum width for two-way drive aisles is 26 feet wide where 90-degree parking is provided. This allows sufficient room for vehicles to back out of the parking spaces. According to the current site plan, the two-way drive aisles with parking available on either side are 26 feet wide throughout the parking areas. Therefore, the current site plan adheres to the City's standards.

The site plan shows an access road connecting the parking area on the north side of the project building to the loading dock area on the south side of the project building. The access road measures 26 feet in width and provides adequate width for vehicles and freight trucks to navigate the site. The site plan also shows a swinging gate that would separate the parking area on the north side of the project from the loading docks on the south side of the building. The site plan shows the gate would swing outward, from the loading dock area in the south towards the parking area on the north. Therefore, any vehicles headed from the parking area towards the south would need to queue several feet in advance in order for the gate to swing outwards. The site plan also shows an 8-foot-tall sliding gate, approximately 120 feet from the inside edge of sidewalk at the southern driveway. The space between the sidewalk and the gate would be sufficient for a standard trailer truck to queue in front of the gate without blocking the sidewalk or extending onto the street.

Parking Stall Dimensions

The City of San Jose Off-Street Parking Design Standards for Uniform Car Spaces require that standard 90-degree parking stalls be a minimum of 8.5 feet wide by 17 feet long and compact parking stalls be a minimum of 8 feet wide by 16 feet long. The site plan indicates the parking stalls would meet these requirements. The ADA accessible stalls are shown to be 9 feet wide by 18 feet long and include van accessibility. One ADA accessible stall is shown to be 12 feet wide by 18 feet long.

Truck Access and Loading

The project site plan shows nine loading docks on the south side of the proposed warehouse building. The loading docks can be accessed from the southernmost proposed driveway along Industrial Avenue. City staff have indicated that trucks should access the site via the southernmost driveway only. Signage should be posted near the southernmost driveway entrance to direct trucks to the appropriate driveway. The project civil site plans show truck turning templates for on-site circulation for a WB-65 truck. The turning templates show that trucks are able to circulate within the project site and reverse into the loading bay area.

Turning templates have been created to show site access (truck ingress and egress) at the southern project driveway. The turning templates show that larger trailer trucks can turn left into the site at the southern driveway without any problems. The turning templates show that larger trailer trucks turning out of the site would swing into the opposite traveled way and may momentarily block the entire street while maneuvering out of the project site. Truck turning templates for trailer truck ingress and egress can be found in Appendix E.

Garbage Collection

The site plan shows a trash enclosure near the southwest corner of the project site. Garbage vehicles can easily come onto the site for garbage collection activities and then turn around on site before exiting from the same driveway or circulate through the site and exit from the other driveway.

Emergency Vehicle Access

Emergency vehicle access (EVA) would be provided along the drive aisles around the building and at the project driveways. The City of San Jose Fire Code requires driveways to provide at least 20 feet for fire access. The project driveway and drive aisles measure at least 20 feet wide, and therefore would comply with the City's fire code.

The City of San Jose Fire Department requires that all portions of the buildings be within 150 feet of a fire department access road and requires a minimum of 6 feet clearance from the property line along all sides of the buildings. The project would meet the requirements.

Pedestrian, Bicycle and Transit Facilities

All new development projects in San Jose should encourage multi-modal travel, consistent with the goals of the City's General Plan. It is the goal of the General Plan that all development projects accommodate and encourage the use of non-automobile transportation modes to achieve San Jose's mobility goals and reduce vehicle trip generation and vehicle miles traveled. In addition, the adopted City Bike Master Plan establishes goals, policies and actions to make bicycling a daily part of life in San Jose. The Master Plan includes designated bike lanes along all City streets, as well as on designated bike corridors. In order to further the goals of the City, pedestrian and bicycle facilities should be encouraged with new development projects.

Pedestrian and Bicycle Facilities

Pedestrian facilities consist of sidewalks along the streets in the immediate vicinity of the project site. Some sidewalks are missing along parts of Gish Road. Overall, the existing network of sidewalks is lacking. Since the project is industrial in nature and will consist of warehousing and building materials sales, few pedestrians are expected to travel to the site. As previously mentioned, city staff have indicated that the project will be required to reconstruct the sidewalk along its frontage on Industrial Avenue.

The project site plan indicates that it would provide four bicycle parking spaces on bike racks located near the main entrance to the building. The project would not remove any existing bicycle facilities, nor would it conflict with any adopted plans or policies for new bicycle facilities. According to the City of San Jose Bike Plan 2025, Class IV protected bike lanes are proposed along Berger Drive. Additionally, a path or trail is proposed along Gish Road. By providing bicycle parking, the project aligns with the City's mobility goals for bicycle travel.

Transit Services

The VTA Local Route 66 serves the project area with approximate 15 to 20-minute headways, during the AM and PM peak commute hours. The closest bus stop is located along Oakland Road, approximately 0.6 mile east of the project site. The project site is not accessible by transit since there are no transit routes within normal walking distance (one-quarter mile). As previously mentioned, city staff have recommended that the project should contribute towards improvements at the Gish Road railroad crossing, which would improve pedestrian connectivity from the project site to transit options along Oakland Road.

Parking

Parking provided on the site was evaluated based on the City of San Jose off-street parking requirements (San Jose Municipal Code Chapter 20.90, Table 20-190). The project proposes to construct approximately 71,550 s.f. of warehousing. The parking requirements for the warehousing project is shown on Table 9.

Table 9
Vehicle Parking Requirement

	Proposed Project		Required Parking Spaces	Provided Parking Spaces
Parking Type	Size	Parking Ratio		
Vehicle	71,550 s.f.	1 space per 5,000 s.f.	15	41
Motorcycle	71,550 s.f.	1 space per 10 code-required auto spaces	2	2
Bicycle	71,550 s.f.	1 space per 10 employees	---	4

Notes:
Parking Requirements based on City of San Jose Zoning Ordinance Section 20.90.

The project site would be required to provide at least 15 vehicular parking spaces. The project site plan shows 41 parking spaces near the northern driveway, which exceeds the City's parking requirement.

The motorcycle parking requirement for a warehouse is one space per 10 code-required auto parking spaces. The site plan indicates it will provide 2 motorcycle parking spaces, which meets the City's requirement for motorcycle parking spaces.

The bicycle parking requirement for a warehouse is one space per 10 full-time employees. The City's Zoning Code requires that when bike parking is calculated per employee, all bike parking spaces must be provided in long-term bicycle spaces. The site plan indicates that there would be 4 bicycle parking spaces for staff. The proposed bicycle racks are considered short-term bicycle parking spaces. The requirement for long-term bicycle parking spaces would not be met. Thus, the project site plan should be revised to ensure the project plans comply with the City's Bicycle Parking Standards.

Since the applicant has not provided information on the number of employees that would be working at the project site, it is not known if the number of provided spaces meets the City's parking requirement. The applicant should estimate the employment on site after completion of the proposed project to allow the City to confirm whether the provided bicycle parking is adequate.

Recommendation: The project applicant should revise the site plan to provide adequate long-term bicycle parking spaces.

Recommendation: The project applicant should estimate the employment on site after completion of the proposed project to allow City Staff to determine whether the provided bicycle parking is adequate.

Construction Activities

Typical activities related to the construction of any development could include lane narrowing and/or lane closures and sidewalk closures. In the event of any type of street closure, clear signage (e.g., closure and detour signs) must be provided to ensure vehicles, pedestrians and bicyclists are able to adequately reach their intended destinations safely. The project would be required to submit a construction management plan for City approval that addresses schedule, closures/detours, staging, parking, and truck routes.

5.
Conclusions

This study was conducted for the purpose of identifying potential transportation impacts and operational issues related to the proposed development. The transportation impacts of the project were evaluated following the standards and methodologies established in the City of San Jose and the VTA's Congestion Management Program (CMP). Per the requirements of the City of San Jose's Transportation Policy and *Transportation Analysis Handbook 2018*, the TA report for the project consists of a CEQA vehicle-miles-traveled (VMT) analysis and a supplemental Local Transportation Analysis (LTA). The LTA includes an evaluation of weekday AM and PM peak-hour traffic conditions for two unsignalized intersections. The LTA also includes analyses of vehicle queuing at study intersections, site access and on-site circulation, parking, and potential effects to transit, bicycle, and pedestrian facilities.

CEQA Transportation Analysis

Project-Level VMT Impact Analysis

The results of the VMT evaluation, using the City's VMT Evaluation Tool, indicate that the proposed project is projected to generate 14.69 VMT per employee. The project exceeds the 14.37 VMT per employee threshold by 2.2%. Therefore, the project would result in a significant transportation impact on VMT, and mitigation measures are required to reduce the VMT impact.

The following mitigation measures can be implemented to reduce the significant VMT impact:

Option 1:

- Traffic Calming Measures (Roadway Narrowing): City staff have indicated that the project could mitigate its VMT impact by reducing the roadway width along Industrial Avenue from 44 feet to 40 feet.
  AND
- Commute Trip Reduction Marketing/Education: Alternative commute information should be provided to future employees. Alternative commute education can include, but is not limited to bike maps, carpooling options, transit maps, etc. Providing information for alternative commute methods can encourage employees to commute to work by walking, bicycling, or transit.

The implementation of the above mitigation measures would reduce the project VMT to 14.11 per employee, which is below the threshold of 14.37 per employee, reducing the project impact to less than significant.

Option 2:

- Commute Trip Reduction Marketing/Education: Alternative commute information should be provided to future employees. Alternative commute education can include, but is not limited to bike maps, carpooling options, transit maps, etc. Providing information for alternative commute methods can encourage employees to commute to work by walking, bicycling, or transit.
AND
- Implement Ride-Sharing Programs: Organize a program to match individuals interested in carpooling who have similar commutes for at least 1% of the project employees. This measure promotes the use of carpooling and reduces the number of drive-alone trips.

The implementation of the above mitigation measures would reduce the project VMT to 14.32 per employee, which is below the threshold of 14.37 per employee, reducing the project impact to less than significant.

Cumulative (GP Consistency) Evaluation

The project site is located within the East Gish Employment Area. The area was designated as a planned growth area in the *Envision San José 2040 General Plan*. The general plan designates employment areas for significant job growth.

The project site is located within the Heavy Industrial zone. Heavy Industrial developments can develop at a FAR of up to 1.5. Based on the existing lot area of 156,950 square feet, the project is allowed to develop up to 235,425 square feet (477,580 s.f. x 1.5 FAR = 235,425 s.f.).

The project as proposed would construct a light industrial, one-story building comprised of 71,550 gross square feet of warehouse space. This equates to a FAR of 0.46 (71,550 s.f. ÷ 156,950 s.f. = 0.46).

The project is consistent with the General Plan goals and policies for the following reasons:

- The project site is near bicycle lanes on Oakland Road.
- The project would provide bicycle parking on the ground level near the project entrance to encourage employee use of alternative transportation modes.
- The project would implement a TDM plan that includes commute trip reduction marketing and education aimed at reducing VMT.
- The project promotes economic development and completion of the General Plan transportation network through the US-101/Mabury Transportation Development Policy (TDP)
- The project maintains, enhances, and develops the employment lands within an identified key employment area (the East Gish and Mabury industrial area) (FS-4.2)
- The proposed project site would increase the intensity of employment.

Therefore, based on the project description, the proposed project would be consistent with the *Envision San José 2040 General Plan*. Thus, the project would be considered as part of the cumulative solution to meet the General Plan's long-range transportation goals and would result in a less-than-significant cumulative impact.

Local Transportation Analysis

Project Trip Generation

Based on trip generation rates published by the Institute of Transportation Engineers, and after subtracting trips generated by the existing use on site, the proposed project is estimated to generate 91 net new daily vehicle trips, with 24 net new trips (18 inbound and 6 outbound) occurring during the AM peak hour and 26 net new trips (8 inbound and 18 outbound) occurring during the PM peak hour.

Intersection Traffic Operations

The operations of two unsignalized intersections were evaluated during the AM and PM peak hours. Since the City of San Jose does not have a formally-adopted level of service standard, this analysis is presented for informational purposes only. The analysis finds that the intersection of I-880 Northbound Ramps and Gish Road would operate at an unacceptable level of service during both AM and PM peak hours both with and without the proposed project. The other study intersection at Industrial Avenue and Gish Road would operate with moderate delay equivalent to LOS C during the AM and PM peak hours both with and without the proposed project.

An operational analysis of a traffic signal and a roundabout were evaluated for the intersection of I-880 Northbound Ramps and Gish Road. Based on the results of the analysis, both options would allow the intersection to operate at LOS B. Vehicular queues along the south leg (northbound approach) would extend to near the upstream intersection at Old Bayshore Highway and Gish Road during the busiest signal cycles. Therefore, a roundabout would be the preferential traffic control at the I-880 Northbound Ramps & Gish Road intersection.

Other Transportation Items

The project would not have an adverse effect on the existing pedestrian, bicycle, or transit facilities in the area. The proposed site plan shows adequate site access and on-site circulation, and no significant operational issues are expected to occur as a result of the project.

Recommendations:

- The proposed project is estimated to add four vehicle trips to the US 101/Oakland Road interchange during the PM peak hour. Therefore, the project will be required to pay the US 101/Oakland/Mabury Transportation Development Policy traffic impact fee.
- The results of the signal warrant analysis indicates that the I-880 Northbound Ramps/Gish Road intersection currently meets the peak-hour signal warrant and would continue to do so with the project. The project applicant should coordinate with City of San Jose staff to determine if there are any plans to signalize this intersection or install a roundabout. If so, it would be appropriate for the project to make a fair share monetary contribution toward the planned intersection improvements.
- The project applicant should coordinate with City staff to paint 25 feet of red curb on both sides of each driveway along Industrial Avenue.
- The project applicant should revise the site plan to provide adequate long-term bicycle parking spaces.
- The project applicant should estimate the employment on site after completion of the proposed project to allow City Staff to determine whether the provided bicycle parking is adequate.

1535-1575 Industrial Avenue

Technical Appendices

Appendix A

San Jose VMT Evaluation Tool Output

CITY OF SAN JOSE VEHICLE MILES TRAVELED EVALUATION TOOL SUMMARY REPORT

PROJECT:

Name:	1535-1575 Industrial Avenue	Tool Version:	2/29/2019
Location:	1535-1575 Industrial Avenue	Date:	9/8/2022
Parcel:	23730025	Parcel Type:	Suburb with Multifamily Housing

Proposed Parking Spaces   Vehicles: 41   Bicycles: 4

LAND USE:

Residential:			Percent of All Residential Units	
Single Family	0	DU	Extremely Low Income (≤ 30% MFI)	0 % Affordable
Multi Family	0	DU	Very Low Income (> 30% MFI, ≤ 50% MFI)	0 % Affordable
Subtotal	0	DU	Low Income (> 50% MFI, ≤ 80% MFI)	0 % Affordable
Office:	0	KSF		
Retail:	0	KSF		
Industrial:	71.55	KSF		

VMT REDUCTION STRATEGIES

Tier 1 - Project Characteristics

Increase Residential Density

Existing Density (DU/Residential Acres in half-mile buffer)	8
With Project Density (DU/Residential Acres in half-mile buffer)	8

Increase Development Diversity

Existing Activity Mix Index	0.85
With Project Activity Mix Index	0.85

Integrate Affordable and Below Market Rate

Extremely Low Income BMR units	0 %
Very Low Income BMR units	0 %
Low Income BMR units	0 %

Increase Employment Density

Existing Density (Jobs/Commercial Acres in half-mile buffer)	15
With Project Density (Jobs/Commercial Acres in half-mile buffer)	15

Tier 2 - Multimodal Infrastructure

Traffic Calming Measures *(In Coordination with SJ)*

Are improvements provided beyond the development frontage?	Yes

Tier 3 - Parking

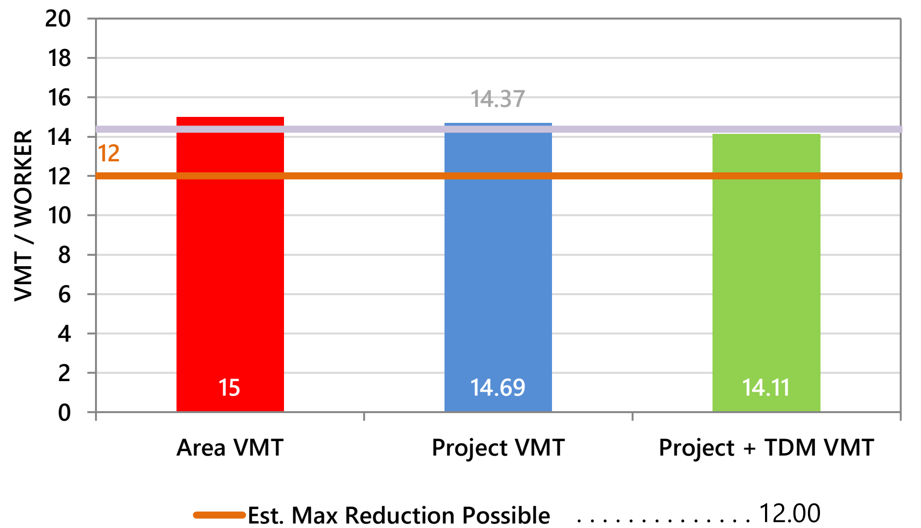
Tier 4 - TDM Programs

Commute Trip Reduction Marketing/ Education

Percent of Eligible Employees	100 %

EMPLOYMENT ONLY

The tool estimates that the project would generate per non-industrial worker VMT below the City's threshold. There are selected strategies that require coordination with the City of San Jose to implement.



CITY OF SAN JOSE VEHICLE MILES TRAVELED EVALUATION TOOL SUMMARY REPORT

PROJECT:

Name:	1535-1575 Industrial Avenue	Tool Version:	2/29/2019
Location:	1535-1575 Industrial Avenue	Date:	9/8/2022
Parcel:	23730025	Parcel Type:	Suburb with Multifamily Housing

Proposed Parking Spaces　Vehicles: 41　Bicycles: 4

LAND USE:

Residential:		
Single Family	0	DU
Multi Family	0	DU
Subtotal	0	DU
Office:	0	KSF
Retail:	0	KSF
Industrial:	71.55	KSF

Percent of All Residential Units

Extremely Low Income (≤ 30% MFI)	0 % Affordable
Very Low Income (> 30% MFI, ≤ 50% MFI)	0 % Affordable
Low Income (> 50% MFI, ≤ 80% MFI)	0 % Affordable

VMT REDUCTION STRATEGIES

Tier 1 - Project Characteristics

Increase Residential Density

Existing Density (DU/Residential Acres in half-mile buffer)	8
With Project Density (DU/Residential Acres in half-mile buffer)	8

Increase Development Diversity

Existing Activity Mix Index	0.85
With Project Activity Mix Index	0.85

Integrate Affordable and Below Market Rate

Extremely Low Income BMR units	0 %
Very Low Income BMR units	0 %
Low Income BMR units	0 %

Increase Employment Density

Existing Density (Jobs/Commercial Acres in half-mile buffer)	15
With Project Density (Jobs/Commercial Acres in half-mile buffer)	15

Tier 2 - Multimodal Infrastructure

Tier 3 - Parking

Tier 4 - TDM Programs

Commute Trip Reduction Marketing/ Education

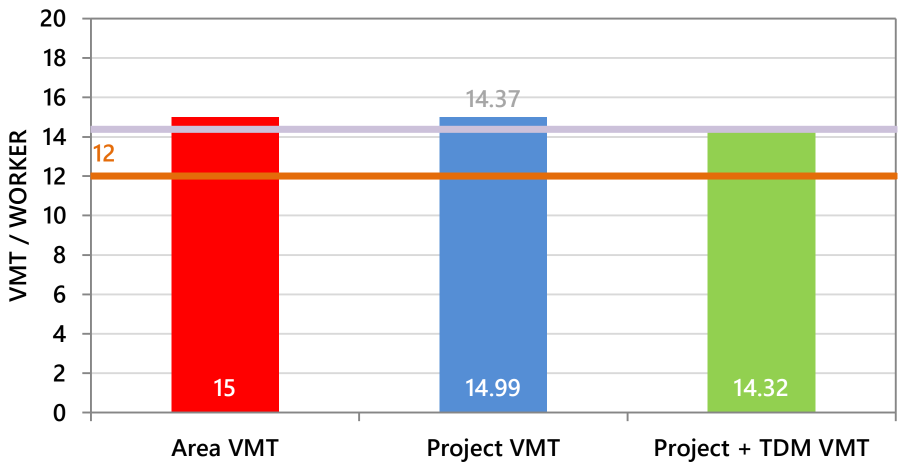
Percent of Eligible Employees	100 %

Ride-Sharing Programs

Percent of Eligible Eemployees	1 %

EMPLOYMENT ONLY

The tool estimates that the project would generate per non-industrial worker VMT below the City's threshold.



Est. Max Reduction Possible 12.00

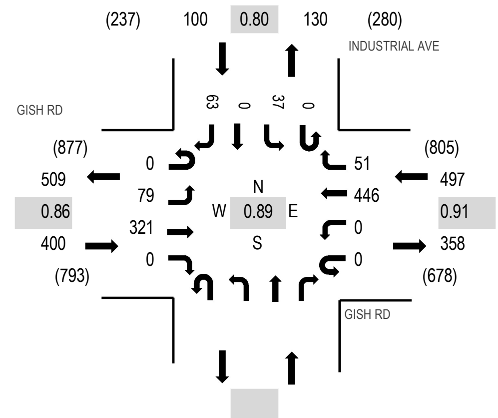
Appendix B

Turning Movement Counts

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

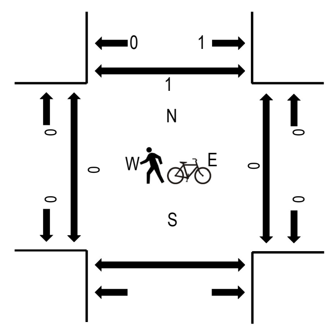
Location: 1 INDUSTRIAL AVE & GISH RD AM
Date: Wednesday, December 5, 2018
Peak Hour: 07:45 AM - 08:45 AM
Peak 15-Minutes: 08:00 AM - 08:15 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	GISH RD Eastbound U-Turn	Left	Thru	Right	GISH RD Westbound U-Turn	Left	Thru	Right	Northbound U-Turn	Left	Thru	Right	INDUSTRIAL AVE Southbound U-Turn	Left	Thru	Right	Total	Rolling Hour	Pedestrian Crossings West	East	South	North
7:00 AM	0	31	89	0	0	0	56	16					0	7	0	28	227	912	5	4		0
7:15 AM	2	25	71	0	0	0	46	10					0	9	0	33	196	964	7	0		0
7:30 AM	0	14	81	0	0	0	61	12					0	6	0	41	215	994	3	0		0
7:45 AM	0	18	110	0	0	0	105	14					0	10	0	17	274	997	0	0		0
8:00 AM	0	23	93	0	0	0	125	12					0	13	0	13	279	923	0	0		0
8:15 AM	0	15	60	0	0	0	110	16					0	6	0	19	226		0	0		0
8:30 AM	0	23	58	0	0	0	106	9					0	8	0	14	218		0	0		1
8:45 AM	1	25	54	0	0	0	90	17					0	3	0	10	200		0	0		1

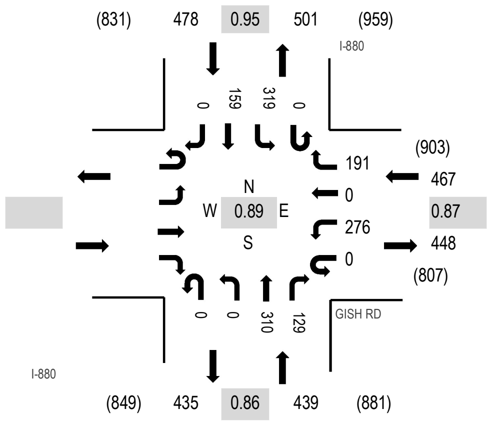
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound U-Turn	Left	Thru	Right	Westbound U-Turn	Left	Thru	Right	Northbound U-Turn	Left	Thru	Right	Southbound U-Turn	Left	Thru	Right	Total
Articulated Trucks	0	0	1	0	0	0	3	1					0	1	0	0	6
Lights	0	70	310	0	0	0	428	49					0	32	0	54	943
Mediums	0	9	10	0	0	0	15	1					0	4	0	9	48
Total	0	79	321	0	0	0	446	51					0	37	0	63	997

(303) 216-2439
www.alltrafficdata.net

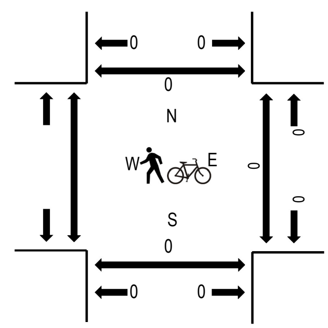
Location: 3 I-880 & GISH RD AM
Date: Wednesday, December 5, 2018
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 08:00 AM - 08:15 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	Eastbound U-Turn	Eastbound Left	Eastbound Thru	Eastbound Right	GISH RD Westbound U-Turn	Westbound Left	Westbound Thru	Westbound Right	I-880 Northbound U-Turn	Northbound Left	Northbound Thru	Northbound Right	I-880 Southbound U-Turn	Southbound Left	Southbound Thru	Southbound Right	Total	Rolling Hour	Pedestrian Crossings West	East	South	North
7:00 AM					0	63	0	22	0	0	70	38	0	79	52	0	324	1,318		0	0	0
7:15 AM					0	62	0	26	0	0	71	33	0	66	61	0	319	1,384		0	0	0
7:30 AM					0	73	0	31	0	0	77	25	0	72	37	0	315	1,377		0	0	0
7:45 AM					0	66	0	59	0	0	78	27	0	103	27	0	360	1,354		0	0	0
8:00 AM					0	75	0	75	0	0	84	44	0	78	34	0	390	1,297		0	0	0
8:15 AM					0	64	0	56	0	0	77	30	0	51	34	0	312			0	0	0
8:30 AM					0	82	0	42	0	0	64	28	0	51	25	0	292			0	0	0
8:45 AM					0	73	0	34	0	0	93	42	0	40	21	0	303			0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound U-Turn	Eastbound Left	Eastbound Thru	Eastbound Right	Westbound U-Turn	Westbound Left	Westbound Thru	Westbound Right	Northbound U-Turn	Northbound Left	Northbound Thru	Northbound Right	Southbound U-Turn	Southbound Left	Southbound Thru	Southbound Right	Total
Articulated Trucks					0	15	0	1	0	0	5	2	0	0	10	0	33
Lights					0	230	0	171	0	0	262	117	0	314	129	0	1,223
Mediums					0	31	0	19	0	0	43	10	0	5	20	0	128
Total					0	276	0	191	0	0	310	129	0	319	159	0	1,384

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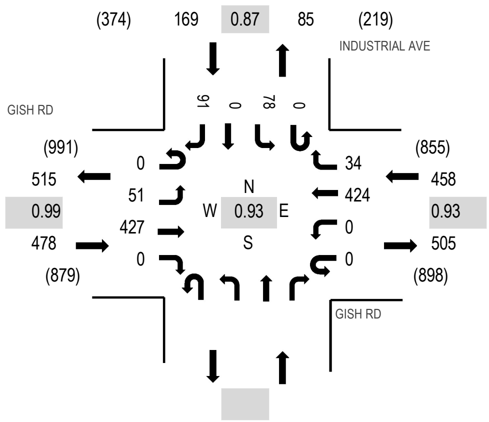
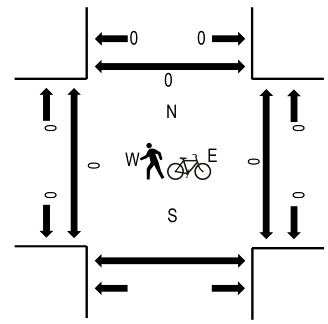
Location: 1 INDUSTRIAL AVE & GISH RD PM
Date: Tuesday, December 4, 2018
Peak Hour: 05:00 PM - 06:00 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	GISH RD Eastbound U-Turn	Left	Thru	Right	GISH RD Westbound U-Turn	Left	Thru	Right	Northbound U-Turn	Left	Thru	Right	INDUSTRIAL AVE Southbound U-Turn	Left	Thru	Right	Total	Rolling Hour	Pedestrian Crossings West	East	South	North
4:00 PM	0	35	63	0	0	0	103	12					0	15	0	35	263	1,003	0	0		0
4:15 PM	0	20	68	0	0	0	71	9					0	24	0	25	217	1,038	1	0		0
4:30 PM	0	30	68	0	0	0	105	7					0	26	0	26	262	1,087	0	0		1
4:45 PM	0	12	105	0	0	0	81	9					0	24	0	30	261	1,085	0	0		0
5:00 PM	0	16	105	0	0	0	107	7					0	29	0	34	298	1,105	0	0		0
5:15 PM	0	7	111	0	0	0	99	10					0	23	0	16	266		0	0		0
5:30 PM	0	15	103	0	0	0	103	9					0	10	0	20	260		0	0		0
5:45 PM	0	13	108	0	0	0	115	8					0	16	0	21	281		0	0		0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound U-Turn	Left	Thru	Right	Westbound U-Turn	Left	Thru	Right	Northbound U-Turn	Left	Thru	Right	Southbound U-Turn	Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	0	0	0					0	0	0	0	0
Lights	0	44	413	0	0	0	420	31					0	77	0	86	1,071
Mediums	0	7	14	0	0	0	4	3					0	1	0	5	34
Total	0	51	427	0	0	0	424	34					0	78	0	91	1,105

Location: 3 I-880 & GISH RD PM
Date: Tuesday, December 4, 2018
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

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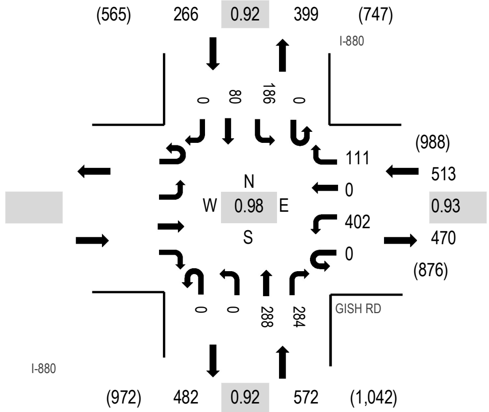
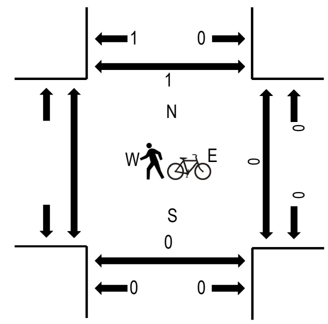
Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	Eastbound U-Turn	Eastbound Left	Eastbound Thru	Eastbound Right	GISH RD Westbound U-Turn	Westbound Left	Westbound Thru	Westbound Right	I-880 Northbound U-Turn	Northbound Left	Northbound Thru	Northbound Right	I-880 Southbound U-Turn	Southbound Left	Southbound Thru	Southbound Right	Total	Rolling Hour	Pedestrian Crossings West	East	South	North
4:00 PM					0	105	0	25	0	0	52	49	0	47	35	0	313	1,265		0	0	0
4:15 PM					0	86	0	20	0	0	70	42	0	42	32	0	292	1,298		0	0	0
4:30 PM					0	94	0	23	0	0	73	51	0	46	30	0	317	1,338		0	0	0
4:45 PM					0	100	0	32	0	0	72	69	0	41	29	0	343	1,351		0	0	0
5:00 PM					0	106	0	21	0	0	78	78	0	45	18	0	346	1,330		0	0	0
5:15 PM					0	95	0	21	0	0	80	68	0	52	16	0	332			0	0	0
5:30 PM					0	101	0	37	0	0	58	69	0	48	17	0	330			0	0	0
5:45 PM					0	95	0	27	0	0	58	75	0	54	13	0	322			0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound U-Turn	Eastbound Left	Eastbound Thru	Eastbound Right	Westbound U-Turn	Westbound Left	Westbound Thru	Westbound Right	Northbound U-Turn	Northbound Left	Northbound Thru	Northbound Right	Southbound U-Turn	Southbound Left	Southbound Thru	Southbound Right	Total
Articulated Trucks					0	0	0	0	0	0	6	0	0	2	3	0	11
Lights					0	395	0	108	0	0	280	269	0	173	66	0	1,291
Mediums					0	7	0	3	0	0	2	15	0	11	11	0	49
Total					0	402	0	111	0	0	288	284	0	186	80	0	1,351

Appendix C

Level of Service Calculations

Scenario Report

Scenario:	Existing AM
Command:	Existing AM
Volume:	Existing AM
Geometry:	Existing AM
Impact Fee:	Default Impact Fee
Trip Generation:	Default Trip Generation
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Existing AM

```
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #1 I-880 & GISH RD
********************************************************************************
Average Delay (sec/veh): OVERFLOW       Worst Case Level Of Service: F[xxxxx]
********************************************************************************
Street Name:                 I-880                              GISH
Approach:      North Bound       South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled      Uncontrolled       Stop Sign         Stop Sign
Rights:           Include           Include           Include           Channel
Lanes:        0  0  0  0  0    0  1  0  0  1    0  0  1  0  1    1  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 5 Dec 2018 << 7:15 - 8:15 AM
Base Vol:        0    0     0   329  164     0     0  319   133   284    0   197
Growth Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:     0    0     0   329  164     0     0  319   133   284    0   197
Added Vol:       0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:     0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:     0    0     0   329  164     0     0  319   133   284    0   197
User Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:      1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:      0    0     0   329  164     0     0  319   133   284    0   197
Reduct Vol:      0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:     0    0     0   329  164     0     0  319   133   284    0   197
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   4.1 xxxx xxxxx xxxxx  6.5   6.2   7.1 xxxx   6.2
FollowUpTim:xxxxx xxxx xxxxx   2.2 xxxx xxxxx xxxxx  4.0   3.3   3.5 xxxx   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx     0 xxxx xxxxx  xxxx  822   164  1048 xxxx     0
Potent Cap.: xxxx xxxx xxxxx  1636 xxxx xxxxx  xxxx  311   886   208 xxxx  1091
Move Cap.:   xxxx xxxx xxxxx  1636 xxxx xxxxx  xxxx  235   886     0 xxxx  1091
Volume/Cap:  xxxx xxxx  xxxx  0.20 xxxx  xxxx  xxxx 1.36  0.15  xxxx xxxx  0.18
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   0.8 xxxx xxxxx  xxxx 17.4   0.5  xxxx xxxx   0.7
Control Del:xxxxx xxxx xxxxx   7.8 xxxx xxxxx xxxxx  227   9.8 xxxxx xxxx   9.0
LOS by Move:     *    *     *     A    *     *     *    F     A     *    *     A
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx   0.8 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx   7.8 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:      *    *     *     A    *     *     *    *     *     *    *     *
ApproachDel:     xxxxxx            xxxxxx             163.4             +Inf
ApproachLOS:        *                 *                 F                 F
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

```
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #2 INDUSTRIAL AVE & GISH RD
********************************************************************************
Average Delay (sec/veh):      2.2       Worst Case Level Of Service: C[ 15.3]
********************************************************************************
Street Name:          Industrial Ave                         Gish Rd
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:          Include          Include          Include          Include
Lanes:        0  0  0  0  0   1  0  0  0  1   0  1  0  0  0   0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 5 Dec 2018 << 7:45-8:45 AM
Base Vol:       0    0     0    38    0    65    81  331     0     0  460    53
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0    38    0    65    81  331     0     0  460    53
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0    38    0    65    81  331     0     0  460    53
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0    38    0    65    81  331     0     0  460    53
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0    0     0    38    0    65    81  331     0     0  460    53
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4 xxxx   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5 xxxx   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx   980 xxxx   487   513 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   280 xxxx   585  1063 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   262 xxxx   585  1063 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.14 xxxx  0.11  0.08 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   0.5 xxxx   0.4   0.2 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx  21.0 xxxx  11.9   8.7 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     C    *     B     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   0.2 xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.7 xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     A    *     *     *    *     *
ApproachDel:     xxxxxx            15.3            xxxxxx           xxxxxx
ApproachLOS:        *                C                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

Scenario Report

Scenario:	Existing PM
Command:	Existing PM
Volume:	Existing PM
Geometry:	Existing PM
Impact Fee:	Default Impact Fee
Trip Generation:	Default Trip Generation
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Existing PM

```
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
          2000 HCM Unsignalized Method (Future Volume Alternative)
*******************************************************************************
Intersection #1 I-880 & GISH RD
*******************************************************************************
Average Delay (sec/veh):    503.3       Worst Case Level Of Service: F[1301.8]
*******************************************************************************
Street Name:                 I-880                                GISH
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  0  0  0  0    0  1  0  0  1    0  0  1  0  1    1  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 4 Dec 2018 << 4:45-5:45
Base Vol:        0    0     0   192   82     0     0  297   293   414    0   114
Growth Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:     0    0     0   192   82     0     0  297   293   414    0   114
Added Vol:       0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:     0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:     0    0     0   192   82     0     0  297   293   414    0   114
User Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:      1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:      0    0     0   192   82     0     0  297   293   414    0   114
Reduct Vol:      0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:     0    0     0   192   82     0     0  297   293   414    0   114
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   4.1 xxxx xxxxx xxxxx  6.5   6.2   7.1 xxxx   6.2
FollowUpTim:xxxxx xxxx xxxxx   2.2 xxxx xxxxx xxxxx  4.0   3.3   3.5 xxxx   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx     0 xxxx xxxxx  xxxx  466    82   761 xxxx     0
Potent Cap.: xxxx xxxx xxxxx  1636 xxxx xxxxx  xxxx  497   983   325 xxxx  1091
Move Cap.:   xxxx xxxx xxxxx  1636 xxxx xxxxx  xxxx  432   983    92 xxxx  1091
Volume/Cap:  xxxx xxxx  xxxx  0.12 xxxx  xxxx  xxxx 0.69  0.30  4.48 xxxx  0.10
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   0.4 xxxx xxxxx  xxxx  5.1   1.3  43.7 xxxx   0.3
Control Del:xxxxx xxxx xxxxx   7.5 xxxx xxxxx xxxxx 29.8  10.2  1658 xxxx   8.7
LOS by Move:     *    *     *     A    *     *     *    D     B     F    *     A
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx   0.4 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx   7.5 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:      *    *     *     A    *     *     *    *     *     *    *     *
ApproachDel:     xxxxxx           xxxxxx              20.1            1301.8
ApproachLOS:        *                *                  C                F
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
```

```
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
          2000 HCM Unsignalized Method (Future Volume Alternative)
*******************************************************************************
Intersection #2 INDUSTRIAL AVE & GISH RD
*******************************************************************************
Average Delay (sec/veh):      3.1       Worst Case Level Of Service: C[ 17.8]
*******************************************************************************
Street Name:           Industrial Ave                      Gish Rd
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:          Include          Include          Include          Include
Lanes:        0  0  0  0  0    1  0  0  0  1    0  1  0  0  0    0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 4 Dec 2018 << 5:00-6:00
Base Vol:       0    0     0    80    0    94    53  440     0     0  437    35
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0    80    0    94    53  440     0     0  437    35
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0    80    0    94    53  440     0     0  437    35
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0    80    0    94    53  440     0     0  437    35
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0    0     0    80    0    94    53  440     0     0  437    35
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4 xxxx   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5 xxxx   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  1001 xxxx   455   472 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   272 xxxx   610  1100 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   261 xxxx   610  1100 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.31 xxxx  0.15  0.05 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   1.3 xxxx   0.5   0.2 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx  24.7 xxxx  12.0   8.4 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     C    *     B     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   0.2 xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.4 xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     A    *     *     *    *     *
ApproachDel:    xxxxxx             17.8            xxxxxx           xxxxxx
ApproachLOS:       *                 C                *                *
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************
```

Scenario Report

Scenario:	Existing+P AM
Command:	Existing AM
Volume:	Existing+P AM
Geometry:	Existing AM
Impact Fee:	Default Impact Fee
Trip Generation:	Default Trip Generation
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Existing PM

```
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
          2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #1 I-880 & GISH RD
********************************************************************************
Average Delay (sec/veh): OVERFLOW       Worst Case Level Of Service: F[xxxxx]
********************************************************************************
Street Name:               I-880                              GISH
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Channel
Lanes:       0  0  0  0  0    0  1  0  0  1    0  0  1  0  1    1  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0   332  164     0     0  319   145   288    0   198
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   332  164     0     0  319   145   288    0   198
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0   332  164     0     0  319   145   288    0   198
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0   332  164     0     0  319   145   288    0   198
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0    0     0   332  164     0     0  319   145   288    0   198
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   4.1 xxxx xxxxx xxxxx  6.5   6.2   7.1 xxxx   6.2
FollowUpTim:xxxxx xxxx xxxxx   2.2 xxxx xxxxx xxxxx  4.0   3.3   3.5 xxxx   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx     0 xxxx xxxxx  xxxx  828   164  1060 xxxx     0
Potent Cap.: xxxx xxxx xxxxx  1636 xxxx xxxxx  xxxx  309   886   204 xxxx  1091
Move Cap.:   xxxx xxxx xxxxx  1636 xxxx xxxxx  xxxx  232   886     0 xxxx  1091
Volume/Cap:  xxxx xxxx  xxxx  0.20 xxxx  xxxx  xxxx 1.38  0.16  xxxx xxxx  0.18
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   0.8 xxxx xxxxx  xxxx 17.7   0.6  xxxx xxxx   0.7
Control Del:xxxxx xxxx xxxxx   7.8 xxxx xxxxx xxxxx  234   9.9 xxxxx xxxx   9.0
LOS by Move:    *    *     *     A    *     *     *    F     A     *    *     A
Movement:    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx   0.8 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx   7.8 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     A    *     *     *    *     *     *    *     *
ApproachDel:      xxxxxx           xxxxxx             164.3             +Inf
ApproachLOS:         *                *                 F                 F
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #2 INDUSTRIAL AVE & GISH RD
********************************************************************************
Average Delay (sec/veh):      2.4       Worst Case Level Of Service: C[ 15.6]
********************************************************************************
Street Name:          Industrial Ave                        Gish Rd
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  0  0  0   1  0  0  0  1   0  1  0  0  0   0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:        0    0     0    39    0    70    96  331     0     0  460    56
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:     0    0     0    39    0    70    96  331     0     0  460    56
Added Vol:       0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:     0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:     0    0     0    39    0    70    96  331     0     0  460    56
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:      0    0     0    39    0    70    96  331     0     0  460    56
Reduct Vol:      0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:     0    0     0    39    0    70    96  331     0     0  460    56
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4 xxxx   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5 xxxx   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  1011 xxxx   488   516 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   268 xxxx   584  1060 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   248 xxxx   584  1060 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.16 xxxx  0.12  0.09 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   0.5 xxxx   0.4   0.3 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx  22.2 xxxx  12.0   8.7 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     C    *     B     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   0.3 xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.7 xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     A    *     *     *    *     *
ApproachDel:    xxxxxx             15.6            xxxxxx           xxxxxx
ApproachLOS:       *                 C                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

Scenario Report

Scenario:	Existing+P PM
Command:	Existing PM
Volume:	Existing+P PM
Geometry:	Existing PM
Impact Fee:	Default Impact Fee
Trip Generation:	Default Trip Generation
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Existing PM

```
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
           2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #1 I-880 & GISH RD
********************************************************************************
Average Delay (sec/veh):    541.5      Worst Case Level Of Service: F[1385.4]
********************************************************************************
Street Name:                I-880                              GISH
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  0  0  0  0   0  1  0  0  1   0  0  1  0  1   1  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:        0    0     0   193   82     0     0  297   299   426    0   117
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:     0    0     0   193   82     0     0  297   299   426    0   117
Added Vol:       0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:     0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:     0    0     0   193   82     0     0  297   299   426    0   117
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:      0    0     0   193   82     0     0  297   299   426    0   117
Reduct Vol:      0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:     0    0     0   193   82     0     0  297   299   426    0   117
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   4.1 xxxx xxxxx xxxxx  6.5   6.2   7.1 xxxx   6.2
FollowUpTim:xxxxx xxxx xxxxx   2.2 xxxx xxxxx xxxxx  4.0   3.3   3.5 xxxx   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx     0 xxxx xxxxx  xxxx  468    82   766 xxxx     0
Potent Cap.: xxxx xxxx xxxxx  1636 xxxx xxxxx  xxxx  496   983   322 xxxx  1091
Move Cap.:   xxxx xxxx xxxxx  1636 xxxx xxxxx  xxxx  430   983    90 xxxx  1091
Volume/Cap:  xxxx xxxx  xxxx  0.12 xxxx  xxxx  xxxx 0.69  0.30  4.71 xxxx  0.11
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   0.4 xxxx xxxxx  xxxx  5.1   1.3  45.5 xxxx   0.4
Control Del:xxxxx xxxx xxxxx   7.5 xxxx xxxxx xxxxx 30.0  10.3  1763 xxxx   8.7
LOS by Move:     *    *     *     A    *     *     *    D     B     F    *     A
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx   0.4 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx   7.5 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:      *    *     *     A    *     *     *    *     *     *    *     *
ApproachDel:      xxxxxx           xxxxxx             20.1            1385.4
ApproachLOS:         *                *                 C                F
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

```
------------------------------------------------------------------------------
------------------------------------------------------------------------------
                     Level Of Service Computation Report
          2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #2 INDUSTRIAL AVE & GISH RD
********************************************************************************
Average Delay (sec/veh):      3.4      Worst Case Level Of Service: C[ 18.1]
********************************************************************************
Street Name:          Industrial Ave                        Gish Rd
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:        0  0  0  0  0   1  0  0  0  1   0  1  0  0  0   0  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0    83    0   109    60  440     0     0  437    36
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0    83    0   109    60  440     0     0  437    36
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0    0     0    83    0   109    60  440     0     0  437    36
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0    83    0   109    60  440     0     0  437    36
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:    0    0     0    83    0   109    60  440     0     0  437    36
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   6.4 xxxx   6.2   4.1 xxxx xxxxx xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx   3.5 xxxx   3.3   2.2 xxxx xxxxx xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  1015 xxxx   455   473 xxxx xxxxx  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx   266 xxxx   609  1099 xxxx xxxxx  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx   255 xxxx   609  1099 xxxx xxxxx  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  0.33 xxxx  0.18  0.05 xxxx  xxxx  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   1.4 xxxx   0.6   0.2 xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx  25.8 xxxx  12.2   8.5 xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:    *    *     *     D    *     B     A    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   0.2 xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.5 xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:     *    *     *     *    *     *     A    *     *     *    *     *
ApproachDel:     xxxxxx             18.1            xxxxxx           xxxxxx
ApproachLOS:        *                 C                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

Appendix D

Signal Warrants

1535 Industrial Avenue

TRAFFIC SIGNAL WARRANTS WORKSHEET

Analyst: DC date: 7/20/21

Major Street: I-880 Off Ramp / Critical Approach Speed* (mph) 25

Minor Street: Gish Road Critical Approach Speed* (mph) 25

**Posted Speed.*

Critical speed of major street traffic > 50 mph (64 km/h)………………………… ☐ or ☐ } **Rural (R)**

In built up area of isolated community of < 10,000 population…………………….

☑ **Urban (U)**

AM PEAK PERIOD

Warrant 3 - Peak Hour

PART A

(All parts 1, 2, and 3 below must be satisfied)

AM PEAK PERIOD

	Existing	Existing+P						
Minor Street Approach Direction w/ Highest Delay	WB	WB						
Highest Minor Street Average Delay (sec/veh)	300.0	300.0						
Corresponding Minor Street Approach Volume (veh/hr)	481	486						
Minor Street Total Delay (veh-hrs)	40.1	40.5						
1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds 4 vehicle-hours for a 1-lane approach and 5 vehicle-hours for a 2-lane approach; AND	Yes	Yes						
2. The volume on the same minor street approach equals or exceeds 100 vph for 1 moving lane of traffic or 150 vph for 2 moving lanes; AND	Yes	Yes						
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with 4 or more approaches or 650 vph for intersections with 3 approaches.	Yes	Yes						
Signal Warranted based on Part A?	**Yes**	**Yes**						

PART B

AM PEAK PERIOD

		Approach Lanes: One	Approach Lanes: 2 or More	Existing	Existing+P						
Major Street - Both Approaches	I-880 Off Ramp /		X	493	496						
Minor Street - Highest Approach	Gish Road		X	481	486						
Signal Warranted based on Part B?				**No**	**No**						

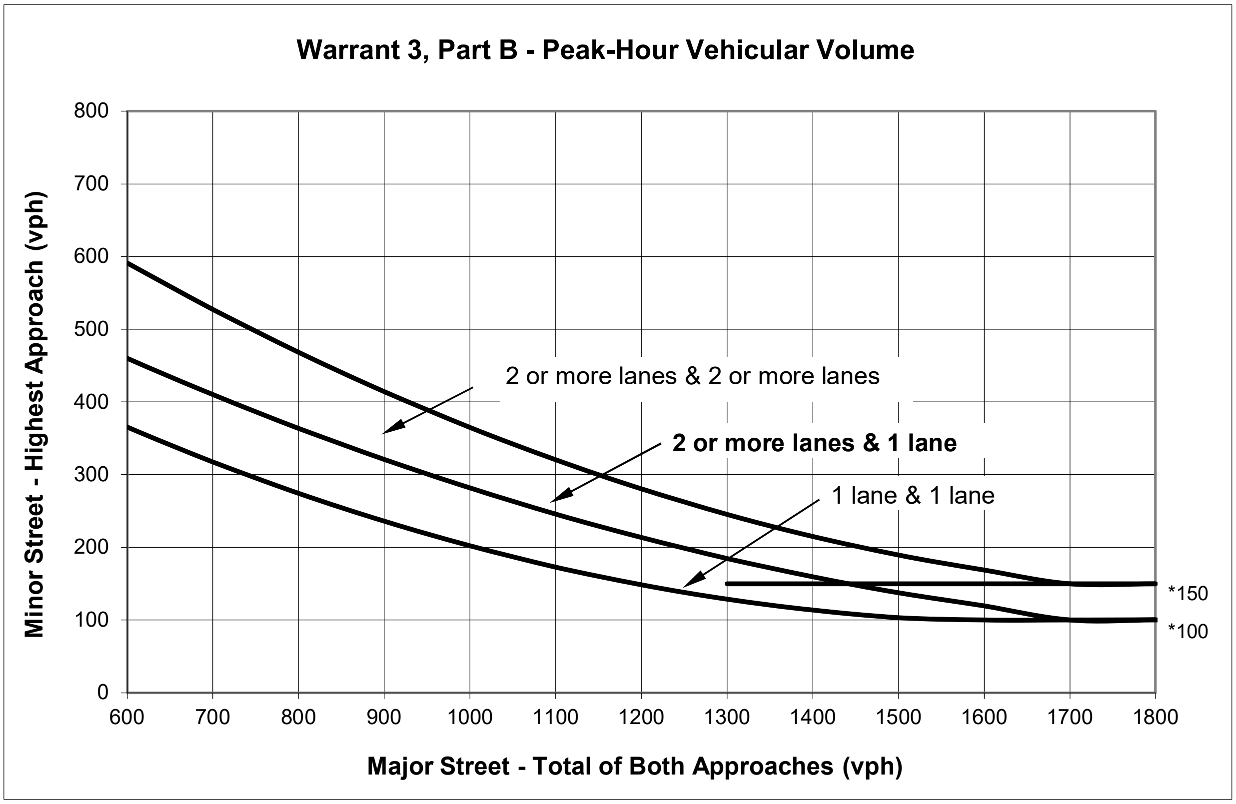
The Warrant is satisfied if the plotted point for vehicles per hour on the major street (both approaches) and the corresponding per hour higher vehicle volume minor street approach (one direction only) for one hour (any four consecutive 15-minute periods) fall above the applicable curves in California MUTCD Figure 4C-3 or 4C-4.

Source: California Manual on Uniform Traffic Control Devices for Streets and Highways (FHWA's MUTCD 2009 Edition, as amended for use in California).

Notes:

1535 Industrial Avenue

I-880 & Gish Road **AM PEAK PERIOD**



Source: Figure 4C-3 *California Manual on Uniform Traffic Control Devices for Streets and Highways (FHWA's MUTCD 2009 Edition, as amended for use in California)* .

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

Warrant 3, Part B - Peak-Hour Vehicular Volume

		Approach Lanes: One	Approach Lanes: 2 or More	AM PEAK PERIOD: Existing	Existing+P						
Major Street - Both Approaches	I-880 Off Ramp /		X	493	496						
Minor Street - Highest Approach	Gish Road		X	481	486						
Signal Warranted Based on Part B - Peak-Hour Volumes?				**No**	**No**						

*Warrant is satisfied if plotted points fall above the appropriate curve in graph above.

1535 Industrial Avenue

TRAFFIC SIGNAL WARRANTS WORKSHEET

Analyst: DC date: 7/20/21

Major Street: I-880 Off Ramp / Critical Approach Speed* (mph) 25

Minor Street: Gish Road Critical Approach Speed* (mph) 25

**Posted Speed.*

Critical speed of major street traffic > 50 mph (64 km/h)............................ ☐ or
In built up area of isolated community of < 10,000 population........................ ☐ } **Rural (R)**

☑ **Urban (U)**

PM PEAK HOUR

Warrant 3 - Peak Hour

PART A
(All parts 1, 2, and 3 below must be satisfied)

PM PEAK HOUR

	Existing	Existing+P						
Minor Street Approach Direction w/ Highest Delay	EB	EB						
Highest Minor Street Average Delay (sec/veh)	1250.3	1330.2						
Corresponding Minor Street Approach Volume (veh/hr)	590	596						
Minor Street Total Delay (veh-hrs)	204.9	220.2						
1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds 4 vehicle-hours for a 1-lane approach and 5 vehicle-hours for a 2-lane approach; AND	Yes	Yes						
2. The volume on the same minor street approach equals or exceeds 100 vph for 1 moving lane of traffic or 150 vph for 2 moving lanes; AND	Yes	Yes						
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with 4 or more approaches or 650 vph for intersections with 3 approaches.	Yes	Yes						
Signal Warranted based on Part A?	**Yes**	**Yes**						

PART B

PM PEAK HOUR

		Approach Lanes: One	Approach Lanes: 2 or More	Existing	Existing+P						
Major Street - Both Approaches	I-880 Off Ramp /		X	274	275						
Minor Street - Highest Approach	Gish Road		X	590	596						
Signal Warranted based on Part B?				**No**	**No**						

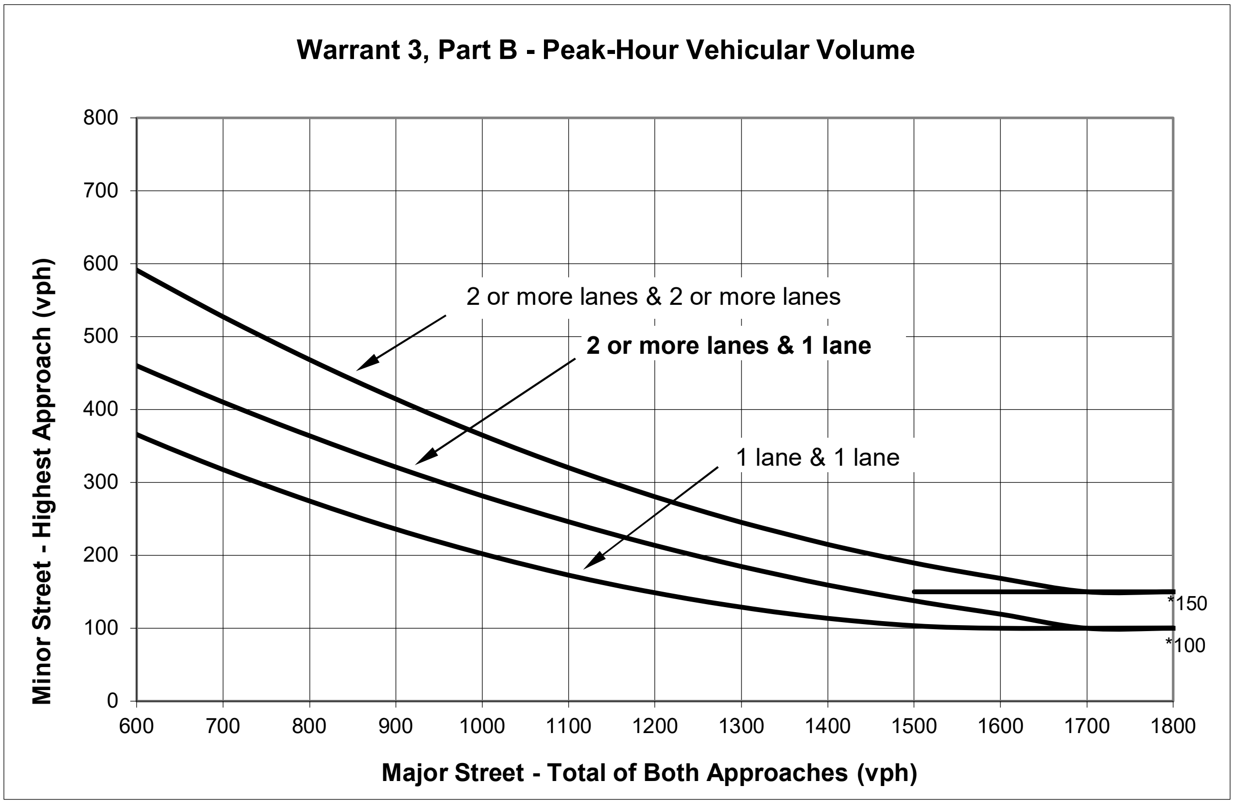
The Warrant is satisfied if the plotted point for vehicles per hour on the major street (both approaches) and the corresponding per hour higher vehicle volume minor street approach (one direction only) for one hour (any four consecutive 15-minute periods) fall above the applicable curves in California MUTCD Figure 4C-3 or 4C-4.

Source: California Manual on Uniform Traffic Control Devices for Streets and Highways (FHWA's MUTCD 2009 Edition, as amended for use in California).

Notes:

1535 Industrial Avenue

I-880 & Gish Road **PM PEAK HOUR**



Source: Figure 4C-3 *California Manual on Uniform Traffic Control Devices for Streets and Highways (FHWA's MUTCD 2009 Edition, as amended for use in California)* .

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

Warrant 3, Part B - Peak-Hour Vehicular Volume

		Approach Lanes: One	Approach Lanes: 2 or More	PM PEAK HOUR: Existing	Existing+P						
Major Street - Both Approaches	I-880 Off Ramp /		X	274	275						
Minor Street - Highest Approach	Gish Road		X	590	596						
Signal Warranted Based on Part B - Peak-Hour Volumes?				**No**	**No**						

*Warrant is satisfied if plotted points fall above the appropriate curve in graph above.

1535 Industrial Avenue

TRAFFIC SIGNAL WARRANTS WORKSHEET

Analyst: DC date: 7/20/21

Major Street: Gish Road — Critical Approach Speed* (mph) 25

Minor Street: Industrial Avenue/ — Critical Approach Speed* (mph) 25

**Posted Speed.*

Critical speed of major street traffic > 50 mph (64 km/h)………………………… ☐ or

In built up area of isolated community of < 10,000 population……………………… ☐ } Rural (R)

☑ **Urban (U)**

AM PEAK PERIOD

Warrant 3 - Peak Hour

PART A

(All parts 1, 2, and 3 below must be satisfied)

AM PEAK PERIOD

	Existing	Existing+P						
Minor Street Approach Direction w/ Highest Delay	SB	SB						
Highest Minor Street Average Delay (sec/veh)	15.3	15.6						
Corresponding Minor Street Approach Volume (veh/hr)	103	109						
Minor Street Total Delay (veh-hrs)	0.4	0.5						
1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds 4 vehicle-hours for a 1-lane approach and 5 vehicle-hours for a 2-lane approach; AND	No	No						
2. The volume on the same minor street approach equals or exceeds 100 vph for 1 moving lane of traffic or 150 vph for 2 moving lanes; AND	Yes	Yes						
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with 4 or more approaches or 650 vph for intersections with 3 approaches.	Yes	Yes						
Signal Warranted based on Part A?	**No**	**No**						

PART B

AM PEAK PERIOD

		Approach Lanes: One	Approach Lanes: 2 or More	Existing	Existing+P						
Major Street - Both Approaches	Gish Road	X		925	943						
Minor Street - Highest Approach	Industrial Avenue/		X	103	109						
Signal Warranted based on Part B?				**No**	**No**						

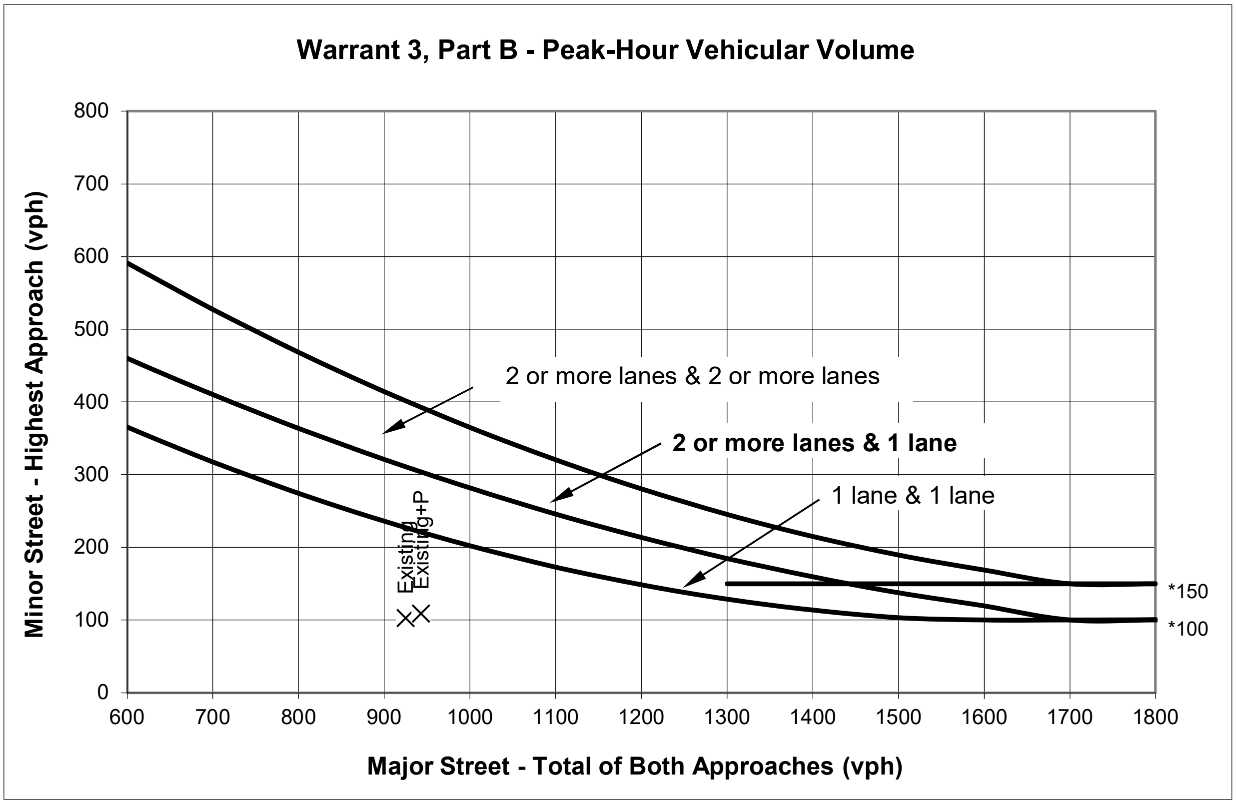
The Warrant is satisfied if the plotted point for vehicles per hour on the major street (both approaches) and the corresponding per hour higher vehicle volume minor street approach (one direction only) for one hour (any four consecutive 15-minute periods) fall above the applicable curves in California MUTCD Figure 4C-3 or 4C-4.

Source: California Manual on Uniform Traffic Control Devices for Streets and Highways (FHWA's MUTCD 2009 Edition, as amended for use in California).

Notes:

1535 Industrial Avenue

Industrial Avenue & Gish Road **AM PEAK PERIOD**



Source: Figure 4C-3 *California Manual on Uniform Traffic Control Devices for Streets and Highways (FHWA's MUTCD 2009 Edition, as amended for use in California)* .

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

Warrant 3, Part B - Peak-Hour Vehicular Volume

		Approach Lanes: One	Approach Lanes: 2 or More	AM PEAK PERIOD: Existing	Existing+P						
Major Street - Both Approaches	Gish Road	X		925	943						
Minor Street - Highest Approach	Industrial Avenue/		X	103	109						
Signal Warranted Based on Part B - Peak-Hour Volumes?				**No**	**No**						

*Warrant is satisfied if plotted points fall above the appropriate curve in graph above.

1535 Industrial Avenue

TRAFFIC SIGNAL WARRANTS WORKSHEET

Analyst: DC date: 7/20/21

Major Street: Gish Road — Critical Approach Speed* (mph) 25

Minor Street: Industrial Avenue/ — Critical Approach Speed* (mph) 25

**Posted Speed.*

Critical speed of major street traffic > 50 mph (64 km/h)………………………. ☐ or
In built up area of isolated community of < 10,000 population……………………. ☐ — **Rural (R)**

☑ **Urban (U)**

PM PEAK HOUR

Warrant 3 - Peak Hour

PART A
(All parts 1, 2, and 3 below must be satisfied)

	PM PEAK HOUR Existing	Existing+P						
Minor Street Approach Direction w/ Highest Delay	SB	SB						
Highest Minor Street Average Delay (sec/veh)	17.8	18.1						
Corresponding Minor Street Approach Volume (veh/hr)	173	191						
Minor Street Total Delay (veh-hrs)	0.9	1.0						
1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds 4 vehicle-hours for a 1-lane approach and 5 vehicle-hours for a 2-lane approach; AND	No	No						
2. The volume on the same minor street approach equals or exceeds 100 vph for 1 moving lane of traffic or 150 vph for 2 moving lanes; AND	Yes	Yes						
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with 4 or more approaches or 650 vph for intersections with 3 approaches.	Yes	Yes						
Signal Warranted based on Part A?	**No**	**No**						

PART B

		Approach Lanes: One	2 or More	PM PEAK HOUR Existing	Existing+P						
Major Street - Both Approaches	Gish Road	X		956	964						
Minor Street - Highest Approach	Industrial Avenue/		X	173	191						
Signal Warranted based on Part B?				**No**	**No**						

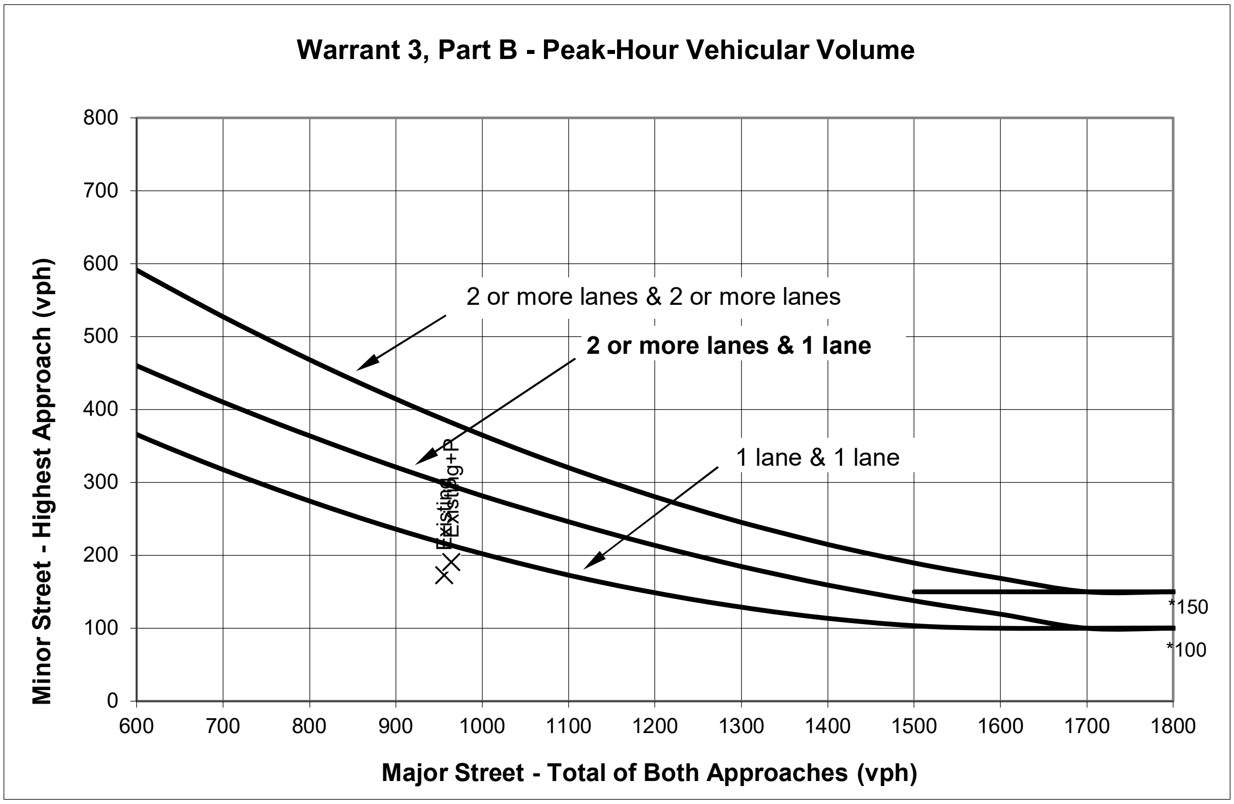
The Warrant is satisfied if the plotted point for vehicles per hour on the major street (both approaches) and the corresponding per hour higher vehicle volume minor street approach (one direction only) for one hour (any four consecutive 15-minute periods) fall above the applicable curves in California MUTCD Figure 4C-3 or 4C-4.

Source: California Manual on Uniform Traffic Control Devices for Streets and Highways (FHWA's MUTCD 2009 Edition, as amended for use in California).

Notes:

1535 Industrial Avenue

Industrial Avenue & Gish Road **PM PEAK HOUR**



Source: Figure 4C-3 *California Manual on Uniform Traffic Control Devices for Streets and Highways (FHWA's MUTCD 2009 Edition, as amended for use in California)* .

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

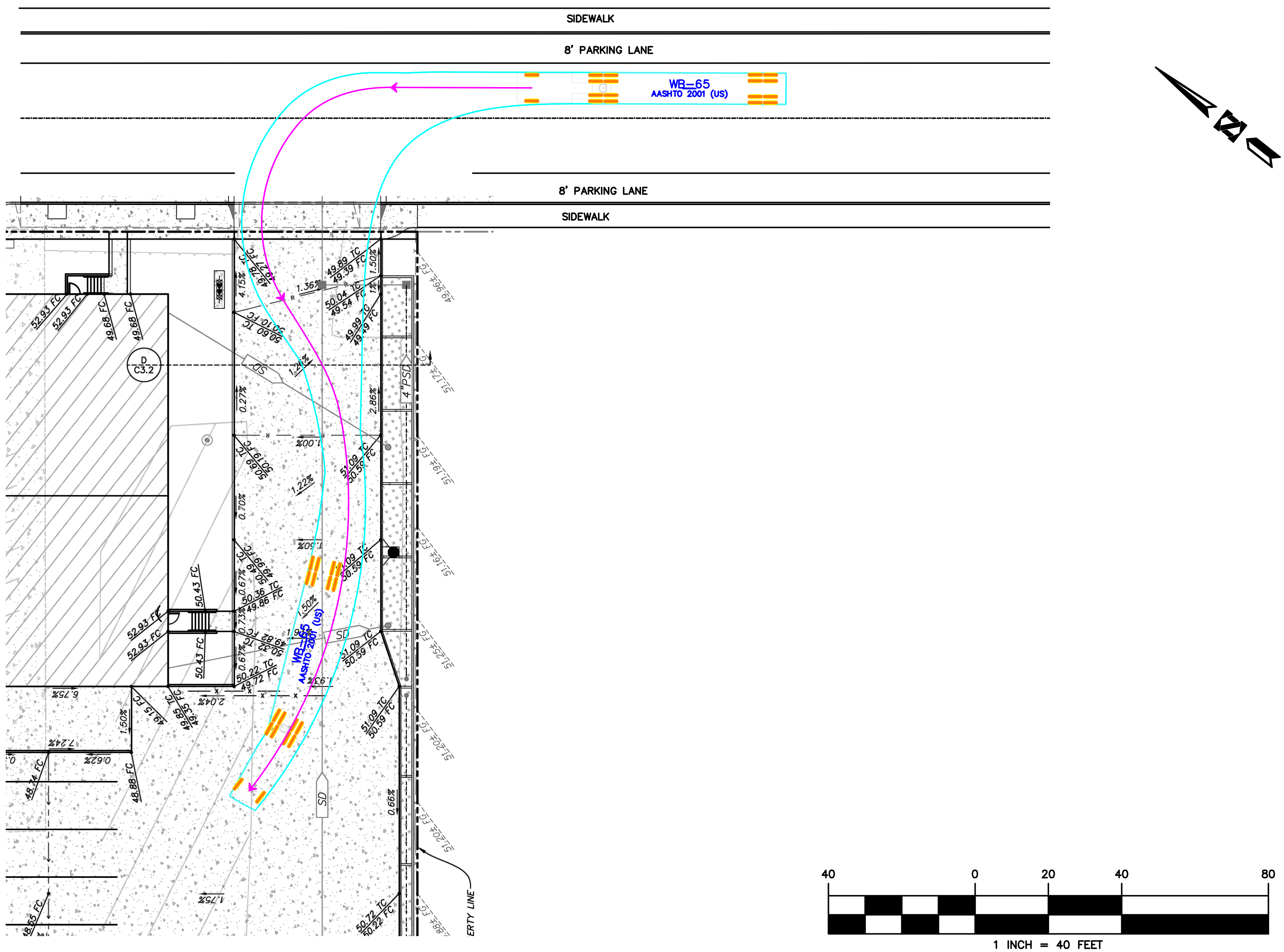
Warrant 3, Part B - Peak-Hour Vehicular Volume

		Approach Lanes		PM PEAK HOUR							
		One	2 or More	Existing	Existing+P						
Major Street - Both Approaches	Gish Road	X		956	964						
Minor Street - Highest Approach	Industrial Avenue/		X	173	191						
Signal Warranted Based on Part B - Peak-Hour Volumes?				**No**	**No**						

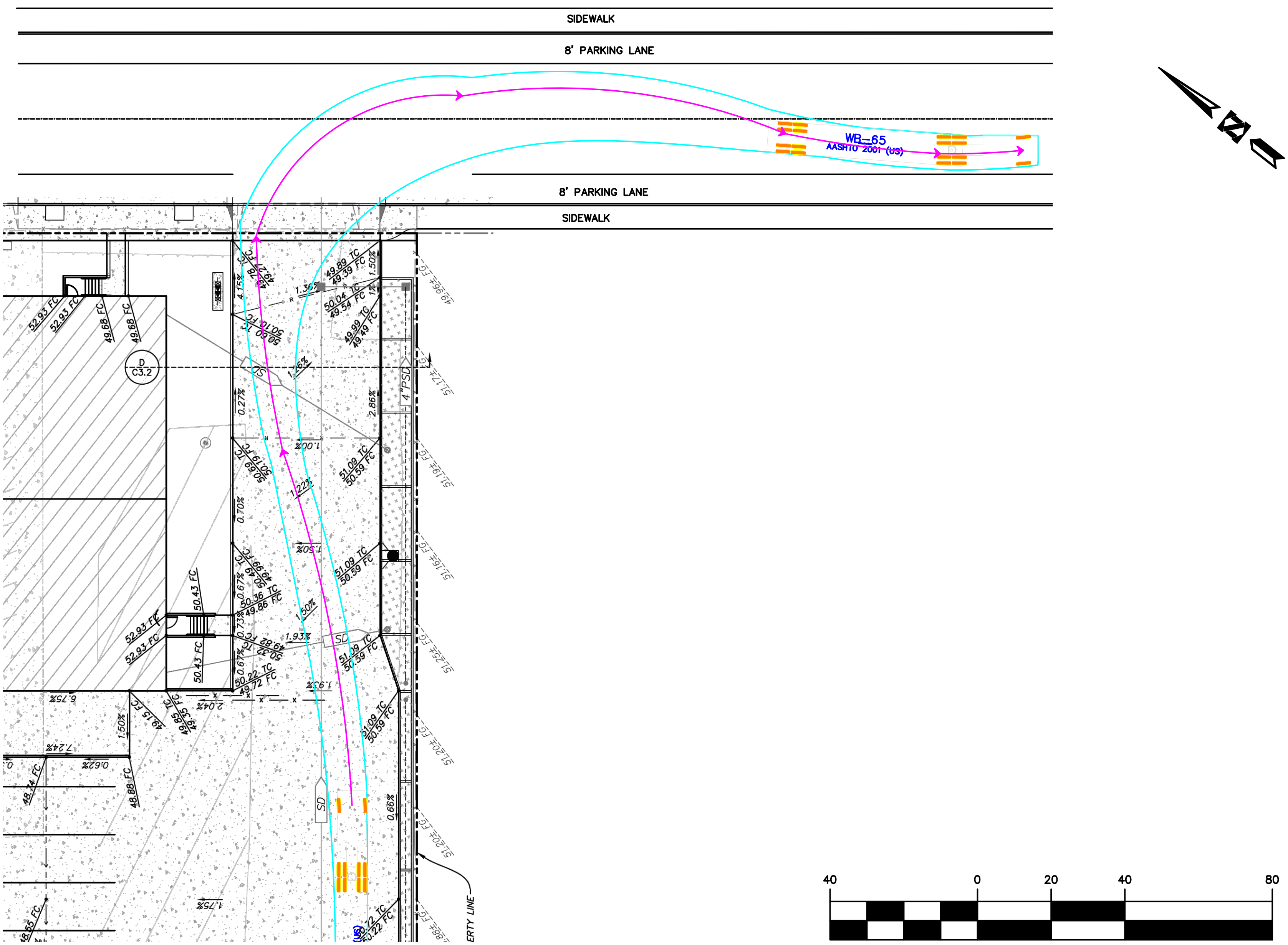
*Warrant is satisfied if plotted points fall above the appropriate curve in graph above.

Appendix E

Truck Turning Templates



DRAWN J. Chang	SCALE 1" = 40'	HEXAGON TRANSPORTATION CONSULTANTS, INC. 100 Century Center Court, Suite 501 San Jose, California 95112 Ph: (408) 971-6100 www.hextrans.com	CITY OF SAN JOSE	FIGURE NO.
CHECKED D. Choi	DATE 8/17/2022		1535-1575 INDUSTRIAL AVENUE TURNING TEMPLATE	1



40 0 20 40 80

1 INCH = 40 FEET

DRAWN J. Chang	SCALE 1" = 40'	HEXAGON TRANSPORTATION CONSULTANTS, INC.	CITY OF SAN JOSE	FIGURE NO.
CHECKED D. Choi	DATE 8/17/2022	100 Century Center Court, Suite 501 San Jose, California 95112 Ph: (408) 971-6100 www.hextrans.com	1535-1575 INDUSTRIAL AVENUE TURNING TEMPLATE	2