APPENDIX H

TRANSPORTATION ANALYSIS

Hexagon Transportation Consultants, Inc.

Project Garlic Delivery Station

Transportation Analysis

Prepared for:

EMC Planning Group

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Hexagon Transportation Consultants, Inc.

Hexagon Office: 8070 Santa Teresa Boulevard, Suite 230
Gilroy, CA 95020
Hexagon Job Number: 20GD04
Phone: 408.846-7410

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Executive Summary

The purpose of this transportation analysis is to evaluate the potential transportation impacts associated with the proposed Project Garlic delivery station in conformance with the requirements of the California Environmental Quality Act (CEQA) and the City of Gilroy.

The project consists of the construction of a 142,000 square-foot “last-mile” delivery station and a 266,220-square-foot industrial building.

Scope of Study

This transportation analysis has been prepared in accordance with the standards and methodologies set forth by the City of Gilroy, the Santa Clara Valley Transportation Authority (VTA) Congestion Management Program’s *Transportation Impact Guidelines* (October 2014), and by the California Environmental Quality Act (CEQA).

In 2013, the State of California 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. Therefore, in adherence to SB 743, the effects and impacts to the transportation network as the result of the proposed project were evaluated based on VMT.

However, the City of Gilroy currently uses LOS as their adopted methodology for the evaluation of the effects of new development and land use changes on the local transportation network. In addition, the City is still required to conform to the requirements of the VTA, which establishes a uniform program for evaluating the transportation impacts of land use decisions on the designated CMP Roadway System. Therefore, in addition to the evaluation of VMT, this transportation study also includes level of service analysis to evaluate the effects of the project on the citywide transportation system, including intersections, freeway segments, and freeway ramps. The level of service analysis is presented to determine conformance to General Plan transportation policies. The determination of project impacts per CEQA requirements is based solely on the VMT analysis.

CEQA VMT Evaluation Results

For the purpose of this analysis, and for consistency with the City of Gilroy General Plan, the VMT analysis considers OPR’s recommended 15 percent (%) below baseline conditions as the threshold to identify potential VMT impacts. This represents an impact threshold of 15% below the citywide average employment VMT of 20.14 miles per job.

The VMT results are presented in Table ES-1.

Table ES 1
VMT Analysis Summary

Year	Citywide Average Daily Employment VMT per Job	15% Below Base Threshold	Project Only Average Daily Employment VMT per Job	Impact?
City of Gilroy				
Base Year 2017	20.14	17.12	19.23	Yes
2040 General Plan	21.94	18.65	19.27	Yes
2040 General Plan + Project	21.88			

Source: City of Gilroy Travel Demand Forecasting Model.

Project Impact: The results of the VMT evaluation, using the City's TDF Model, indicate that the project is projected to have an average daily employment VMT of 19.23 miles per job, which would exceed the established impact threshold of 17.12 miles per job. Therefore, the proposed project would result in a significant CEQA transportation impact, based on the threshold of significance recommended by the City of Gilroy Draft VMT guidelines.

Mitigation Measures: Based on recommendations from City staff and preliminary discussion between City staff and the project applicant, the project will be required to prepare and implement a Transportation Demand Management (TDM) program that will reduce the project's VMT impact to a less-than-significant level. The project applicant has prepared a draft TDM program describing the proposed TDM measures for the project and the anticipated employee participation rate for each measure.

The proposed TDM measures must reduce the project VMT below the established impact threshold. Thus, the effect the above TDM measures would have on the project VMT was quantified with the use of the VTA's Santa Clara Countywide VMT Evaluation Tool. The VTA VMT Evaluation Tool identifies TDM measures (Tier 4) as VMT reduction strategies that can be implemented to reduce a project's VMT.

The proposed TDM measures include the following:

- ***Compress work week – 4-day shifts***. This proposed TDM measure is in line with VTA's TDM Program (TP) 08 – *Telecommuting and Alternative Work Schedule Program*. This program allows and encourages employees to telecommute from home when possible, or to shift work schedules to reduce vehicle miles traveled.
  - 80 percent (%) of employees shall be assigned a four day/40-hour work shift.
- ***Carpool programs***. This proposed TDM measure is in line with VTA's TP13 – *Ride Sharing Program*. This program matches employees interested in carpooling who have similar commute patterns. This TDM strategy encourages the use of carpooling, which reduces the number of vehicle trips and thereby reduces VMT.
  - Employers shall strive to have 20% of eligible employees participate in this program.

- The applicant shall provide dedicated carpool/vanpool parking spaces commensurate with the number of employees participating in this program.
- Employers shall provide "Guaranteed Ride Home Services," which provides employees who regularly (twice a week) carpool, vanpool, bike, walk or take transit to work with a free and reliable ride home when one of life's unexpected emergencies arise. Commuters may take advantage of this service up to four times per year to get home for unexpected emergencies such as a personal illness or a sick child. This service can also be used for unscheduled overtime when the employer mandates working late.

- ***Pre-tax benefits for qualified commute services (such as transit passes, vanpools, and carpool programs)***. This proposed TDM measure is in line with VTA's TP11 – *Provide employees commuter benefits to encourage the use of alternative transportation*.
  - Employers shall strive to have 20% of eligible employees participate in this program through regular communications and incentives.
  - Transit passes shall off-set at least 25% in the participating employees' transit costs from home to work and back.
  - Incentives should include, but not be limited to, pre-tax benefits.
- ***Bike racks, Lockers***. The applicant is proposing to provide 10 bike racks in a secure area. Based on the VTA *Bicycle Technical Guidelines* (December 2012) recommended bicycle parking rates, the delivery station should provide a minimum of 9 to 12 Class I (bike lockers) bicycle parking and the industrial site should provide a minimum of 18 Class I bicycle parking. However, the VTA Evaluation Tool shows that providing on-site bicycle facilities would have minimal effect on the project's VMT.

The VMT Evaluation Tool shows that with implementation of TP08, 11, and 13, the project's VMT would be reduced by approximately 3.93 miles per job, reducing the project's VMT from 19.23 to 15.3 miles per job, below the established impact threshold of 17.12 miles per job. Therefore, implementation of the above TDM measures and employee participation rate would mitigate the project VMT impact to less than significant.

Roadway Capacity Analysis Results

Intersection Level of Service Analysis Results

The results of the intersection level of service analysis conducted for the study intersections are described below and summarized in Table ES-2.

Existing Intersection Level of Service Analysis

The results of the intersection level of service analysis under existing conditions indicate that the following intersection currently operates deficiently during the Saturday peak-hour:

1. Arroyo Circle and Leavesley Road (LOS E – Sat peak-hour)
9. Camino Arroyo and Pacheco Pass Highway/SR 152 (LOS E – Sat peak-hour)

Background Plus Project Intersection Level of Service Analysis

The results of the intersection level of service analysis show that the following intersection would continue to operate deficiently under background plus project conditions:

1. Arroyo Circle and Leavesley Road (LOS F – Sat peak-hour)
9. Camino Arroyo and Pacheco Pass Highway/SR 152 (LOS E – Sat peak-hour; **Project Deficiency**: Sat peak-hour)

Based on City of Gilroy definition of operational deficiencies at signalized intersections, the project would have an operational deficiency at the intersection of Camino Arroyo/Pacheco Pass Highway (SR 152) by increasing the intersection delay by more than 4 seconds.

Year 2040 General Plan Plus Project Intersection Level of Service Analysis

The results of the intersection level of service analysis show that the project would contribute to an operational deficiency at the following two intersections under 2040 General Plan plus project conditions, based on City of Gilroy definition of operational deficiencies at intersections:

9. Camino Arroyo and Pacheco Pass Highway/SR 152 (LOS F – Sat peak-hour; **Project Deficiency**: Sat peak-hour)
16. Silacci Way and Pacheco Pass Highway/SR 152 (LOS F and peak-hour signal warrant met PM peak hour; **Project Deficiency**: PM peak-hour)

Freeway Segment Evaluation

The results of the freeway level of service analysis are summarized in Table ES-3.

Freeway Segment Level of Service Results

The results of the freeway segment level of service analysis show that the proposed project is not projected to add traffic representing one percent (1%) or more of the segments' capacity to the deficient study freeway segments, therefore, the proposed project would not create a level of service deficiency at any of the study freeway segments.

Freeway Ramp Analysis Results

The results of the freeway ramp analysis are summarized in Table ES-4.

Based on the calculated volume-to-capacity (V/C) ratios, all of the study freeway ramps currently operate at acceptable levels. Under background plus project conditions, based on the ramp capacities and traffic volume projections, it is projected that all of the study freeway ramps would continue to operate at acceptable levels.

Intersection Operations Analysis Results

The operations analysis results are described below and summarized in Table ES-5.

The results of the queue analysis show that the proposed project would contribute to the projected queue length storage capacity deficiencies for the following turn-movements:

9. Camino Arroyo and SR 152 – Southbound right-turn movement

The addition of project traffic to the southbound right-turn movement at the *Camino Arroyo/SR 152* intersection is projected to increase the 95th percentile vehicle queue length from background conditions by three vehicles (75 feet) during the Saturday peak-hour, exceeding the available storage capacity by a total of 15 vehicles (375 feet).

9. Camino Arroyo and SR 152 – Eastbound left-turn movement

The addition of project traffic to the eastbound left-turn movement at the *Camino Arroyo/SR 152* intersection is projected to increase the 95th percentile vehicle queue length from background conditions by one vehicle (25 feet) per lane during the Saturday peak-hour, exceeding the available storage capacity by a total of 6 vehicles (150 feet) per lane.

Projected Deficiencies and Possible Improvements

Described below are possible improvements to improve operating conditions for the projected deficiencies.

9. Camino Arroyo and Pacheco Pass Highway/SR 152 – Level of Service Deficiency: Background Plus Project and 2040 General Plan Plus Project Conditions

The projected deficiency at this intersection could be improved with the implementation of a second southbound right-turn lane. A second right-turn lane would provide the additional capacity needed to serve the projected southbound right-turn movement volumes, projected to be the heaviest movement of the intersection during the Saturday peak-hour. The doble right-turn lanes could be designed to feed directly into the US 101 northbound on-ramp and Tenth Street, with the outer right-turn lane (curb lane) becoming a trap lane to the freeway and the second right-turn lane having the option to continue onto the freeway on-ramp or merge into the westbound through lane (similar to the operations of the existing southbound right-turn lane and corresponding receiving lane). The southbound right-turn lanes would begin south of the Best Buy driveway along Camino Arroyo, similar to the existing right-turn lane. Westbound through traffic from the intersection heading to the US 101 northbound on-ramp would continue to merge with traffic in the second receiving lane, similar to today's operations. Adding a second southbound right-turn lane would require widening of the north side of Pacheco Pass Highway, west of Camino Arroyo, (and potentially the west side of Camino Arroyo, north of SR 152) to provide the necessary right-of-way for the second receiving lane. Adequate merging distance also must be provided for westbound through traffic and southbound right-turn traffic to merge in and out of the second receiving lane while accessing the US 101 northbound on ramp and the westbound through lanes. With implementation of these improvements, the intersection level of service would improve to acceptable LOS D during the Saturday peak-hour.

It should be noted that the addition of a second southbound right-turn lane is necessary to improve operating conditions at the intersection to acceptable levels. However, due to the close proximity of this intersection with the US 101 northbound on-ramp, and the merging of traffic between the westbound through lanes and the southbound right-turn receiving lane, which feeds into the freeway on-ramp, operations at the merging point between the westbound through and southbound right-turn traffic may affect projected operational levels of the doble right-turn lanes. Therefore, additional analysis would be required to verify the feasibility of these improvements, including drawings of the potential improvements and a more detailed evaluation of the intersection's operations with the use of a simulation software. If the additional analysis shows that implementing the second southbound right-turn lane is not feasible, additional or alternative improvements would be required, such as extending the westbound merging distance by reconfiguring the US 101 northbound on-ramp/interchange or by grade separation of the intersection.

16. Silacci Way and Pacheco Pass Highway/SR 152 – Level of Service Deficiency: 2040 General Plan Plus Project Conditions

The projected deficiency at this intersection could be improved with the installation of a traffic signal or by restricting left-turn access to and from Silacci Way. The projected deficiency would be caused cumulatively by the proposed project and all other development projects that are part of the 2040 General Plan buildout conditions. Therefore, the project is required to pay the applicable traffic impact fee (TIF) as a fair-share contribution toward future improvements that would restore operations at the intersection to acceptable levels.

9. Camino Arroyo and Pacheco Pass Highway/SR 152 – Queue Deficiency (Southbound Right-Turn)

The project deficiency at this intersection could be improved with the addition of a second southbound right-turn lane. The addition of a second southbound right-turn lane would require widening of the north side of Pacheco Pass Highway, west of Camino Arroyo, (and potentially the west side of Camino Arroyo, north of SR 152) to provide the necessary right-of-way for the second receiving lane. This improvement also has been identified as a potential improvement for the level of service deficiency at this intersection.

9. Camino Arroyo and Pacheco Pass Highway/SR 152 – Queue Deficiency (Eastbound Left-Turn)

The project deficiency at this intersection could be improved with the addition of a third eastbound left-turn lane. Providing a third eastbound left-turn lane would require the widening of the south side of Pacheco Pass Highway/SR 152 and the east side of Camino Arroyo to accommodate a third eastbound left-turn lane and the corresponding receiving lane in the northbound direction of Camino Arroyo. If the addition of a third eastbound left-turn lane is not feasible, additional or alternative improvements would be required, such as the extension of the existing eastbound left-turn pockets (to the maximum extent possible), reconfiguration of the US 101/Tenth Street/SR 152 interchange and Camino Arroyo/SR 152 intersection, or grade separation of the intersection.

Other Transportation Issues

Recommended Site Access and Circulation Improvements

Operations at Project Driveways. Drive B must be designed to meet Caltrans design standards, including aligning with Cameron Boulevard to the south. The lane configuration on the south leg of the intersection should dictate the width and lane configuration of the project site driveway. The alignment of the north and south legs of the intersection must ensure there is no conflict between the various movements at the intersection. A few of the intersection characteristics to consider during the design of this intersection include:

- The lane configuration and overall width of the driveway should be such that the northbound and southbound through lanes through the intersection line up from the approach side of the intersection to the departure side of the intersection.
- Left-turn movement out of Driveway B should not be in conflict with the left-turn movements from Cameron Boulevard so that these two movements can run simultaneously, if needed.
- Although the projected traffic volumes at this driveway during the peak hours are relatively low, it is recommended that the driveway lane configuration does not include a shared through and left-turn lane. Providing three outbound lanes (including an exclusive left-turn lane) at Driveway B is recommended in order to align the lanes at the driveway with the lanes on Cameron Boulevard and be able to run the intersection traffic signal as an 8-phase signal.
- In order to accommodate pedestrian access across SR 152 at this intersection, it is recommended that the north and south corners of the intersection line up to be able to provide a straight crosswalk across SR 152.

- The project driveway and intersection with Cameron Boulevard/SR 152 must be design to the satisfaction of Caltrans design standards. Any improvements to this intersection ultimately will have to be coordinated with and approved by Caltrans.

Sight Distance. The design of the project site should ensure that design features, such as the landscaping and signage along the project site frontage and at the project site driveways, would not interfere with the sight distance at the proposed site driveways.

Emergency Vehicle Access. The project should investigate the feasibility of providing emergency vehicle left-turn inbound access from eastbound SR 152 to the industrial site at Driveway D. Should Caltrans deem the proposed left-turn access and traffic signal at Driveway D undesirable, an alternative emergency vehicle access to the industrial site from eastbound SR 152 shall be provided. An alternative, as being proposed by the project, would be to provide emergency vehicle access via the Cameron Boulevard/SR 152 intersection (Driveway B), with a direct connection from this driveway over the SCVWD channel (Llagas Creek) to the industrial site.

On-Site Circulation. A four-legged intersection would be formed as the existing cul-de-sac on Renz Lane connects with the main on-site access road. Appropriate traffic control devices and pavement markings, including crosswalks connecting the project site to the existing sidewalks on Renz Lane, should be provided at this intersection.

Pedestrian On-Site Circulation. A defined pedestrian connection should be provided between the delivery station's western parking lot and the existing sidewalks on Renz Lane and proposed multi-use trail. This should include crosswalks along the east and west legs of the Renz Lane intersection with the main access road. This connection would provide a direct pedestrian connection between the project site and the adjacent shopping centers located northwest of the project site.

Recommended Bicycle Facility Improvements

Provide Bicycle Parking. It is recommended that the proposed project provide adequate bicycle parking supply on site, based on VTA's recommends bicycle-parking rates, to serve the potential demand of the project. Based on VTA's bicycle parking supply recommendations for industrial land use, the proposed delivery station should provide 9-12 Class I (bike lockers) bicycle parking spaces while the industrial site should provide 18 Class I bicycle parking spaces.

Recommended Pedestrian Circulation Improvements

Upgrade Curbs Ramps to ADA Standards. It is recommended that ADA-compliant curb ramps be installed at all corners of the Camino Arroyo/SR 152 intersection.

Installation of Crosswalks. It is recommended that with the modification of the Cameron Boulevard/SR 152 intersection and traffic signal to include the north leg (project Driveway B) of the intersection, a crosswalk and pedestrian signal phase be installed along the west leg of the intersection, providing pedestrian access between the project site and the existing shopping center at the southwest corner of this intersection. ADA-compliant curb ramps also should be installed at this intersection.

Table ES 2
Intersection Level of Service Results

Study Int. Number	Intersection	Intersection Control	LOS Standard	Peak Hour	Count Date	Existing Avg. Delay	Existing LOS	Existing Warrant Met?[1]	Background Avg. Delay	Background LOS	Background Warrant Met?[1]	Background Plus Project Avg. Delay	Background Plus Project LOS	Background Plus Project Delay Change[2]	Background Plus Project Warrant Met?[1]	2040 General Plan No Project Avg. Delay	2040 General Plan No Project LOS	2040 General Plan No Project Warrant Met?[1]	2040 General Plan Plus Project Avg. Delay	2040 General Plan Plus Project LOS	2040 General Plan Plus Project Delay Change[2]	2040 General Plan Plus Project Warrant Met?[1]
1	Arroyo Circle and Leavesley Road	Signal	D	AM	11/20/19	20.1	C	–	22.9	C	–	22.9	C	+0.0	–	18.7	B-	–	18.8	B-	+0.1	–
				PM	11/20/19	23.1	C	–	23.5	C	–	23.5	C	+0.0	–	23.8	C	–	23.7	C	-0.1	–
				SAT	11/7/20	**74.9**	**E**	–	**81.1**	**F**	–	**82.6**	**F**	**+1.5**	–	28.2	C	–	28.2	C	+0.0	–
2	US 101 NB Ramps/San Ysidro Ave and Leavesley Road	Signal	D	AM	10/17/19	26.2	C	–	26.5	C	–	26.5	C	+0.0	–	27.3	C	–	27.3	C	+0.0	–
				PM	10/17/19	29.0	C	–	29.6	C	–	29.5	C	-0.1	–	31.3	C	–	31.3	C	+0.0	–
				SAT	11/7/20	35.8	D	–	36.0	D	–	35.9	D	-0.1	–	40.5	D	–	40.6	D	+0.1	–
3	US 101 SB Ramps and Leavesley Road	Signal	D	AM	10/17/19	17.4	B	–	17.4	B	–	17.4	B	+0.0	–	19.0	B-	–	19.2	B-	+0.2	–
				PM	10/17/19	26.3	C	–	26.7	C	–	26.6	C	-0.1	–	20.9	C+	–	20.8	C+	-0.1	–
				SAT	7/22/17	30.8	C	–	31.0	C	–	31.0	C	+0.0	–	22.8	C+	–	22.8	C+	+0.0	–
4	Camino Arroyo and Sixth Street/Gilman Road	Signal	D	AM	11/5/20	19.5	B	–	19.5	B	–	19.5	B	+0.0	–	20.0	C+	–	20.2	C+	+0.2	–
				PM	11/5/20	31.3	C	–	32.0	C	–	32.3	C	+0.3	–	32.4	C-	–	34.6	C-	+2.2	–
				SAT	11/7/20	32.7	C	–	33.2	C	–	33.2	C	+0.0	–	35.0	D+	–	37.8	D+	+2.8	–
5	Frazier Lake Road and Pacheco Pass Highway (SR 152)	Signal	D	AM	1/23/18	15.2	B	–	16.0	B	–	16.4	B	+0.4	–	34.7	C-	–	35.2	D+	+0.5	–
				PM	1/23/18	7.0	A	–	7.3	A	–	7.4	A	+0.1	–	7.7	A	–	7.7	A	+0.0	–
				SAT	11/18/17	10.9	B	–	11.6	B	–	11.6	B	+0.0	–	12.9	B	–	13.0	B	+0.1	–
6	Holsclaw Road and Pacheco Pass Highway (SR 152)	One-Way Stop (Average Delay)	D	AM	1/23/18	0.2	A+	–	0.2	A+	–	0.2	A+	+0.0	–	0.3	A+	–	0.3	A+	+0.0	–
				PM	1/23/18	0.4	A+	–	0.5	A+	–	0.5	A+	+0.0	–	0.6	A+	–	0.6	A+	+0.0	–
				SAT	11/18/17	0.2	A+	–	0.2	A+	–	0.3	A+	+0.1	–	0.4	A+	–	0.4	A+	+0.0	–
		One-Way Stop (Worst Approach)	E	AM		20.8	C	No	23.8	C-	No	24.7	C-	+0.9	No	31.6	D	No	32.2	D-	+0.6	No
				PM		23.4	C-	No	30.8	D	No	32.1	D-	+1.3	No	44.8	E	No	44.0	E	-0.8	No
				SAT		29.6	D	No	33.7	D-	No	34.0	D-	+0.3	No	**66.5**	**F**	No	**64.1**	**F**	**-2.4**	No
7	Cameron Boulevard/Project Driveway B and Pacheco Pass Highway (SR 152)	Signal	D	AM	11/20/19	5.0	A	–	7.4	A	–	10.6	B	+3.2	–	17.6	B	–	19.1	B-	+1.5	–
				PM	11/5/20	7.8	A	–	14.6	B	–	24.9	C	+10.3	–	26.6	C	–	19.9	B-	-6.7	–
				SAT	11/7/20	7.3	A	–	8.5	A	–	18.5	B	+10.0	–	39.0	D	–	41.0	D	+2.0	–
8	Camino Arroyo and Renz Lane	Signal	D	AM	11/5/20	18.8	B	–	18.7	B	–	17.9	B	-0.8	–	16.3	B	–	15.9	B	-0.4	–
				PM	11/5/20	22.5	C	–	22.4	C	–	23.2	C	+0.8	–	26.7	C	–	26.2	C	-0.5	–
				SAT	11/7/20	37.9	D	–	37.9	D	–	38.2	D	+0.3	–	44.2	D	–	41.5	D	-2.7	–
9	Camino Arroyo and Pacheco Pass Highway (SR 152)	Signal	D	AM	5/7/19	23.8	C	–	19.7	B	–	20.4	C	+0.7	–	21.4	C+	–	22.1	C+	+0.7	–
				PM	5/7/19	29.7	C	–	33.2	C	–	35.2	D	+2.0	–	34.8	C-	–	34.6	C-	-0.2	–
				SAT	11/7/20	**59.8**	**E**	–	**67.8**	**E**	–	**72.8**	**E**	**+5.0**	–	**98.5**	**F**	–	**104.0**	**F**	**+5.5**	–
10	US 101 Northbound Ramps and Pacheco Pass Highway (SR 152)	Signal	D	AM	5/7/19	8.8	A	–	9.2	A	–	9.5	A	+0.3	–	11.5	B+	–	11.3	B+	-0.2	–
				PM	5/7/19	7.2	A	–	8.5	A	–	8.7	A	+0.2	–	12.8	B	–	12.8	B	+0.0	–
				SAT	9/7/19	10.7	B	–	11.0	B	–	11.2	B	+0.2	–	16.9	B	–	16.7	B	-0.2	–
11	US 101 Southbound Ramps and Tenth Street	Signal	D	AM	5/7/19	19.4	B	–	20.1	C	–	20.9	C	+0.8	–	20.6	C+	–	20.9	C+	+0.3	–
				PM	5/7/19	22.9	C	–	25.3	C	–	25.8	C	+0.5	–	22.4	C+	–	22.5	C+	+0.1	–
				SAT	9/7/19	27.3	C	–	28.2	C	–	28.7	C	+0.5	–	27.2	C	–	27.2	C	+0.0	–
12	Chestnut Street/Automall Parkway and Tenth Street	Signal	D	AM	5/7/19	31.3	C	–	29.9	C	–	29.8	C	-0.1	–	32.1	C-	–	32.3	C-	+0.2	–
				PM	5/7/19	34.3	C	–	33.7	C	–	33.7	C	+0.0	–	36.2	D+	–	36.0	D+	-0.2	–
				SAT	9/7/19	32.1	C	–	32.1	C	–	32.0	C	-0.1	–	34.2	C-	–	34.1	C-	-0.1	–
13	Monterey Road and Tenth Street	Signal	D	AM	5/7/19	22.7	C	–	21.5	C	–	21.6	C	+0.1	–	23.6	C	–	23.5	C	-0.1	–
				PM	9/5/19	27.4	C	–	27.5	C	–	27.8	C	+0.3	–	29.3	C	–	29.2	C	-0.1	–
				SAT	9/7/19	29.1	C	–	28.3	C	–	28.5	C	+0.2	–	32.2	C-	–	32.2	C-	+0.0	–
14	Monterey Road and Luchessa Avenue	Signal	D	AM	11/5/19	20.9	C	–	21.4	C	–	21.6	C	+0.2	–	29.6	C	–	30.1	C	+0.5	–
				PM	9/5/19	30.9	C	–	33.2	C	–	33.2	C	+0.0	–	39.2	D	–	39.4	D	+0.2	–
				SAT	9/7/19	21.2	C	–	21.8	C	–	21.9	C	+0.1	–	25.4	C	–	25.4	C	+0.0	–
15	Gilroy Foods and Pacheco Pass Highway (SR 152)	Signal	D	AM	11/5/20	9.1	A	–	9.1	A	–	9.0	A	-0.1	–	8.5	A	–	8.5	A	+0.0	–
				PM	11/5/20	10.2	B	–	10.8	B	–	10.9	B	+0.1	–	9.4	A	–	9.4	A	+0.0	–
				SAT	11/7/20	5.5	A	–	3.2	A	–	3.2	A	+0.0	–	5.0	A	–	5.0	A	+0.0	–
16	Silacci Way and Pacheco Pass Highway (SR 152)	One-Way Stop (Average Delay)	D	AM	11/5/20	0.2	A+	–	0.2	A+	–	0.2	A+	+0.0	–	0.6	A+	–	0.5	A+	-0.1	–
				PM	11/5/20	0.4	A+	–	0.8	A+	–	0.9	A+	+0.1	–	3.3	A+	–	4.2	A	+0.9	–
				SAT	11/7/20	0.1	A+	–	0.1	A+	–	0.1	A+	+0.0	–	1.5	A+	–	1.7	A+	+0.2	–
		One-Way Stop (Worst Approach)	E	AM		17.3	C+	No	35.7	E+	No	36.9	E+	+1.2	No	39.5	E+	No	35.2	E+	-4.3	No
				PM		27.3	D+	No	**90.3**	**F**	No	**105.7**	**F**	**+15.4**	No	**81.3**	**F**	**Yes**	**107.9**	**F**	**+26.6**	**Yes**
				SAT		12.4	B	No	13.2	B	No	13.5	B-	+0.3	No	42.6	E	**Yes**	49.1	E-	+6.5	**Yes**

Notes:
[1] Signal warrant analysis based on the Peak Hour Signal Warrant #3, Figure 4C Caltrans MUTCD, 2014. Signal warrant analysis is not applicable to signalized intersections.
[2] Change in delay, expressed in seconds, for background plus project conditions is measured relative to background conditions.
Change in delay for General Plan plus project conditions is measured relative to General Plan no project conditions.
Entries denoted in **bold** indicate conditions that exceed the City's current level of service standard.
▭ - Denotes project deficiency based on City of Gilroy criteria.

Table ES 3
Freeway Segment Level of Service Results

#	Freeway	Segment	Direction	Peak Hour	Existing Plus Project: Speed[1] (mi/hr)	# of Lanes[1]	Capacity (vph)	Volume[1] (pc/h)	Density (pc/mi/ln)	LOS	Project Trip: Volume (vph)	% of Capacity	Adverse Effect?
1	US 101	from Betabel Road to Bloomfield Avenue (SR 25)	NB	AM	38	2	4,400	3,796	50	E	37	0.84	No
			NB	PM	58	2	4,400	3,767	33	D	8	0.18	No
			NB	SAT	48	2	4,400	4,515	47	E	4	0.09	No
2	US 101	from Bloomfield Avenue (SR 25) to Monterey Road	NB	AM	36	2	4,400	3,728	51	E	37	0.84	No
			NB	PM	42	2	4,400	3,889	46	D	8	0.18	No
			NB	SAT	44	2	4,400	3,729	43	D	4	0.09	No
3	US 101	from Monterey Road to Pacheco Pass Highway	NB	AM	64	3	6,900	4,333	23	C	37	0.54	No
			NB	PM	63	3	6,900	4,546	24	C	8	0.12	No
			NB	SAT	66	3	6,900	4,360	22	C	4	0.06	No
4	US 101	from Pacheco Pass Highway to Leavesley Road	NB	AM	59	3	6,900	5,575	32	D	14	0.20	No
			NB	PM	59	3	6,900	5,538	31	D	82	1.19	No
			NB	SAT	61	3	6,900	5,403	30	D	56	0.81	No
5	US 101	from Leavesley Road to Masten Avenue	NB	AM	40	3	6,900	5,769	48	E	14	0.20	No
			NB	PM	57	3	6,900	5,828	34	D	82	1.19	No
			NB	SAT	46	3	6,900	7,182	52	E	56	0.81	No
6	US 101	from Masten Avenue to San Martin Avenue	NB	AM	34	3	6,900	5,425	53	E	14	0.20	No
			NB	PM	52	3	6,900	6,039	39	D	82	1.19	No
			NB	SAT	41	3	6,900	7,562	**61**	**F**	56	0.81	No
7	US 101	from San Martin Avenue to Masten Avenue	SB	AM	60	3	6,900	5,441	30	D	94	1.36	No
			SB	PM	38	3	6,900	5,669	50	E	41	0.59	No
			SB	SAT	39	3	6,900	5,442	46	D	39	0.57	No
8	US 101	from Masten Avenue to Leavesley Road	SB	AM	67	3	6,900	2,694	13	B	94	1.36	No
			SB	PM	66	3	6,900	5,551	28	D	41	0.59	No
			SB	SAT	66	3	6,900	5,439	27	D	39	0.57	No
9	US 101	from Leavesley Road to Pacheco Pass Highway	SB	AM	64	3	6,900	4,475	23	C	94	1.36	No
			SB	PM	59	3	6,900	5,511	31	D	41	0.59	No
			SB	SAT	62	3	6,900	5,236	28	D	39	0.57	No
10	US 101	from Pacheco Pass Highway to Monterey Road	SB	AM	64	3	6,900	4,211	22	C	5	0.07	No
			SB	PM	30	3	6,900	5,165	57	E	33	0.48	No
			SB	SAT	31	3	6,900	5,086	55	E	5	0.07	No
11	US 101	from Monterey Road to Bloomfield Avenue (SR 25)	SB	AM	62	2	4,400	3,301	27	D	5	0.11	No
			SB	PM	21	2	4,400	2,815	**68**	**F**	33	0.75	No
			SB	SAT	22	2	4,400	2,648	**60**	**F**	5	0.11	No
12	US 101	from Bloomfield Avenue (SR 25) to Betabel Road	SB	AM	62	2	4,400	3,208	26	C	5	0.11	No
			SB	PM	58	2	4,400	3,748	32	D	33	0.75	No
			SB	SAT	49	2	4,400	4,426	45	D	5	0.11	No

[1] Information for the AM and PM peak hours were obtained from the Santa Clara Valley Transportation Authority Congestion Management Program Monitoring Study, 2018. Average speed for the Saturday peak-hour was interpolated from the AM and PM peak hour volumes and speeds. Saturday peak-hour volumes on the study freeway segments were derived by calculating a factor between PM and Saturday peak-hour freeway count data for various of the study segments obtained from Caltrans, and applying this factor to the CMP PM peak-hour counts for each study freeway segment. This volume includes the proposed project trips.

Bold indicates unacceptable LOS.

Table ES 4
Freeway Ramp Analysis Results

Interchange/Ramp	Peak Hour	Ramp Type	Ramp Type	Constraint Point[1]	Existing Control	Existing Volume[3] (vph)	Existing Capacity[2] (vph)	Existing V/C	Existing LOS	Background Plus Project Control	Background Plus Project Volume (vph)	Background Plus Project Capacity[2] (vph)	Background Plus Project V/C	Background Plus Project LOS
US 101 at Tenth Street/Pacheco Pass Highway (SR 152)														
Southbound Off-Ramp	AM	Diagonal	Off	2	Signal	743	3,600	0.206	A	Signal	1,028	3,600	0.286	A
	PM				Signal	1,417	3,600	0.394	A	Signal	1,700	3,600	0.472	A
	SAT				Signal	1,304	3,600	0.362	A	Signal	1,472	3,600	0.409	A
Southbound On-Ramp	AM	Loop	On	1	Meter-Off	125	1,600	0.078	A	Meter-Off	159	1,600	0.099	A
	PM				Meter-On	331	900	0.368	A	Meter-On	518	900	0.576	A
	SAT				Meter-Off	418	1,600	0.261	A	Meter-Off	457	1,600	0.286	A
Northbound Off-Ramp	AM	Diagonal	Off	1	Signal	377	1,800	0.209	A	Signal	547	1,800	0.304	A
	PM				Signal	329	1,800	0.183	A	Signal	448	1,800	0.249	A
	SAT				Signal	594	1,800	0.330	A	Signal	640	1,800	0.356	A
Northbound On-Ramp	AM	Diagonal	On	1	Meter-On	609	900	0.677	B	Meter-On	667	900	0.741	C
	PM				Meter-Off	688	1,800	0.382	A	Meter-Off	953	1,800	0.529	A
	SAT				Meter-Off	920	1,800	0.511	A	Meter-Off	1,023	1,800	0.568	A

Notes:
1. The constraint point of a ramp is the location on the ramp that dictates how much traffic enters/exits the freeway. The constraint point determines the ramp's capacity.
For freeway off-ramps, the constraint point is at the ramp's diverging point from the freeway mainline.
For non-metered on-ramps, the constraint point is at the ramp's merging point with the freeway.
For metered on-ramps, the constraint point is at the meter.
2. Typical capacities for diagonal and loop ramps are 1,800 and 1,600 vehicles per hour per lane (vphpl), respectively.
The capacity for non-metered ramps is determined based on the number of lanes at the ramp's constraint point.
The capacity for metered on-ramps was assumed to be 900 vph (Caltrans District 4 maximum meter rate).
3. Existing ramp volumes were interpolated from existing peak-hour turn-movement counts at the ramp intersections.
The ramp level of service corresponds to the calculated ramp V/C ratios.

Table ES 5
Intersection Vehicle Queue Analysis Results

	1. Arroyo Circle/ Leavesley Rd			4. Camino Arroyo/ Sixth St (Gilman)			7. Cameron Boulevard(Project Driveway)/ SR 152						8. Camino Arroyo/ Renz Lane								
Measurement	NBL AM	NBL PM	NBL SAT	NBL AM	NBL PM	NBL SAT	EBL AM	EBL PM	EBL SAT	WBL AM	WBL PM	WBL SAT	SBL AM	SBL PM	SBL SAT	WBL AM	WBL PM	WBL SAT	NBR AM	NBR PM	NBR SAT
Existing Conditions																					
Cycle/Delay[1] (sec)	100	90	100	60	95	90				60	60	60	60	70	120	60	70	120	60	70	120
Lanes	2	2	2	1	1	1				1	1	1	1	1	1	2	2	2	1	1	1
Volume (vph)	175	658	819	78	266	316				14	23	33	11	78	164	143	66	406	29	92	110
Volume (vphpl)	88	329	410	78	266	316				14	23	33	11	78	164	71	33	203	29	92	110
Avg. Queue (veh/ln.)	2	8	11	1	7	8				0	0	1	0	2	5	1	1	7	0	2	4
Avg. Queue[2] (ft./ln)	61	206	284	33	176	198				6	10	14	5	38	137	30	16	169	12	45	91
95th %. Queue (veh/ln.)	5	13	17	3	12	13				1	2	2	1	4	10	3	2	11	2	4	7
95th %. Queue (ft./ln)	125	325	425	75	300	325				25	50	50	25	100	250	75	50	275	50	100	175
Storage (ft./ ln.)	635	635	635	200	200	200				475	475	475	250	250	250	425	425	425	200	200	200
Adequate (Y/N)	YES	YES	YES	YES	**NO**	**NO**				YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Background Conditions																					
Cycle/Delay[1] (sec)	100	90	100	60	95	90				60	60	60	60	70	120	60	70	120	60	70	120
Lanes	2	2	2	1	1	1				1	1	1	1	1	1	2	2	2	1	1	1
Volume (vph)	179	677	851	78	266	318				67	63	41	11	78	164	143	66	406	29	92	110
Volume (vphpl)	90	339	426	78	266	318				67	63	41	11	78	164	71	33	203	29	92	110
Avg. Queue (veh/ln.)	2	8	12	1	7	8				1	1	1	0	2	5	1	1	7	0	2	4
Avg. Queue[2] (ft./ln)	62	212	295	33	176	199				28	26	17	5	38	137	30	16	169	12	45	91
95th %. Queue (veh/ln.)	5	13	18	3	12	13				3	3	2	1	4	10	3	2	11	2	4	7
95th %. Queue (ft./ln)	125	325	450	75	300	325				75	75	50	25	100	250	75	50	275	50	100	175
Storage (ft./ ln.)	635	635	635	200	200	200				475	475	475	250	250	250	425	425	425	200	200	200
Adequate (Y/N)	YES	YES	YES	YES	**NO**	**NO**				YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Background Plus Project Conditions																					
Cycle/Delay[1] (sec)	100	90	100	60	95	90	80	80	80	60	60	60	60	70	120	60	70	120	60	70	120
Lanes	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1
Volume (vph)	183	704	858	80	281	318	3	27	64	70	85	41	60	88	167	153	103	439	151	123	121
Volume (vphpl)	92	352	429	80	281	318	3	27	64	70	85	41	60	88	167	76	52	220	151	123	121
Avg. Queue (veh/ln.)	3	9	12	1	7	8	0	1	1	1	1	1	1	2	6	1	1	7	3	2	4
Avg. Queue[2] (ft./ln)	64	220	298	33	186	199	2	15	36	29	35	17	25	43	139	32	25	183	63	60	101
95th %. Queue (veh/ln.)	5	14	18	3	12	13	1	2	4	3	4	2	3	4	10	3	3	12	5	5	8
95th %. Queue (ft./ln)	125	350	450	75	300	325	25	50	100	75	100	50	75	100	250	75	75	300	125	125	200
Storage (ft./ ln.)	635	635	635	200	200	200	475	475	475	475	475	475	250	250	250	425	425	425	200	200	200
Adequate (Y/N)	YES	YES	YES	YES	**NO**	**NO**	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Note: Vehicle queue calculated using the Poisson probability distribution and 95-percent confidence level.
NB = Northbound, SB = Southbound, EB = Eastbound, WB = Westbound, R = Right, T = Through, L = Left.
Right-turn movements with overlapping protected left-turn phasing were adjusted manually to account for the right-turns on red.
[1] Vehicle queue calculations based on cycle length for signalized intersections and control delay for unsignalized intersections.
[2] Assumes 25 feet per vehicle in the queue.

Table ES 5 (continued)
Intersection Vehicle Queue Analysis Results

	9. Camino Arroyo/ SR 152												10. US 101 NB Off-Ramp/ SR 152			11. US 101 SB Off-Ramp/Tenth		
Measurement	SBL AM	SBL PM	SBL SAT	SBR AM	SBR PM	SBR SAT	EBL AM	EBL PM	EBL SAT	WBR AM	WBR PM	WBR SAT	NBR AM	NBR PM	NBR SAT	SBL AM	SBL PM	SBL SAT
Existing Conditions																		
Cycle/Delay[1] (sec)	100	100	180	100	100	180	100	100	180	100	100	180	65	85	75	125	125	150
Lanes	2	2	2	1	1	1	2	2	2	1	1	1	2	2	2	2	2	2
Volume (vph)	72	300	225	143	312	547	346	520	845	110	48	109	260	221	468	405	910	922
Volume (vphpl)	36	150	113	143	312	547	173	260	423	110	48	109	130	111	234	203	455	461
Avg. Queue (veh/ln.)	1	4	6	4	9	27	5	7	21	3	1	5	2	3	5	7	16	19
Avg. Queue[2] (ft./ln)	25	104	141	99	217	684	120	181	528	76	33	136	59	65	122	176	395	480
95th %. Queue (veh/ln.)	3	8	10	7	14	36	9	12	29	6	3	10	5	5	9	12	23	27
95th %. Queue (ft./ln)	75	200	250	175	350	900	225	300	725	150	75	250	125	125	225	300	575	675
Storage (ft./ ln.)	475	475	475	650	650	650	600	600	600	175	175	175	300	300	300	950	950	950
Adequate (Y/N)	YES	YES	YES	YES	YES	**NO**	YES	YES	**NO**	YES	YES	**NO**	YES	YES	YES	YES	YES	YES
Background Conditions																		
Cycle/Delay[1] (sec)	100	100	180	100	100	180	100	100	180	100	100	180	65	85	75	125	125	150
Lanes	2	2	2	1	1	1	2	2	2	1	1	1	2	2	2	2	2	2
Volume (vph)	91	314	228	155	342	570	360	541	859	108	61	113	374	309	490	541	1022	952
Volume (vphpl)	46	157	114	155	342	570	180	271	430	108	61	113	187	155	245	271	511	476
Avg. Queue (veh/ln.)	1	4	6	4	10	29	5	8	21	3	2	6	3	4	5	9	18	20
Avg. Queue[2] (ft./ln)	32	109	143	108	238	713	125	188	537	75	42	141	84	91	128	235	444	496
95th %. Queue (veh/ln.)	3	8	10	8	15	38	9	12	29	6	4	10	7	7	9	15	25	27
95th %. Queue (ft./ln)	75	200	250	200	375	950	225	300	725	150	100	250	175	175	225	375	625	675
Storage (ft./ ln.)	475	475	475	650	650	650	600	600	600	175	175	175	300	300	300	950	950	950
Adequate (Y/N)	YES	YES	YES	YES	YES	**NO**	YES	YES	**NO**	YES	YES	**NO**	YES	YES	YES	YES	YES	YES
Background Plus Project Conditions																		
Cycle/Delay[1] (sec)	100	100	180	100	100	180	100	100	180	100	100	180	65	85	75	125	125	150
Lanes	2	2	2	1	1	1	2	2	2	1	1	1	2	2	2	2	2	2
Volume (vph)	94	319	235	164	412	632	512	586	881	116	63	119	411	317	494	635	1063	991
Volume (vphpl)	47	160	118	164	412	632	256	293	441	116	63	119	206	159	247	318	532	496
Avg. Queue (veh/ln.)	1	4	6	5	11	32	7	8	22	3	2	6	4	4	5	11	18	21
Avg. Queue[2] (ft./ln)	33	111	147	114	286	790	178	203	551	81	44	149	93	94	129	276	461	516
95th %. Queue (veh/ln.)	3	8	10	8	17	41	12	13	30	6	4	10	7	7	9	17	26	28
95th %. Queue (ft./ln)	75	200	250	200	425	1025	300	325	750	150	100	250	175	175	225	425	650	700
Storage (ft./ ln.)	475	475	475	650	650	650	600	600	600	175	175	175	300	300	300	950	950	950
Adequate (Y/N)	YES	YES	YES	YES	YES	**NO**	YES	YES	**NO**	YES	YES	**NO**	YES	YES	YES	YES	YES	YES

Note: Vehicle queue calculated using the Poisson probability distribution and 95-percent confidence level.
NB = Northbound, SB = Southbound, EB = Eastbound, WB = Westbound, R = Right, T = Through, L = Left.
Right-turn movements with overlapping protected left-turn phasing were adjusted manually to account for the right-turns on red.
[1] Vehicle queue calculations based on cycle length for signalized intersections and control delay for unsignalized intersections.
[2] Assumes 25 feet per vehicle in the queue.

1. Introduction

This report presents the results of the transportation analysis completed for the proposed Project Garlic delivery station in the City of Gilroy, California.

Project Description

The proposed project would occupy approximately 54.13 acres of the approximately 59.28-acre undeveloped site generally bounded by Pacheco Pass Highway (SR 152) to the south, Camino Arroyo to the west, existing shopping center, undeveloped land, and the Santa Clara Valley Water District channel (Llagas Creek) to the north, and an industrial site to the east. The project proposes to develop the site with an approximately 142,000 square-foot "last mile" delivery station and a 266,220-square-foot industrial building. The industrial building would be located east of the delivery station area with an existing drainage channel physically separating the two areas. The proposed development would occupy most of the project site, with the exception of a 5.15-acre site located at the northeast corner of the Camino Arroyo/Pacheco Pass Highway intersection. This 5.15-acre site has been designated as a future commercial site and is not proposed to be developed as part of this project, therefore, it is not included in the evaluation of the proposed project.

Delivery Station Site Operations

The delivery station is anticipated to be operational 24 hours a day seven days a week with 197 full-time employees consisting of sortation associates, dispatchers, and managers on three work-shifts. In addition, the project would contract 223 Delivery Service Partner (DSP) Program drivers and 60 Flex Program drivers. DSP drivers would access the site in the morning via private vehicles, pick-up one of the delivery vans parked on site to load then leave to make deliveries, return in the evening to drop-off the van, and exit the site once again in their personal vehicle. Flex drivers, on the contrary, are private contractors using personal vehicles to make the deliveries. Flex drivers would arrive at the site between 4:30-6:00 PM, load their vehicles, and exit the site to make the deliveries. Once done, Flex drivers would not return to the delivery station. The project also anticipates approximately 21 line haul trucks accessing the site every day to deliver packages to the delivery station from a fulfillment center.

Employee shifts are proposed to begin and end outside of the peak hours of traffic and deliveries also would be minimized during the peak hours. Semi-trucks would primarily make deliveries to the site overnight, while deliveries vans would leave the site between 10:00-11:30 AM and return between 7:00-9:00 PM. The primary delivery area would include Gilroy, Morgan Hill, and Monterey.

Site Access Driveways

According to the project site plan, access to the delivery station area would be provided via two driveways along Pacheco Pass Highway (a full-access driveway located at the signalized intersection of Cameron Boulevard/SR 152 and a right-in and out access driveway located west of Cameron Boulevard) and via Renz Lane. Renz Lane would connect to the project site's main access road, providing access to the semi-truck docks and parking areas at the delivery station site and to the industrial site area by extending the access road over the existing drainage channel. The site access road would run between the delivery station site and the future commercial site, potentially providing access to the future commercial site.

Access to the industrial building area is proposed to be provided via two right-in and out access driveways along Pacheco Pass Highway, in addition to the proposed Renz Lane/access road extension.

Parking

According to the project site plan dated January 6, 2021, the project would include 230 parking spaces for on-site employees and management, 10 accessible parking spaces, 86 van driver personal vehicle spaces, and 689 standard van parking spaces. The site plan also shows a total of 10 trailer parking spaces and 15 truck docks, located along the north side of the proposed delivery station building. Six grade-level doors would be located along the eastern side of the delivery station building and would be utilized to load the goods to be delivered onto the delivery vans/flex vehicles.

The site plan also shows a total of 136 parking stalls and 68 trailer spaces located within the industrial site area.

Roadway Network

The recently adopted City of Gilroy 2040 General Plan includes roadway improvements throughout the City that will support the projected growth associated with buildout of the land use growth projections included in the General Plan. Some of these planned improvements would affect the project area directly, changing travel patterns for some of the traffic in the vicinity of the project site. Planned roadway network improvements in the vicinity of the project site include the extension of Cameron Boulevard to the south to connect to the Luchessa Avenue extension and the extension of Cameron Boulevard to the north to connect to Marcella Avenue at Leavesley Road. Additionally, Renz Lane is planned to be extended from its current terminus point near the project site eastward through the project site area to connect to the planned Cameron Boulevard north extension, forming a new T-intersection. The planned future extension of these roadways would provide an alternative north-south connection (east of US 101) between the south and southwest parts of Gilroy (Luchessa Avenue), SR 152, and Leavesley Road.

With the implementation of the proposed project, the planned Cameron Boulevard extension to the north, between SR 152 and Gilman Road, would not be possible, and the planned intersection formed by the extension of Renz Lane and Cameron Boulevard would be eliminated. Renz Lane would connect to the project site's main access road. With these roadway changes, Camino Arroyo would continue to be the main connection between SR 152 and Sixth Street/Gilman Road east of US 101.

As specified in the Gilroy 2040 General Plan (Chapter 3, Mobility), addition or deletion of planned roadways will require a General Plan Amendment.

The project site location and surrounding study area are shown on Figure 1. The site plan is shown on Figure 2.

Figure 1
Site Location

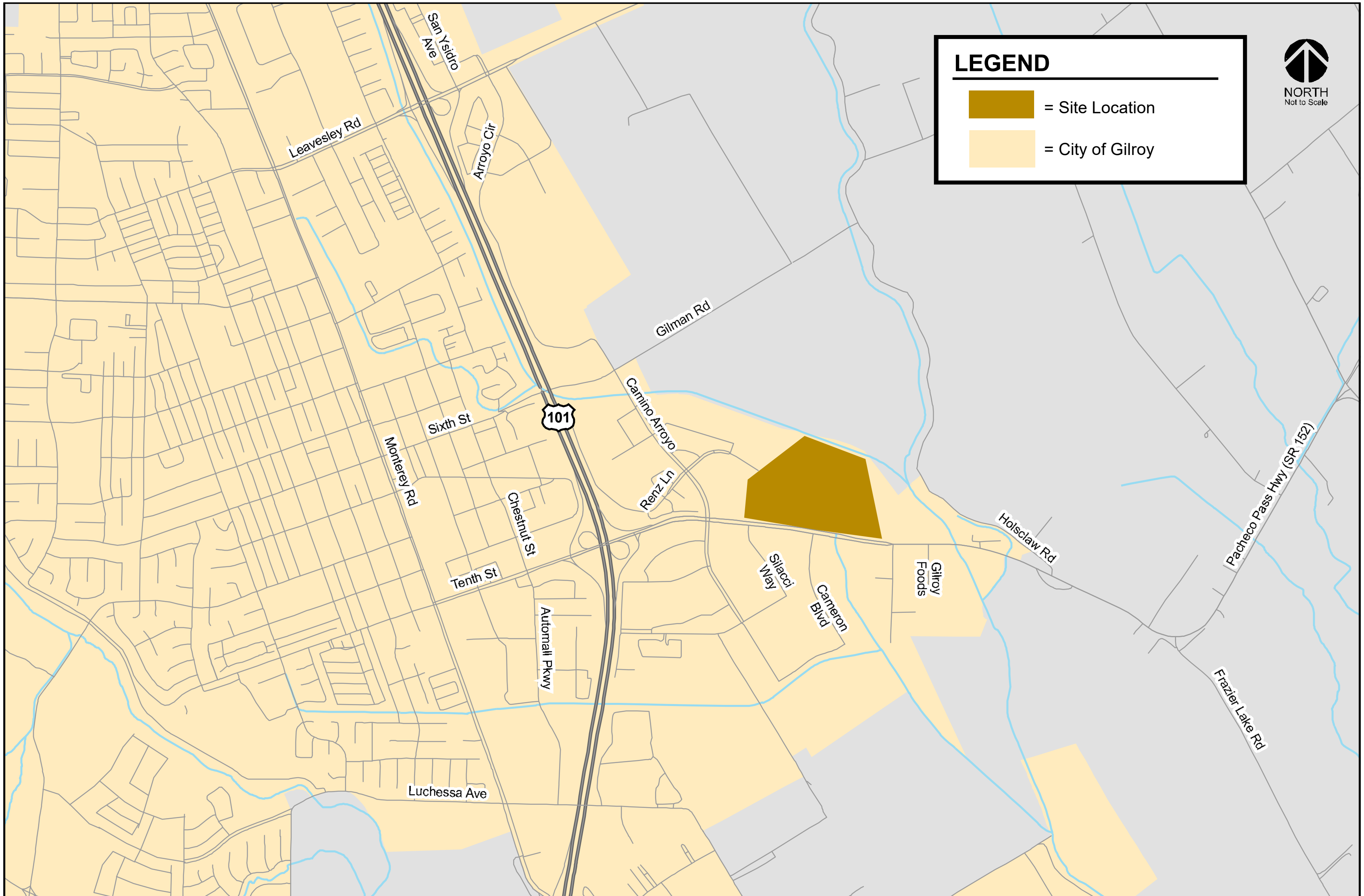
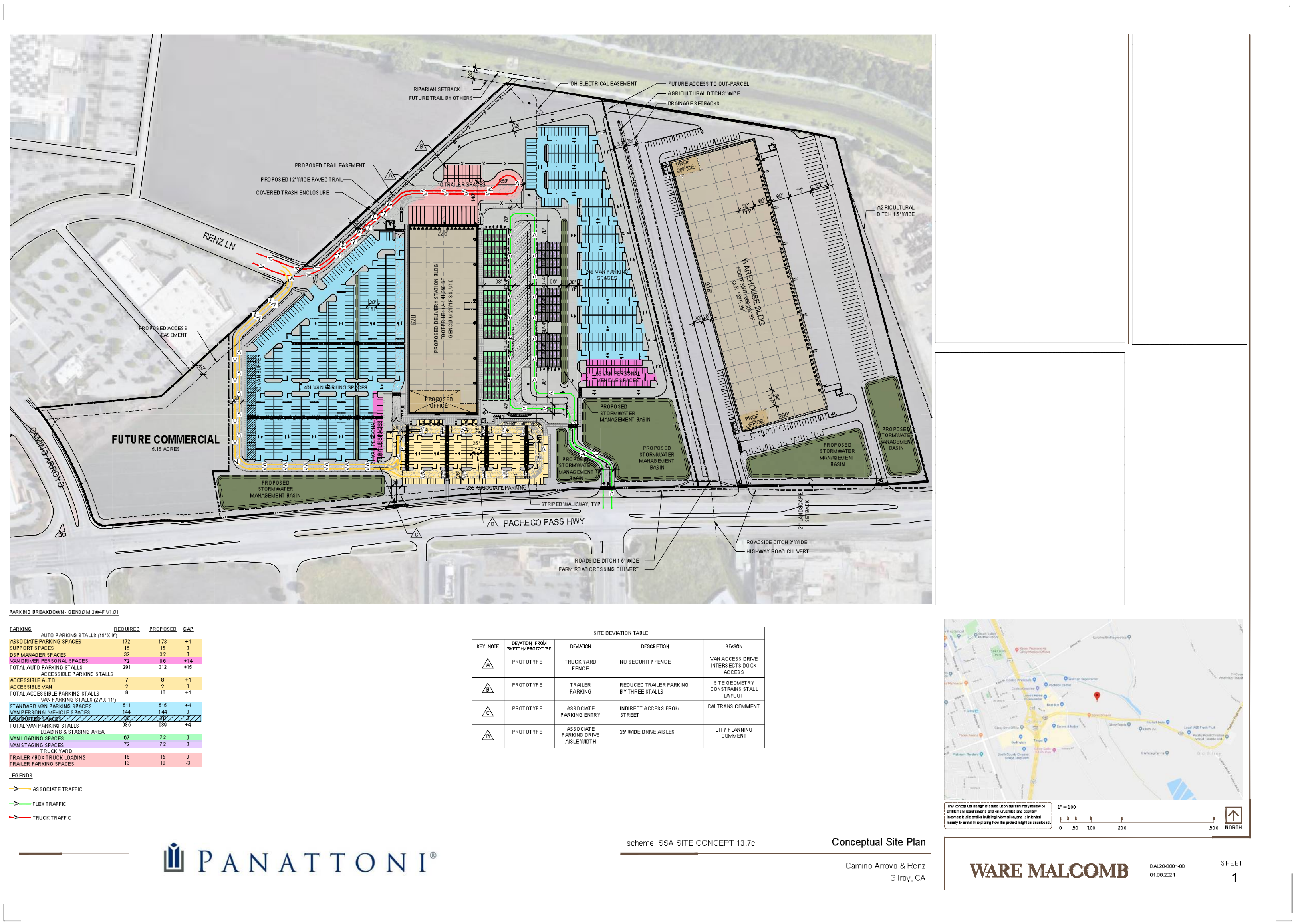


Figure 2
Proposed Site Plan



Scope of Study

The purpose of this transportation analysis is to evaluate the potential transportation impacts associated with the increase in traffic due to the proposed project in conformance with the requirements of the California Environmental Quality Act (CEQA) and the City of Gilroy.

This transportation study has been prepared in accordance with the standards and methodologies set forth by the City of Gilroy, by the Santa Clara Valley Transportation Authority (VTA) Congestion Management Program's *Transportation Impact Guidelines* (October 2014), and by the California Environmental Quality Act (CEQA). The VTA administers the Congestion Management Program (CMP) for Santa Clara County.

Like most other jurisdictions in Santa Clara County and the State, the City of Gilroy has historically utilized delay and congestion on the roadway system as the primary analysis metric to evaluate traffic impacts and potential roadway improvements to relieve traffic congestion that may result from 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 and the updated CEQA Guidelines (Section 15064.3, Nov 2017), beginning July 1, 2020, the use of intersection level of service as a metric for determining impacts of development growth on the transportation system is no longer be permitted. The use of vehicle miles traveled (VMT) has become the primary metric for the evaluation of impacts on transportation systems due to land use decisions. The change in measurement is intended to better evaluate the effects of development growth on the State's goal for climate change and multi-modal transportation. Therefore, in adherence to SB 743, the effects and impacts to the transportation network as the result of the implementation of the proposed project were evaluated based on VMT.

However, the City of Gilroy currently uses LOS as their adopted methodology for the evaluation of the effects of new development and land use changes on the local transportation network. In addition, the City is still required to conform to the requirements of the VTA, which establishes a uniform program for evaluating the transportation impacts of land use decisions on the designated CMP Roadway System. The VTA's Congestion Management Program (CMP) has yet to adopt and implement guidelines and standards for the evaluation of the CMP roadway system using VMT. Therefore, in addition to the evaluation of VMT, this transportation study also includes level of service analysis to evaluate the effects of the proposed project on the citywide transportation system, including intersections, freeway segments, and freeway ramps. The level of service analysis is presented to determine conformance to General Plan transportation policies. The determination of project impacts per CEQA requirements is based on the VMT analysis.

Data Requirements

This section describes the data required for the analysis of the proposed project and presents the methods used to determine VMT and the traffic conditions without and with the project.

Data Requirements

The data required for the analysis (both VMT and LOS) were obtained from new traffic counts, previous traffic studies, the City of Gilroy, the CMP Annual Monitoring Report, the City of Gilroy Travel Demand Forecasting Model, and field observations. The following data were collected from these sources:

- existing traffic volumes
- existing and planned lane configurations
- signal timing and phasing (for signalized intersections only)
- average speed (for freeway segments only)
- approved development information (size, use, and location)
- VMT projections

City of Gilroy Travel Demand Forecasting Model

The Gilroy Travel Demand Forecasting (TDF) Model was utilized for the evaluation of the proposed project. The Gilroy Model, built in 2014, was developed as an extension and refinement of the Santa Clara Valley Transportation Authority Model (VTA Model). The Gilroy Model is a subarea model of VTA's Model and provides a more detailed roadway network and zone system within Gilroy. The Gilroy Model was last updated for the evaluation of the City of Gilroy 2040 General Plan and has a 2017 base year (based on VTA/ABAG *Projections 2017*) and a 2040 horizon year (based on City of Gilroy 2040 General Plan land use data).

Analysis Methodologies, Standards, and Impact Thresholds

CEQA Vehicle Miles Traveled Analysis

The State's Office of Planning and Research (OPR) requires using Vehicle Miles Traveled (VMT) instead of Level of Service to evaluate potential project transportation impacts under the California Environmental Quality Act (CEQA). VMT is a metric that is used in noise, air quality, and greenhouse gas emissions analyses because it provides an indication of the usage level of the automobile and truck transportation system within the city. A greater number of vehicle miles traveled generally means more noise and more air pollution. In accordance with CEQA, all proposed projects are required to analyze transportation as a component of environmental review using average trip length per resident and/or per employee as metrics (total VMT for retail/commercial projects). The average trips length is calculated by multiplying the number of vehicle trips by the travel distance divided by the number of residents or employees. VMT data for the proposed project was calculated using the City of Gilroy Travel Demand Forecasting model and is based on VMT per employee metrics.

The City of Gilroy draft guidelines for the evaluation of transportation impacts based on VMT are based on OPR's technical recommendations regarding assessment of VMT, thresholds of significance, and mitigation measures, contained in their *Technical Advisory on Evaluating Transportation Impacts in CEQA* document, dated December 2018. Thus, for the purpose of this analysis, a comparison of the citywide VMT (or baseline VMT) versus the proposed project's VMT is made to determine the effects of the proposed project. This comparison is made for employment VMT per job. The VMT analysis uses OPR's recommended 15 percent (%) below baseline conditions as the threshold to identify potential VMT impacts.

Roadway Capacity (Level of Service) Analysis

Traffic conditions of the transportation roadway network also 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. Level of service analyses were conducted for intersections, freeway segments, and freeway ramps.

The level of service analysis includes a total of 14 signalized intersections and two unsignalized intersection located within the Gilroy city limits and nearby unincorporated Santa Clara County, in areas determined to be within Gilroy's sphere of influence, as identified in the Gilroy 2040 General Plan. The analysis also includes a freeway segment analysis (seven freeway segments, or fourteen directional segments) and a freeway interchange analysis (one interchange).

All study intersections were evaluated based on City of Gilroy methodology and level of service standards. Study freeway segments and freeway ramps were evaluated based on CMP and Caltrans methodology and level of service standards. Traffic conditions at the study facilities were analyzed for the weekday AM and PM peak hours of adjacent street traffic and the Saturday peak-hour. 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. The Saturday peak-hour is generally an hour between the 11:00 AM to 2:00 PM period. It is during these times that the most congested traffic conditions occur on an average day.

Study Scenarios

Traffic conditions were evaluated for the following scenarios:

Scenario 1: *Existing Conditions.* Existing intersection traffic volumes were obtained/derived from available manual turning-movement counts (conducted in 2017- 2019) and new traffic count data collected in 2020. The unprecedented traffic conditions caused by Covid19 and the order to shelter in place issued by Santa Clara County Department of Public Health required the adjustment of available and new traffic counts to estimate current pre-Covid19 traffic conditions. This is discussed in more detail in the following section.

Scenario 3: *Background Conditions*. Background traffic conditions represent future traffic volumes on the future transportation network. Background traffic volumes were estimated by adding to existing peak-hour volumes the projected trips from approved but not yet constructed developments in the study area. Background conditions represent the baseline conditions to which project conditions are compared for the purpose of determining the project's adverse traffic effects on the surrounding roadway network.

Scenario 4: *Background Plus Project Conditions.* Background plus project conditions, or simply referred to as *Project Conditions*, represent future traffic volumes with the proposed project. Background plus project conditions were estimated by adding to background traffic volumes the trips associated with the proposed project (or *project traffic volumes*). Background plus project conditions were evaluated relative to background conditions in order to determine adverse traffic effects on the roadway network caused by the proposed project.

Scenario 5: *2040 General Plan Conditions.* Year 2040 General Plan conditions represent future traffic conditions associated with buildout of the City of Gilroy 2040 General Plan land use growth projections and future roadway network. With implementation of the proposed project, some of the planned roadway improvements under 2040 General Plan conditions (specifically the Cameron Boulevard extension between Pacheco Pass Highway and Gilman Road) would not be possible, potentially changing travel patterns for some of the traffic in the vicinity of the project site. Thus, Year 2040 General Plan conditions were evaluated for two scenarios: (1) without the proposed project (as currently adopted and including the Cameron Boulevard extension through the project site) and (2) with project-generated traffic (replacing the planned land uses on the project site with the proposed project and eliminating the Cameron Boulevard extension between Pacheco Pass Highway and Gilman Road). The change between these two scenarios illustrates the relative effect the proposed project would have on General Plan conditions.

Report Organization

The remainder of this report is divided into five chapters. Chapter 2 describes the existing transportation system including the existing roadway network, transit service, bicycle and pedestrian facilities. Chapter 3 describes the CEQA transportation analysis, including VMT analysis methodology, baseline, potential project VMT impacts, and required mitigation. Chapter 4 describes the roadway capacity (LOS) analysis and includes the method by which project traffic is estimated, traffic volume projections, analysis methodologies, any adverse traffic effects on the roadway network (including intersections, freeway segments, freeway ramps) caused by the project, intersection vehicle queuing analysis, and possible improvements that would improve projected deficiencies to acceptable levels. An evaluation of other transportation issues, including site access and on-site circulation review, parking, and effects on bicycle, pedestrian, and transit facilities, are presented in Chapter 5. Chapter 6 presents the conclusions of the transportation analysis.

2.
Existing Transportation Setting

This chapter describes existing conditions for the major transportation facilities in the vicinity of the project site, including the roadway network, transit service, and bicycle and pedestrian facilities.

Existing Roadway Network

Regional access to the project site is provided via US 101 and State Route (SR) 152/Pacheco Pass Highway. Local access to the project site is provided by Tenth Street, Camino Arroyo, Sixth Street/Gilman Road, Cameron Boulevard, Silacci Way, and Renz Lane. These facilities are shown on Figure 1 and described below.

US 101 is a six-lane freeway north of the Monterey Road interchange (in south Gilroy) and transitions to a four-lane freeway south of that point. US 101 extends northward through San Jose and southward into Salinas. This freeway serves as the primary roadway connection between Gilroy and Morgan Hill and other Santa Clara County communities to the north and between Gilroy and Salinas to the south. US 101 includes full-access interchanges at Leavesley Road, Tenth Street/SR 152, and Monterey Road in Gilroy. A fourth interchange at Masten Avenue, north of Gilroy in unincorporated Santa Clara County, serves the north and northwestern areas of Gilroy. Regional access to the project site is provided via the US 101 interchange at Tenth Street/SR 152.

SR 152 (Pacheco Pass Highway) is a two- to four-lane east-west highway that extends to the east, where it is known as Pacheco Pass Highway, starting at the US 101 interchange at Tenth Street, over the Pacheco Pass to Interstate 5 and through Los Banos. West of Gilroy, SR 152 is known as Hecker Pass Highway and extends westward from the US 101 interchange at Leavesley Road via Monterey Road and First Street over the Santa Cruz Mountains to Watsonville and Highway 1. SR 152 connects the communities of Watsonville and Gilroy to the Central Valley via Interstate 5. SR 152 runs along the southern project site frontage and would provide direct access to the project site via one full-access driveway (at its intersection with Cameron Boulevard) and three right-in/right-out access driveways.

Tenth Street is a two- to six-lane arterial roadway that begins at Uvas Parkway and extends eastward to US 101, where it changes designation to Pacheco Pass Highway (SR 152). Tenth Street has one lane in each direction with a two-way left-turn lane west of Church Street. Between Church Street and Monterey Road, Tenth Street consist of two lanes in each direction, then transitions to three westbound lanes and two eastbound lanes between Monterey Road and Alexander Street, three lanes in each direction with a landscape median between Alexander Street and Chestnut Street, and again to two lanes in each direction east of Chestnut Street. Tenth Street is one of six freeway crossings within

Gilroy and it is proposed to be extended from its current terminus point at Uvas Parkway westward over Llagas Creek to connect to Santa Teresa Boulevard at the current Miller Avenue/Santa Teresa Boulevard intersection. Bike lanes are available along Tenth Street, between Monterey Road and Orchard Drive.

Camino Arroyo is a four-lane north-south roadway that extends from Arroyo Circle, just north of Sixth Street/Gilman Road, to Venture Way, south of SR 152. Arroyo Circle extends northward to Leavesley Road along the east side of US 101, and in conjunction with Camino Arroyo, provides a north/south connection between Leavesley Road and SR 152. Camino Arroyo provides access to the project site via its intersections with Renz Lane and SR 152. Bike lanes are available along the entire length of Camino Arroyo.

Sixth Street is an east-west collector roadway that begins at its intersection with Wren Avenue and extends eastward over US 101 to Camino Arroyo, where it changes designation to Gilman Road. Sixth Street is a two-lane roadway with bicycle facilities (bike lanes and routes) along its entire length. Sixth Street is one of six freeway crossings within Gilroy. ***Gilman Road*** currently extends between Camino Arroyo and Howlsclaw Road providing access to the surrounding undeveloped parcels.

Cameron Boulevard is a four-lane north-south roadway that currently extends from SR 152 south to Venture Way, where it terminates as an access road to the UNFI warehouse facility. Bike lanes are available along the entire length of Cameron Boulevard. The project proposes to provide a full access driveway at the signalized intersection of Cameron Boulevard and SR 152, with the project driveway becoming he north leg of the existing T-intersection.

The 2040 Gilroy General Plan indicates that Cameron Boulevard is planned to be extended from its current terminus point at SR 152 northward through the project site area to Gilman Road, and continuing north to form the south leg of the Marcella Avenue/Leavesley Road intersection. Additionally, Cameron Boulevard is planned to be extended from its current southern terminus point southward to connect to a planned extension of Luchessa Avenue and terminate at Southside Drive. Fully implemented, the Cameron Boulevard extension would provide an alternative north-south connection (east of US 101) between the south and southwest parts of Gilroy (Luchessa Avenue), SR 152, and Leavesley Road. With the implementation of the proposed project, the planned Cameron Boulevard extension to the north, between SR 152 and Gilman Road, would not be possible, and Camino Arroyo would continue to be the main connection between SR 152 and Sixth Street/Gilman Road east of US 101.

Renz Lane is a two-lane roadway that begins as a north/south frontage road along the east side of US 101 and continues eastward to Camino Arroyo. East of Camino Arroyo, Renz Lane continues for approximately 1,200 feet before terminating as a cul-de-sac. Renz Lane currently provides access to the commercial areas lining both sides of the street and it includes bike lanes along the segment fronting the commercial areas. Renz Lane would provide direct access to the project site via a full-access driveway at its existing cul-de-sac.

The 2040 Gilroy General Plan indicates that Renz Lane is planned to be extended from its current eastern terminus point eastward through the project site area to connect to the planned Cameron Boulevard north extension, forming a new T-intersection. With the implementation of the proposed project, the planned intersection formed by the extension of Renz Lane and Cameron Boulevard would be eliminated. Renz Lane would continue connect to the project site’s main access road.

Existing Bicycle Facilities

Bicycle facilities are divided into three classes of relative significance:

- **Class I Bikeways (Bike Path)**. Class I bikeways are bike paths that are physically separated from motor vehicles and offer two-way bicycle travel on a separate path.
- **Class II Bikeways (Bike Lane)**. Class II bikeways are striped bike lanes on roadways that are marked by signage and pavement markings.
- **Class III Bikeways (Bike Route)**. Class III bikeways are bike routes and only have signs to help guide bicyclists on recommended routes to certain locations.

There are several bicycle facilities in the vicinity of the project site. These are listed below and shown on Figure 3:

Class I Bikeways (Bike Paths)

The nearest bike path to the project site is the *Western Ronan Channel Trail*. This trail is located on the western side of the Ronan Channel between Leavesley Road and Sixth Street.

Class II Bikeways (Bike Lanes)

Class II Bikeways in the vicinity of the project site are provided along the following roadways:

- Camino Arroyo/Arroyo Circle, along the entire length of the street
- Venture Way, along the entire length of the street
- Cameron Boulevard, along the entire length of the street
- Renz Lane, between 1000 feet west of Camino Arroyo and eastern terminus
- Sixth Street, between Maple Street and Camino Arroyo; between Hanna Street and Wren Avenue
- Chestnut Street, between Tenth Street and Sixth Street
- Tenth Street, between Monterey Road and Orchard Drive (Gilroy High School)
- Forest Street, between Eighth Street and IOOF Avenue
- Eigleberry Street, between Tenth Street and First Street
- Church Street, between Tenth Street and First Street
- Luchessa Avenue, between Monterey Road and Princevalle Street; between Thomas Road and Miller Avenue

Class III Bikeways (Bike Routes)

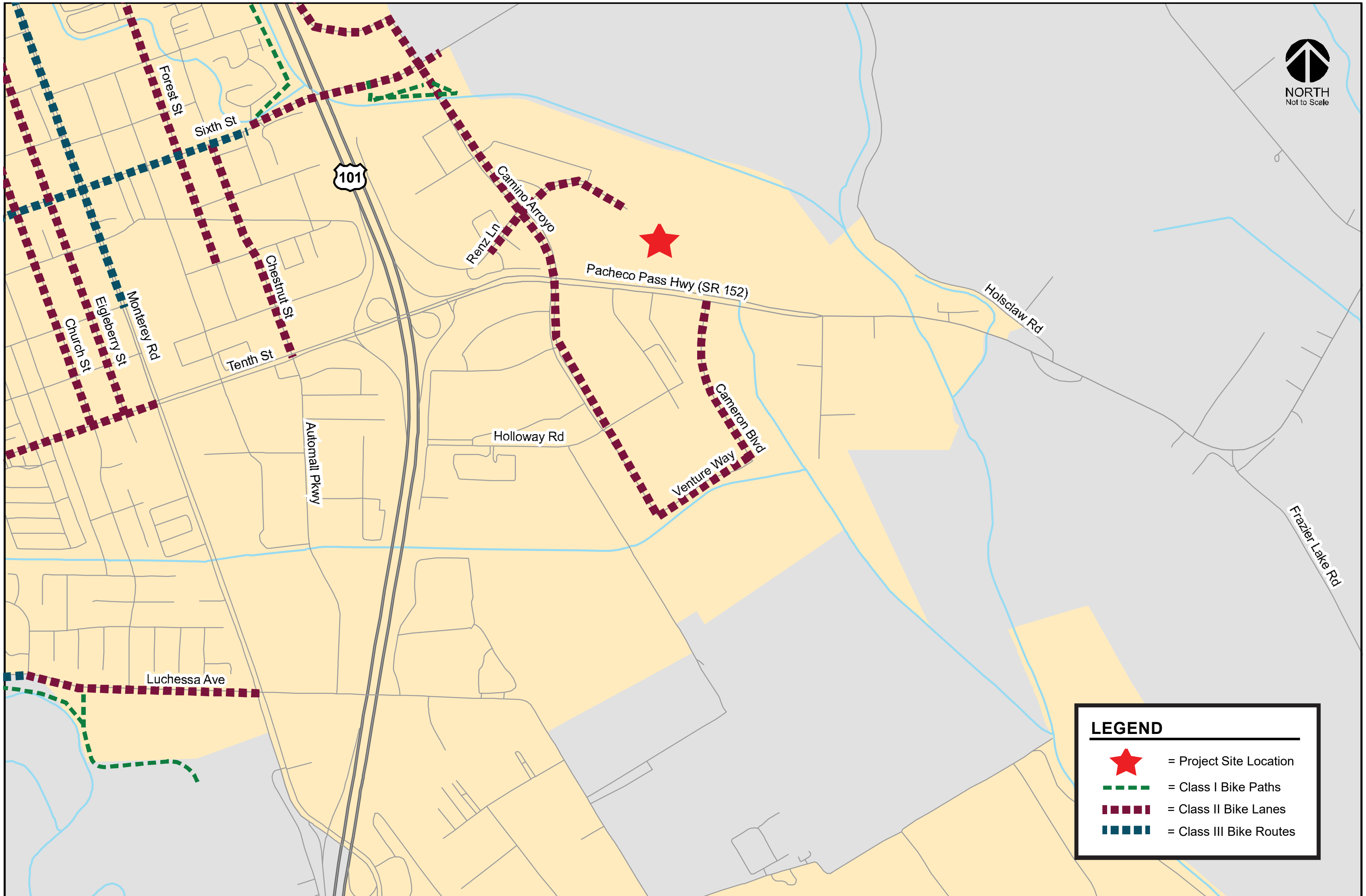
Class III Bikeways in the vicinity of the project site are provided along the following roadways:

- Monterey Street, between First Street and Eighth Street
- Sixth Street, between Hanna Street and Rogers Lane

Existing Pedestrian Facilities

The project area consists of a mixture of commercial and industrial land uses, and undeveloped land. Pedestrian facilities in the project area consist primarily of sidewalks along both sides of the road within all commercial areas. Crosswalks and pedestrian push buttons are available along three or more legs of all signalized intersections in the vicinity of the project site (with the exception of the intersection of Cameron Boulevard/SR 152, which only has a crosswalk along the south side of the intersection). The existing sidewalks, along with the crosswalks and pedestrian push buttons, provide a pedestrian connection between all shopping centers in the study area. However, most undeveloped and industrial use parcels have missing sidewalks, including along the entire project site frontage on Camino Arroyo and SR 152, creating an incomplete pedestrian network. Sidewalks are missing along the following roadway segments in the vicinity of the project site:

Figure 3
Existing Bicycle Facilities



- SR 152, along the entire north side of the roadway, including along the project site frontage, with the exception of an approximately 275-foot segment on the east side of Camino Arroyo.
- SR 152, along the entire south side of the roadway, east of Camino Arroyo, with the exception of an approximately 825-foot segment along the McCarthy Business Park frontage, west from Cameron Boulevard.
- Camino Arroyo, along the east side of the roadway starting at the project site (approximately 370 feet south of Renz Lane) to approximately 300 feet south of Holloway Road.
- Silacci Way, along both sides of the roadway.

Continuous sidewalks along the south side of SR 152 that run across the US 101 interchange connect the existing commercial uses along Camino Arroyo (east of US 101) with the land uses along Tenth Street, west of US 101.

The City requires developers to construct sidewalks and curb ramps as part of a site development, or to upgrade them as needed if a sidewalk already exists in the project area. Pedestrian signals and ADA-compliant crossings also are required at signalized intersections. New traffic signals and modification to existing traffic signals are required to include proper pedestrian facilities. In this way, additional pedestrian facilities are being added to improve the pedestrian network as part of the city's normal growth process.

The existing pedestrian facilities in the study area are shown on Figure 4.

Existing Transit Service

Transit services in Gilroy consist of local, regional, and intercity bus services, rail service, and paratransit services. Existing transit service in Gilroy is provided primarily by Santa Clara County VTA buses. Caltrain commuter rail service, San Benito County express bus service, and Greyhound bus service also serve Gilroy.

It should be noted that due to the unprecedented events caused by Covid-19 and the order to shelter in place issued by Santa Clara County Department of Public Health, as of March 17, 2020 and up to the time when this report was being completed, VTA was running reduced bus service for essential travel only. Additionally, Monterey-Salinas Transit (MST), which used to run one express bus route between Monterey and San Jose (Route 55) with scheduled stops at the Gilroy Transit Center, has suspended its service to San Jose/Gilroy until further notice. Therefore, the list of existing transit service described below, and presented on Figure 5, represents the current limited service.

As of February 2021, the project site is served by ***Local Route 84***, which provides weekday and weekend service between the Gilroy Transit Center and Saint Louise Regional Hospital via Tenth Street, Camino Arroyo, and San Ysidro Avenue with approximately 60-minute headways during commute hours. The nearest VTA bus stops serving Route 84 are located at the intersection of Camino Arroyo/Renz Lane, less than one-half mile west of the project site. Additionally, the Gilroy Transit Station is located just over one mile northwest of the project site, along Monterey Road.

Other bus transit services currently serving Gilroy, as of February 2021, include:

- ***Local Bus Route 85*** provides weekday and weekend service between the Gilroy Transit Center and Saint Louise Regional Hospital via Sixth Street, Wren Avenue, Mantelli Drive, Leavesley Road, and San Ysidro Avenue with approximately 60-minute headways during commute hours.

Figure 4
Existing Pedestrian Facilities

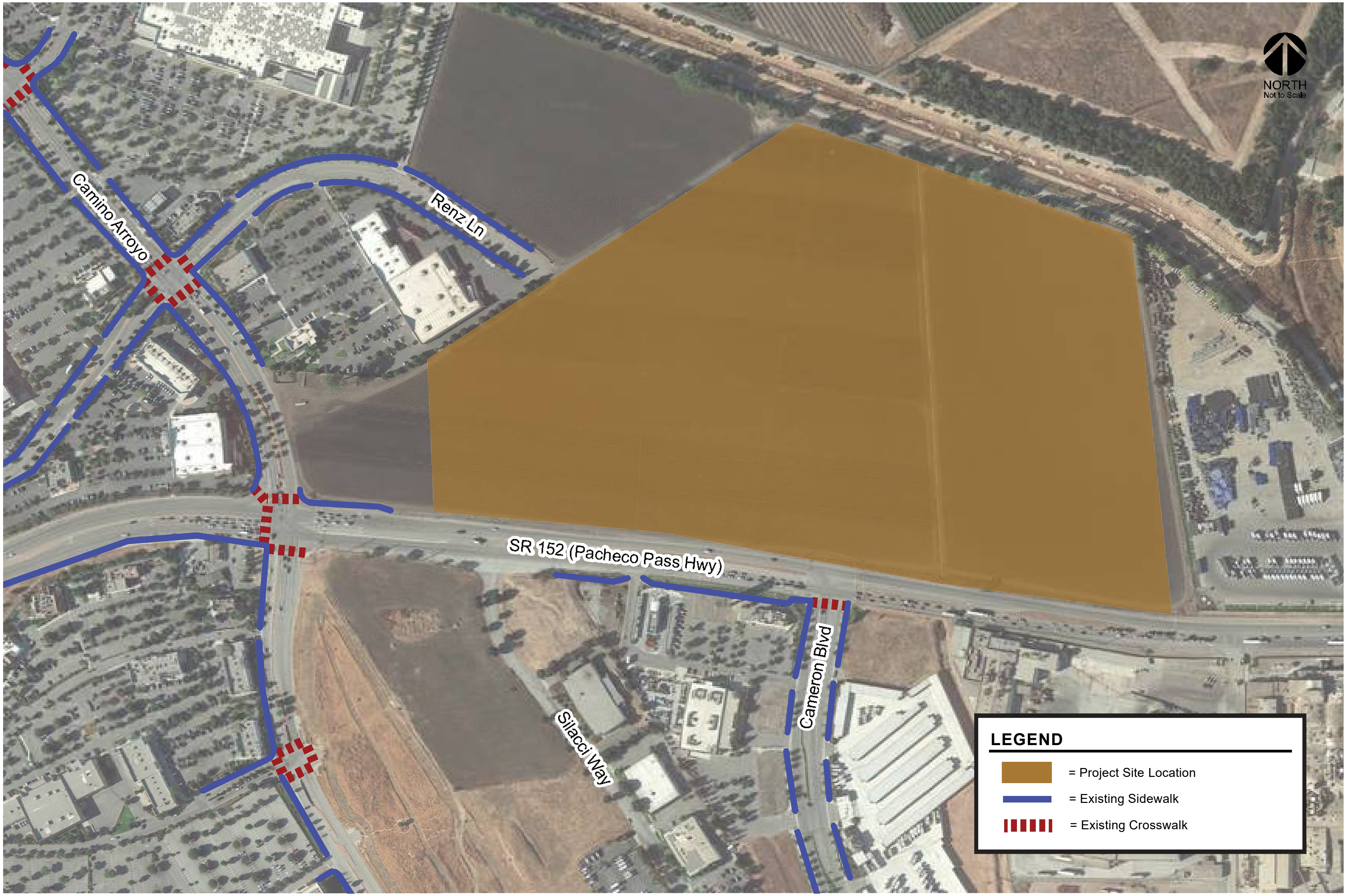
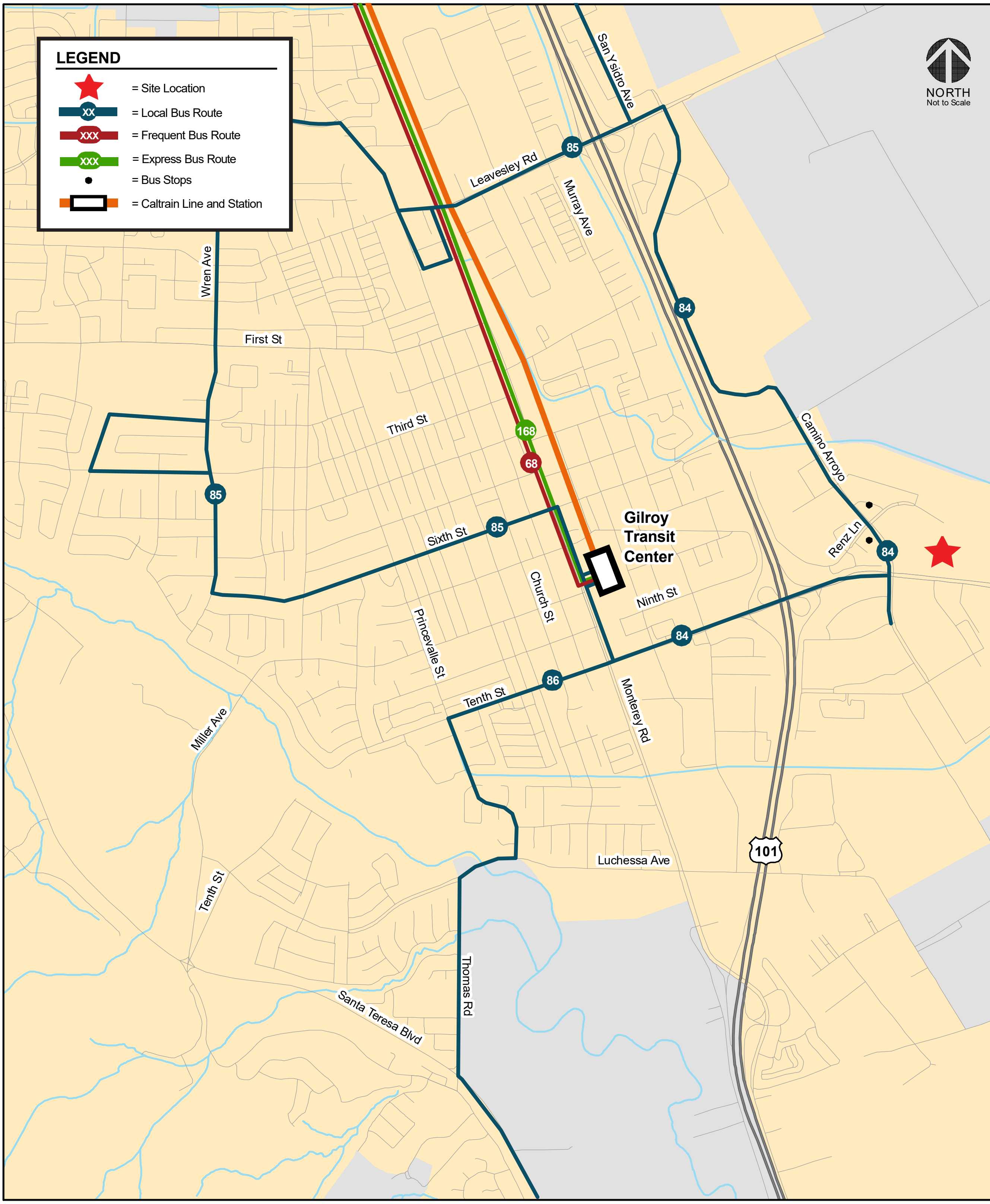


Figure 5
Existing Transit Services



- ***Local Bus Route 86*** provides weekday only service between the Gilroy Transit Center and Gavilan College via Tenth Street, Princevalle Street, Luchessa Avenue, Thomas Road, and Santa Teresa Boulevard between the hours of 7:45 AM and 3:34 PM with approximately 30-minute headways.
- ***Frequent Route 68*** provides weekday and weekend service between the Gilroy Transit Center and the San Jose Diridon Transit Center via Monterey Road 5:00 and 12:20 AM with approximately 20- to 30-minute headways during commute hours.
- ***Express Route 168*** provides weekday service between the Gilroy Transit Center and the San Jose Diridon Transit Center with northbound service (four trips) during the morning commute period and southbound service (four trips) during the afternoon commute period with approximately 20- to 30-minute headways. This express route has scheduled stops at the Gilroy Transit Center, the San Martin Caltrain Station, and the Morgan Hill Transit Center.
- ***San Benito County Express Bus Service (Caltrain Shuttle)*** provides express bus service between Hollister and the Gilroy Transit Center Monday through Friday. Currently, five northbound (to Gilroy) shuttles run during the morning and evening commute periods, between 5:00 and 9:55 AM and between 12:05 and 6:35 PM, respectively. In addition, there are four southbound (to Hollister) runs in the morning between 6:20 and 11:10 AM and five runs in the evening between 1:15 and 7:20 PM. The schedule is coordinated with the Caltrain schedule to facilitate connections with Caltrain arrivals and departures.
- ***San Benito County Express Bus Service (Greyhound Shuttle)*** provides service between Hollister and the Gilroy Transit Center, (which serves as the Greyhound Bus Depot) on Saturdays and Sundays. There are currently two northbound (to Gilroy) and two southbound (to Hollister) runs in the morning between 7:30 and 10:15 AM and two northbound and two southbound runs in the evening between 12:05 and 5:30 PM. The schedule is designed to allow for connections to Greyhound service.

Additionally, ***Caltrain*** provides train service from Gilroy to San Francisco, with limited-stop service at other stations along the peninsula corridor. Caltrain service to Gilroy is only provided on weekdays; weekend service south of San Jose is not available. Currently, as of March 22, 2021, the Gilroy Caltrain station is served by two northbound trains in the morning and two southbound trains in the evening. The northbound trains have scheduled departures from the Gilroy Transit Center at 5:47 and 6:16 AM and the southbound trains have scheduled arrivals at the Gilroy Transit Center at 6:00 and 7:27 PM.

Greyhound Lines, Inc. is an intercity, long distance bus service offering services to over 3,700 destinations in the United States, Canada, and Mexico. The Gilroy Transit Center also serves as the Greyhound Bus Depot in Gilroy. Greyhound buses operate from the Transit Center every day of the week.

All of the above transit routes serve the Gilroy Transit Center, located in Downtown Gilroy, along Monterey Road. For informational purposes, transit service information for the Gilroy area prior to the current Covid-19 reduced service was obtained from the VTA website in February 2020 and is summarized in Table 1 below.

Table 1
Bus Services in Gilroy Prior to Covid-19

Route	Description	Cities Served	Stops	Days of Operation
VTA Frequent Bus Route				
68	Gilroy Transit Center to San Jose Diridon Transit Center	Gilroy San Martin Morgan Hill San Jose	Gilroy Transit Center Morgan Hill Caltrain Station Santa Teresa LRT Station Monterey Hwy & Senter San Jose Diridon Transit Center	Weekdays and Weekends
VTA Local Bus Routes				
84	Gilroy Transit Center to Saint Louise Regional Hospital via Gilroy Outlets	Gilroy	Gilroy Transit Center Camino Arroyo & Gilroy Crossing Arroyo & Camino Arroyo St. Louise Regional Hospital	Weekdays and Weekends
85	Gilroy Transit Center to Saint Louise Regional Hospital via west Gilroy	Gilroy	Gilroy Transit Center 6th & Hanna Monte Bello & Santa Barbara 1st & Kern Mantelli & Wren Howson & Monterey St. Louise Regional Hospital	Weekdays and Weekends
86	Gilroy Transit Center to Gavilan College	Gilroy	Gilroy Transit Center Princevalle & 10th Gavilan College	Weekdays only
VTA Express Bus Routes				
121	Gilroy Transit Center to Lockheed Martin Transit Center	Gilroy San Martin Morgan Hill Santa Clara Sunnyvale Mt. View	Gilroy Transit Center Monterey & San Martin Morgan Hill Caltrain Station Tasman & Old Ironsides Lockheed Martin Transit Center	Weekday peak commute direction only (NB AM and SB PM)
168	Gilroy Transit Center to San Jose Diridon Transit Center	Gilroy San Martin Morgan Hill San Jose	Gilroy Transit Center Monterey & San Martin Morgan Hill Caltrain Station San Carlos & Convention Center 1st & Santa Clara San Jose Diridon Transit Center	Weekday peak commute direction only (NB AM and SB PM)
Inter-County Bus Service				
MST 55	Monterey to Downtown San Jose (Express)	Monterey Sand City Prunedale Gilroy Morgan Hill San Jose	Monterey Transit Plaza Sand City Station Prunedale Park&Ride Gilroy Transit Center San Jose Diridon Transit Center	Weekdays and Weekends
	Greyhound	Over 3,700 destinations in the USA, Canada, and Mexico	Gilroy Transit Center	Weekdays and Weekends
Shuttles - San Benito County Express Bus Service				
Gavilan	Hollister to Gavilan College	Hollister San Juan Bautista Gilroy	Veterans' Park, 4th&San Benito, and 4th&Miller (Hollister); Abbe Park and Anzar HS (SJB); Gavilan College	Weekdays only
Caltrain	Hollister to Gilroy Transit Center	Hollister San Juan Bautista Gilroy	Veterans' Park 4th&San Benito (Hollister); Anzar HS (SJB) Gilroy Transit Center	Weekdays only
Greyhound	Hollister to Gilroy Transit Center	Hollister San Juan Bautista Gilroy	Veterans' Park, 4th&San Benito, and 4th&Miller (Hollister); Abbe Park (SJB); Gilroy Transit Center	Weekends only
Other Bus Services				
	VTA's Outreach Paratransit Service	Gilroy	By request	Weekdays and Weekends

Source: VTA Santa Clara Valley Bus and Rail Map and the Monterey-Salinas Transit website (February 2020).
Santa Clara Valley Transportation Authority website: www.VTA.org, February 2020.
Monterey-Salinas Transit website: www.mst.org, February 2020.
San Benito County Express website: www.sanbenitocountyexpress.org, February 2020.

3.
CEQA Vehicle Miles Traveled (VMT) Evaluation

This chapter summarizes the vehicle miles traveled (VMT) analysis conducted for the proposed Project Garlic delivery station.

VMT Evaluation Methodology and Criteria

VMT measures the amount and distance people drive by personal vehicle to a destination. VMT is measured by multiplying the number of vehicle trips by the length of those trips, adjusted for the number of people in the vehicles. 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, and greater VMT, than development near complementary land uses with more robust transportation options. Local-serving retail projects also would result in shorter vehicle trips as new local-serving retail development typically diverts/shortens existing shopping trips, rather than generating new retail trips.

VMT Evaluation Methodology

In accordance with OPR guidelines, for CEQA purposes, all proposed projects are required to analyze transportation impacts using the VMT metric based on average trip length per resident for residential and/or per employee for office/industrial. The daily VMT per resident accounts for trips that start or end at the home. Daily VMT per employee is calculated based on trips made by people driving to and from work. However, commercial projects include both trips made by residents and employees, including customers. Thus, for commercial projects, OPR guidelines recommend the evaluation of total VMT.

The Gilroy Travel Demand Forecasting (TDF) model is typically used to calculate daily VMT for the evaluation of projects in Gilroy. The citywide average daily VMT per capita and per job serves as the baseline from which a project is evaluated.

Significance Criteria

Pursuant to Senate Bill 743, the Governor's Office of Planning and Research (OPR) released the current *CEQA Guidelines Update* in late 2018, which proposes VMT as the replacement metric for LOS in the context of CEQA. While OPR emphasizes that a lead agency has the discretionary authority to establish thresholds of significance, the *Final Guidelines* suggests criteria that indicate when a project may have a significant, or less than significant, transportation impact on the environment. For instance, a project that results in VMT greater than the regional average for the land use type (e.g., residential, employment, commercial) may indicate a significant impact. Alternatively, a project may have a less than significant impact if it is located within 0.5 mile of an existing major transit stop, or results in a net decrease in area-wide VMT when compared to existing conditions.

For the purpose of this analysis, and for consistency with the City of Gilroy General Plan, the VMT analysis considers OPR's recommended 15 percent (%) below baseline conditions as the threshold to identify potential VMT impacts. This represents an impact threshold of 15% below the citywide average employment VMT of 20.14 miles per job.

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 identified thresholds of significance), mitigating the impact through multimodal transportation improvements, implementing Transportation Demand Management (TDM) measures, and/or by establishing a trip cap.

Project VMT Projections

The proposed project would generate trips associated with the employees (including all on-site associates, managers, dispatchers, and drivers) and trips associated with the delivery of goods. Traffic associated with the employees represents passenger vehicle trips as employees arrive to the site at the beginning of their work shift and leave the site at the end of their work shift, including Flex-Drivers. Traffic associated with the delivery of goods represents delivery van trips that would leave the site in the morning and return in the afternoon/evening upon completion of deliveries. Total daily VMT for the project, therefore, is calculated by multiplying all trips generated by the project by the length of each type of trip.

It is anticipated that the proposed project would mainly serve the South County (Gilroy and Morgan Hill areas) and surrounding communities (San Martin, Watsonville, Aromas, Salinas). Currently, deliveries to the South County area originate from one of the existing last-mile delivery stations to the north, such as the Milpitas facility, with each delivery van having to travel 30 to 40 miles each way between one of the existing facilities to the north and the Gilroy/Morgan Hill area. With implementation of the proposed project, delivery vans would no longer have to travel from and to the north, significantly reducing the average travel distance of delivery vans. For this reason, it is assumed in the analysis of the project that the daily VMT associated with the delivery vans would be reduced as the result of the proposed project. Miles traveled by the Flex-Drivers also can be expected to be reduced, since some of these trips would have the opportunity to originate and terminate within the South County area. Thus, VMT associated with the delivery of goods is projected to decrease with the implementation of the project and therefore, only the VMT associated with the employees was accounted for in the analysis.

Citywide employment VMT and employee VMT for the proposed project were obtained using the Gilroy TDF model. The citywide employment VMT per job is calculated based on trips/miles traveled by people driving to and from work divided by the number of jobs in Gilroy. The project employment VMT per job is calculated by dividing the total number of miles traveled by the employees to and from work by the number of employees. In addition, project VMT also was compared to citywide VMT under 2040 General Plan conditions to account for the proposed elimination of the Cameron Boulevard extension between SR 152 and Gilman Road and the changes in travel patterns associated with the resulting roadway network.

VMT Evaluation

The City's Draft VMT guidelines have established an impact threshold of 15% below the citywide average employment VMT of 20.14 miles per job. Thus, the impacts of proposed project would be considered significant if it results in VMT that exceeds daily employment VMT of 17.12 miles per job. Additionally, the citywide average employment VMT per job under 2040 General Plan conditions is projected to be 21.94 miles per job, resulting in a VMT threshold of 18.65 miles per job under 2040 General Plan conditions.

The results of the VMT evaluation indicate that the proposed project is projected to have an average daily employment VMT of 19.23 miles per job. Although the project's VMT is projected to be lower than the citywide average (20.14), the project's average VMT per job would exceed the established threshold of 17.12 miles per job. Therefore, the proposed project would result in a significant CEQA transportation impact, based on the established impact threshold.

Under 2040 General Plan conditions, the proposed project is projected to have an average employment VMT of 19.27 miles per job. The project's average VMT per job would exceed the established threshold of 18.65 miles per job under 2040 General Plan conditions, resulting in a significant CEQA transportation impact.

With the proposed project and the resulting changes to the adjacent roadway network, the citywide average employment VMT under 2040 General Plan conditions is projected to be 21.88 miles per job, a reduction of approximately 0.06 miles per job from 2040 General Plan conditions without the project.

The VMT results are presented in Table 2.

Table 2
VMT Analysis Summary

Year	Citywide Average Daily Employment VMT per Job	15% Below Base Threshold	Project Only Average Daily Employment VMT per Job	Impact?
City of Gilroy				
Base Year 2017	20.14	17.12	19.23	Yes
2040 General Plan	21.94	18.65	19.27	Yes
2040 General Plan + Project	21.88			
Source: City of Gilroy Travel Demand Forecasting Model.				

Possible Measures to Reduce VMT Projections

VMT for a project can be reduced by implementing measures that would reduce the total number of trips or trip length produced by the project. There are various strategies/measures that can be implemented in an effort to reduce total traveled miles within the City, ranging from policy changes (trip reduction policies) and infrastructure changes (mixed-use development, housing near major transit facilities/employment, easy access to public transportation, enhanced bicycle and pedestrian network) to employer incentives (workplace amenities and incentives, telecommuting).

One of the goals of the 2040 General Plan is to reduce VMT and greenhouse gas emissions by developing a transportation network that makes it convenient to use transit, ride a bicycle, walk, or use other non-automobile modes of transportation (M 1.7). The General Plan also encourages existing and proposed development to incorporate Transportation Demand Management (TDM) measures such as car-sharing, transit passes, and unbundling of parking to reduce VMT (M 1.12). Prioritizing designs that favor pedestrian and bicycle circulation improvements over those for vehicular circulation on existing or proposed streets that provide opportunities to expand walking and bicycling as viable alternative modes of transportation is another goal of the 2040 General Plan (M 3.6).

The Santa Clara County VTA, in their 2017 Congestion Management Program document, also lists various TDM strategies that employers, developers, and local agencies can adopt to manage congestion on the transportation network. Some of the trip-reducing measures include the following:

- Ridesharing matching
- Preferential parking for ridesharing vehicles/carpoolers
- Carpool/vanpool subsidies or rewards
- Car-sharing program
- Bike-sharing program
- Transit ticket sales/subsidies
- Childcare services at workplaces
- Guaranteed ride home
- Shuttle to transit line
- Flexible work hours for people who do not drive alone
- Flexible/alternative hours workweek program
- Compressed work weeks
- Work-at-home programs
- Telecommuting
- Establishing fees for employees parking or parking cash-out program
- Membership in a transportation management association that provides TDM services and incentives
- Contribution to a transportation system management program administered by a member agency
- Cycling and walking subsidies and rewards
- Secure bicycle storage
- Site design amenities that would encourage transit use, ridesharing, cycling, and walking (such as showers and changing rooms)
- Other programs approved by the City’s designee to reduce the number of employees who drive alone to the workplace
- Unbundled parking in residential developments
- Employee pre-tax commuter benefits
- Alternative cash incentive programs
- Road pricing/congestion pricing
- Housing closer to employment areas/transit centers
- Bicycle and pedestrian improvements
- Park and ride lots

Project Impact and Mitigation Measures

Described below is the CEQA significant impact on the transportation system that is projected to occur due to the proposed project and the recommended improvements to mitigate the project impact to less than significant levels.

Project Impact: The results of the VMT evaluation, using the City's TDF Model, indicate that the project is projected to have an average daily employment VMT of 19.23 miles per job, which would exceed the established impact threshold of 17.12 miles per job. Therefore, the proposed project would result in a significant CEQA transportation impact, based on the threshold of significance recommended by the City of Gilroy Draft VMT guidelines.

Mitigation Measures: Based on recommendations from City staff and preliminary discussion between City staff and the project applicant, the project will be required to prepare and implement a Transportation Demand Management (TDM) program that will reduce the project's VMT impact to a less-than-significant level. The project applicant has prepared a draft TDM program describing the proposed TDM measures for the project and the anticipated employee participation rate for each measure (included in Appendix H).

The proposed TDM measures must reduce the project VMT below the established impact threshold. Thus, the effect the above TDM measures would have on the project VMT was quantified with the use of the VTA's Santa Clara Countywide VMT Evaluation Tool. The VTA VMT Evaluation Tool identifies four levels, or "tiers," of VMT reduction strategies that can be implemented to reduce a project's VMT, including TDM measures (Tier 4) that aim to shift travel behavior away from driving via incentives and education.

The proposed TDM measures include the following:

- ***Compress work week – 4-day shifts***. This proposed TDM measure is in line with VTA's TDM Program (TP) 08 – *Telecommuting and Alternative Work Schedule Program*. This program allows and encourages employees to telecommute from home when possible, or to shift work schedules to reduce vehicle miles traveled.
  - 80 percent (%) of employees shall be assigned a four day/40-hour work shift.
- ***Carpool programs***. This proposed TDM measure is in line with VTA's TP13 – *Ride Sharing Program*. This program matches employees interested in carpooling who have similar commute patterns. This TDM strategy encourages the use of carpooling, which reduces the number of vehicle trips and thereby reduces VMT.
  - Employers shall strive to have 20% of eligible employees participate in this program.
  - The applicant shall provide dedicated carpool/vanpool parking spaces commensurate with the number of employees participating in this program.
  - Employers shall provide "Guaranteed Ride Home Services," which provides employees who regularly (twice a week) carpool, vanpool, bike, walk or take transit to work with a free and reliable ride home when one of life's unexpected emergencies arise. Commuters may take advantage of this service up to four times per year to get home for unexpected emergencies such as a personal illness or a sick child. This service can also be used for unscheduled overtime when the employer mandates working late.
- ***Pre-tax benefits for qualified commute services (such as transit passes, vanpools, and carpool programs)***. This proposed TDM measure is in line with VTA's TP11 – *Provide employees commuter benefits to encourage the use of alternative transportation*.
  - Employers shall strive to have 20% of eligible employees participate in this program through regular communications and incentives.
  - Transit passes shall off-set at least 25% in the participating employees' transit costs from home to work and back.

  - Incentives should include, but not be limited to, pre-tax benefits.

- ***Bike racks, Lockers***. The applicant is proposing to provide 10 bike racks in a secure area. Based on the VTA *Bicycle Technical Guidelines* (December 2012) recommended bicycle parking rates, the delivery station should provide a minimum of 9 to 12 Class I (bike lockers) bicycle parking and the industrial site should provide a minimum of 18 Class I bicycle parking. However, the VTA Evaluation Tool shows that providing on-site bicycle facilities would have minimal effect on the project's VMT.

The VMT Evaluation Tool shows that with implementation of TP08, 11, and 13, the project's VMT would be reduced by approximately 3.93 miles per job, reducing the project's VMT from 19.23 to 15.3 miles per job, below the established impact threshold of 17.12 miles per job (VMT Evaluation Tool Report is included in Appendix I). Therefore, implementation of the above TDM measures and employee participation rate would mitigate the project VMT impact to less than significant.

4. Roadway Capacity Analysis

This chapter describes the roadway capacity analysis conducted for the evaluation of the proposed project. The roadway capacity analysis is based on level of service at intersections. Included within this chapter are the method by which project traffic is estimated, intersection operations analysis, intersection queuing analysis, freeway segment and freeway ramp capacity analysis, and parking. Any adverse effects on study facilities caused by the project and possible improvements that would improve any deficient traffic conditions to acceptable conditions are identified.

Project Description

The proposed project would occupy approximately 54.13 acres of the approximately 59.28-acre undeveloped site generally bounded by Pacheco Pass Highway (SR 152) to the south, Camino Arroyo to the west, existing shopping center, undeveloped land, and the Santa Clara Valley Water District channel (Llagas Creek) to the north, and an industrial site to the east. The project proposes to develop the site with an approximately 142,000 square-foot “last mile” delivery station and a 266,220-square-foot industrial building. The industrial building would be located east of the delivery station area with an existing drainage channel physically separating the two areas. The proposed development would occupy most of the project site, with the exception of a 5.15-acre site located at the northeast corner of the Camino Arroyo/Pacheco Pass Highway intersection. This 5.15-acre site has been designated as a future commercial site and is not proposed to be developed as part of this project, therefore, it is not included in the evaluation of the proposed project.

Access to the delivery station area would be provided via two driveways along Pacheco Pass Highway (a full-access driveway located at the signalized intersection of Cameron Boulevard/SR 152 and a right-in and out access driveway located west of Cameron Boulevard) and via Renz Lane. Renz Lane would connect to the project site’s main access road and provide access to both the delivery station site and the industrial site area. In addition, access to the industrial building area is proposed to be provided via two right-in and out access driveways along Pacheco Pass Highway.

A full description of the proposed delivery station operations, parking, and roadway network changes is included in Chapter 1 of this report. The project site plan is shown on Figure 2.

Scope of Analysis

A level of service analysis at key intersections, freeway segments, and freeway ramps was completed to satisfy local guidelines and determine conformance to General Plan transportation policies. The effects of the project on the study facilities were evaluated in accordance with City of Gilroy, CMP, and

Caltrans methodologies and standards. The analyses of other transportation related issues are based on professional judgment in accordance with the standards and methods employed by the traffic engineering community.

The study intersections, freeway segments, and interchange are listed below and shown on Figure 6.

Study Intersections

The study includes the evaluation of traffic conditions at 14 signalized intersections and two unsignalized intersections. All but two of the study intersections are located within the City of Gilroy (denoted on the list below with a CofG superscript). The two study intersections outside the City of Gilroy limits are located within unincorporated Santa Clara County (denoted with a SCC superscript), within Gilroy's sphere of influence, as identified in the Gilroy 2040 General Plan. Additionally, ten of the study intersections are under the jurisdiction of Caltrans (denoted with a CT superscript). The following key intersections were evaluated:

1. Arroyo Circle and Leavesley Road [CofG]
2. US 101 NB Ramps/San Ysidro Ave and Leavesley Road [CofG, CT]
3. US 101 SB Ramps and Leavesley Road [CofG, CT]
4. Camino Arroyo and Sixth Street/Gilman Road [CofG]
5. Frazier Lake Road and Pacheco Pass Highway (SR 152) [SCC, CT]
6. Holsclaw Road and Pacheco Pass Highway (SR 152) [SCC, CT]
7. Cameron Boulevard/Project Driveway B and Pacheco Pass Highway (SR 152) [CofG, CT]
8. Camino Arroyo and Renz Lane [CofG]
9. Camino Arroyo and Pacheco Pass Highway (SR 152) [CofG, CT]
10. US 101 Northbound Ramps and Pacheco Pass Highway (SR 152) [CofG, CT]
11. US 101 Southbound Ramps and Tenth Street [CofG, CT]
12. Chestnut Street/Automall Parkway and Tenth Street [CofG]
13. Monterey Road and Tenth Street [CofG]
14. Monterey Road and Luchessa Avenue [CofG]
15. Gilroy Foods and Pacheco Pass Highway (SR 152) [CofG, CT]
16. Silacci Way and Pacheco Pass Highway (SR 152) [CofG, CT]

Study Freeway Segments

The following study freeway segments were included in the analysis of the project:

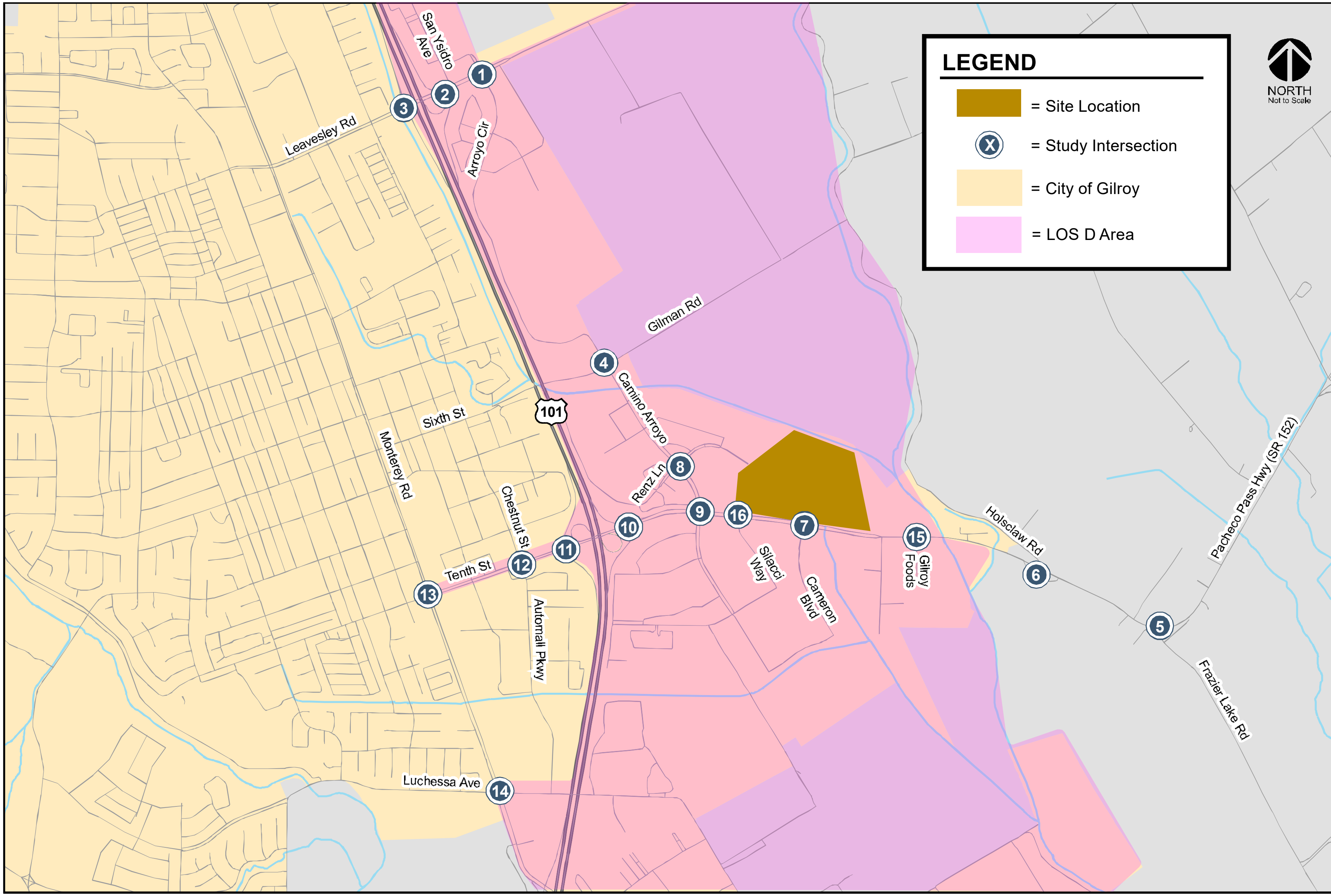
1. US 101, San Martin Avenue to Masten Avenue
2. US 101, Masten Avenue to Buena Vista Avenue
3. US 101, Buena Vista Avenue to Leavesley Road
4. US 101, Leavesley Road to Pacheco Pass Highway
5. US 101, Pacheco Pass Highway to Monterey Road
6. US 101, Monterey Road to SR 25
7. US 101, SR 25 to Betabel Road

Study Freeway Ramps

The following freeway ramps were evaluated with the project:

1. US 101 Southbound Off-Ramp at Tenth Street
2. US 101 Southbound On-Ramp at Tenth Street
3. US 101 Northbound Off-Ramp at Pacheco Pass Highway (SR 152)
4. US 101 Northbound On-Ramp at Pacheco Pass Highway (SR 152)

Figure 6
Study Intersections



Project Trip Generation, Distribution, and Assignments

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 peak hours being evaluated. As part of the project trip distribution, an estimate is made of the directions to and from which the project trips would travel. In the project trip assignment, the project trips are assigned to specific streets and intersections. These procedures are described below.

Trip Generation

Through empirical research, data have been collected that correlate to common land uses their propensity for producing traffic. Thus, for the most common land uses there are standard trip generation rates that can be applied to help predict the future traffic increases that would result from a new development. Trip generation resulting from new development proposed within the City of Gilroy typically is estimated by multiplying the Institute of Transportation Engineers (ITE) recommended trip generation rates by the size of the development. The recommended ITE trip generation rates are detailed in their manual entitled *Trip Generation* (latest edition).

Project trip estimates for the proposed industrial land use are based on ITE trip generation rates. The ITE *Trip Generation* manual, however, does not include trip generation rates for last-mile delivery stations, such as the proposed project. Similar land uses included in the ITE manual include high-cube transload and short-term storage warehouse (ITE land use #154), high-cube fulfilment center warehouse, both sort and non-sort (ITE land use #155), and high-cube parcel hub warehouse (ITE land use #156). However, none of the above ITE land uses accurately represent the proposed project. For this reason, new trip generation count information collected at four existing last-mile delivery stations in California as well as project information, both provided by the project applicant, were utilized to estimate the amount of traffic generated by the proposed delivery station.

Delivery Station Trip Generation Estimates

The project trip estimates for the proposed last-mile delivery station are based on information obtained from the *Delivery Station California Trip Generation Study*, February 2021, by NV5 (included in Appendix D). The study presents average trip generation rates derived from data collected at four 24-hour delivery stations located in California (Site A – Simi Valley, Site B – South San Francisco, Site C – Palmdale, and Site D – Poway). The trip generation rates in the study are derived based on 7-day averages for daily, AM/PM commuter peak-hour, and AM/PM peak-hour of the generator and estimate trips per 1,000 square-foot of operational area (excluding all interior loading, queuing, and parking areas). However, the results of the trip generation study are somewhat inconclusive, with average trip generation rates for the four study sites ranging from 0.09 to 0.67 during the AM peak-hour and from 0.37 to 0.93 during the PM peak-hour. Considering the results of the study for the individual sites, one of the study sites (Site C) is of similar size to the proposed project (128,000 s.f.) and is the site with the highest trip generation during the AM and PM peak hours, which would provide for a conservative analysis of the proposed project. For this reason, the project trip generation for the proposed delivery station was estimated based on trip generation rate information for Site C of the trip generation study.

Based on the trip generation rates for Site C obtained from the trip generation study, it is estimated that the proposed delivery station would generate 1,711 new daily vehicle trips, with 95 trips (81 inbound and 14 outbound) occurring during the AM peak-hour, 132 trips (63 inbound and 69 outbound) occurring during the PM peak-hour, and 173 trips (71 inbound and 102 outbound) occurring during the Saturday peak-hour. The trip generation estimates for the delivery station are presented in Table 3.

For comparison purposes, the project trip generation estimates described above were compared to project trip generation estimates derived from anticipated site vehicular activity information provided by the project applicant, work shift times, number of employees per work shift, number of drivers, and the anticipated departure and arrival times of the delivery vans. Based on this information, daily and peak-hour trip generation for the delivery station were estimated and are shown to be less than the project traffic estimated based on the trip generation rates for Site C of the trip generation study. The trip generation estimates based on the anticipated site vehicular activity also are shown the Table 3.

Industrial Land Use Trip Generation Estimates

Trip generation for the proposed industrial land use was estimated by applying to the size of the proposed development ITE trip generation rates for general light industrial (ITE land use code #110). On the basis of the ITE trip generation rates, it is estimated that the proposed industrial land use would generate 1,320 new daily vehicle trips, with 186 trips (164 inbound and 22 outbound) occurring during the AM peak-hour and 168 trips (22 inbound and 146 outbound) occurring during the PM peak-hour. It is assumed that the industrial land use would not generate a measurable amount of traffic during the Saturday peak-hour. The trip generation estimates for the industrial land use are presented in Table 3.

Total Project Trip Generation Estimates

Based on the above trip generation estimates, the proposed project is estimated to generate a total of 3,031 new daily vehicle trips, with 281 trips (245 inbound and 36 outbound) occurring during the AM peak-hour, 300 trips (85 inbound and 215 outbound) occurring during the PM peak-hour, and 173 trips (71 inbound and 102 outbound) occurring during the Saturday peak-hour. The total project trip generation estimates are presented in Table 3.

Trip Distribution and Assignment

The trip distribution pattern for the project was estimated based on existing travel patterns in the study area, the anticipated service area for the proposed project, and the locations of complementary land uses. The project trip distribution pattern is shown graphically on Figure 7.

The peak-hour trips generated by the proposed development were assigned to the roadway system in accordance with the trip distribution pattern discussed above. The project trip assignment at the study intersections is presented graphically on Figure 8.

Roadway Capacity Analysis Methodologies

This section presents the methods used to evaluate traffic operations at the study intersections and freeway facilities. It includes descriptions of the analysis methodologies, the applicable level of service standards, the criteria defining deficiencies at the study facilities, and other data required for the analysis.

The roadway capacity (level of service) analysis is intended to quantify the operations of the roadway network and to identify potential operational deficiencies caused by the proposed project. However, identified deficiencies on study facilities within this chapter are not considered a CEQA impact metric.

Table 3
Project Trip Generation Estimates

	ITE Land Use	Size		Daily Trip Rate	Daily Trips	AM Peak-Hour Pk-Hr Rate	AM Splits In	AM Splits Out	AM Trips In	AM Trips Out	AM Trips Total	PM Peak-Hour Pk-Hr Rate	PM Splits In	PM Splits Out	PM Trips In	PM Trips Out	PM Trips Total	Midday Peak-Hour Pk-Hr Rate	Midday Splits In	Midday Splits Out	Midday Trips In	Midday Trips Out	Midday Trips Total
Project Garlic Trip Generation Estimates Based on Available Trip Generation Rates																							
Delivery Station [1]		142,000	s.f.	12.05	1,711	0.67	85%	15%	81	14	95	0.93	48%	52%	63	69	132	1.22	41%	59%	71	102	173
General Light Industrial [2]	110	266,220	s.f.	4.96	1,320	0.70	88%	12%	164	22	186	0.63	13%	87%	22	146	168						
Total Site Trips					**3,031**				**245**	**36**	**281**				**85**	**215**	**300**				**71**	**102**	**173**
Delivery Station Trip Generation Estimates Based on Anticipated Vehicle Activity (Informational) [3]																							
Passenger Vehicles/Delivery Vans		142,000	s.f.	9.90	1,406				0	0	0	0.63	67%	33%	60	30	90	0.94	24%	76%	32	102	134
Trucks				0.30	42	0.01	0%	100%	0	1	1	0.01	100%	0%	1	0	1	0.00			0	0	0
				10.20	1,448	0.01	0%	100%	0	1	1	0.64	67%	33%	61	30	91	0.94	24%	76%	32	102	134

[1] Trip generation estimates based on the **trip rates for Site C** of the four existing sites studied in the *Delivery Station California Trip Generation Study*, February 2021.
Trip rates for Site C were selected because they represent the most conservative results out of the four sites evaluated and Site C is similar in size to the proposed Project Garlic site.
[2] Trip generation estimates based on the Institute of Transportation Engineers (ITE) trip generation rates contained in their Trip Generation Manual, 10th Edition, 2017.
[3] Trip generation estimates based on site traffic projections provided by the project applicant. This information is provided for informational purposes only.

Figure 7
Project Trip Distribution

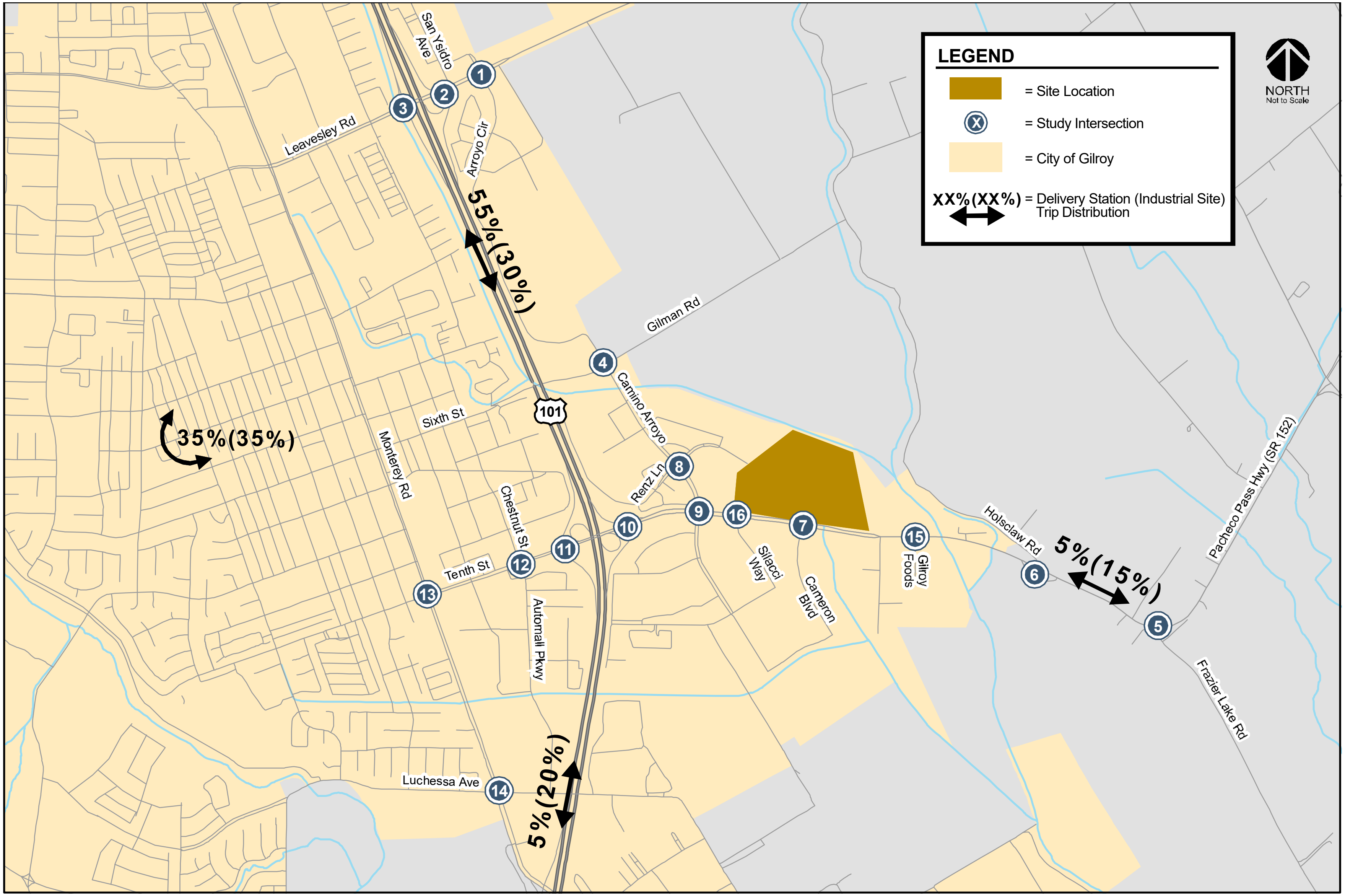
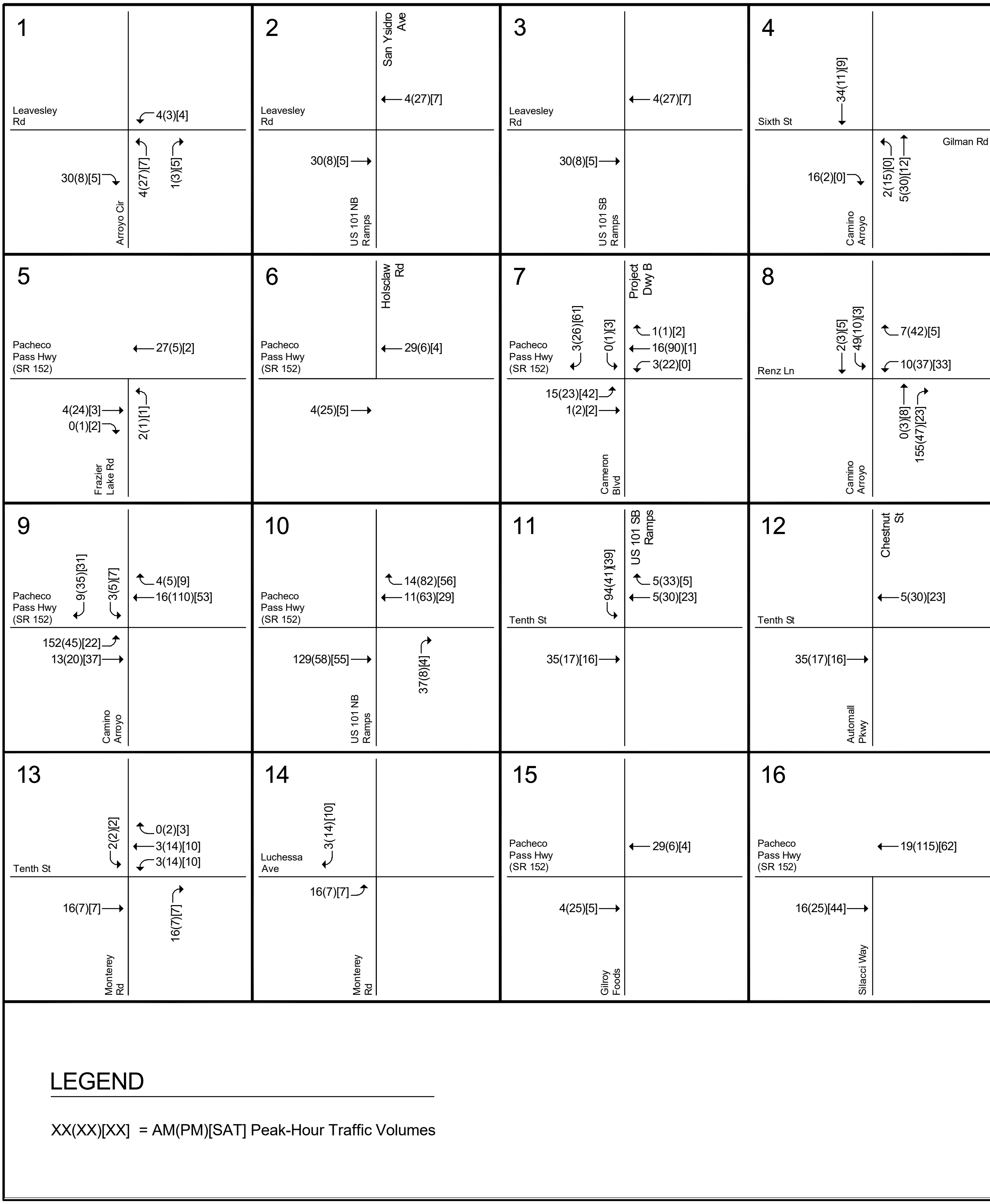


Figure 8
Project Trip Assignment



Analysis Methodologies, Standards, and Deficiency Thresholds

Intersection Level of Service Analysis

All study intersections were evaluated based on City of Gilroy methodology and level of service standards. The City of Gilroy 2040 General Plan, Mobility chapter, identifies the established level of service standards and impact criteria for intersections in the City of Gilroy, which are described below. Study freeway segments and freeway ramps were evaluated based on CMP and Caltrans methodology and level of service standards.

Signalized Intersections

The City of Gilroy uses the Santa Clara County CMP level of service analysis procedure, TRAFFIX, for evaluation of signalized intersections, based on the *2000 Highway Capacity Manual* (2000 HCM) method. TRAFFIX evaluates signalized intersection operations on the basis of average control delay time for all vehicles at the intersection. *Control delay* is the amount of delay that is attributed to the particular traffic control device at the intersection, and includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The correlation between average delay and level of service is shown in Table 4.

The City of Gilroy level of service standard for most signalized intersections located west of US 101 is LOS C or better, allowing some commercial and industrial areas (e.g., downtown Gilroy, First Street corridor) to operate at LOS D or better. For signalized intersections located east of US 101 and those in the commercial area designated in the City of Gilroy General Plan (LOS D Area), the City standard is LOS D or better. The level of service D area includes all areas east of US 101, the Tenth Street corridor from Monterey Street to US 101, the Luchessa corridor east of Monterey Street, and the Monterey Street corridor from Luchessa Avenue to the Monterey Street/US 101 interchange. The current City of Gilroy LOS D Area is depicted graphically on Figure 6.

All of the study intersections are located within the LOS D area.

City of Gilroy Definition of Operational Deficiencies at Signalized Intersections

Based on City of Gilroy intersection level of service standards, an operational deficiency at a signalized intersection would occur if any of the following criteria are satisfied:

LOS D Area

1. The level of service at the intersection degrades from an acceptable LOS D or better under background conditions to an unacceptable LOS E or F under background plus project conditions, or
2. If the intersection is already operating at an unacceptable LOS E or F and the addition of project traffic causes the average delay to increase by four (4) second or more.

Operational deficiencies may be addressed by implementing measures that would restore intersection level of service to background conditions or better.

Table 4
Signalized Intersection Level of Service Definition Based on Delay

Level of Service	Description	Average Control Delay per Vehicle (sec.)
A	Operations with very low delay occurring with favorable progression and/or short cycle lengths.	up to 10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	10.1 to 20.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.1 to 35.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 to 55.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable	55.1 to 80.0
F	Operation with delays unacceptable to most drivers occurring due to oversaturation, poor progression, or very long cycle lengths.	Greater than 80.0

Sources: Transportation Research Board, *2000 Highway Capacity Manual* (Santa Clara County and City of Gilroy adopted level of service methodology). *Traffic Level of Service Analysis Guidelines*, Santa Clara County Transportation Authority Congestion Management Program, June 2003.

Unsignalized Intersections

For unsignalized intersections in the City of Gilroy, an assessment of traffic operations at the intersection is based on two methodologies: (1) peak-hour levels of service are calculated for the intersection and (2) an assessment is made of the need for signalization of the intersection based on traffic volume levels.

The methodology used to determine the level of service for unsignalized intersections is TRAFFIX and the Santa Clara County CMP adopted *2000 Highway Capacity Manual* methodology. This method is applicable for both two-way and all-way stop-controlled intersections.

For the purpose of reporting level of service for stop-controlled intersections, two levels of service are used. For all-way stop-controlled intersections, “overall intersection average” delay and corresponding level of service is used, which is a measure of the average delay incurred by all motorists at the intersection. For one- and two-way stop-controlled intersections, the delay and corresponding level of service for the “highest delay approach”, which is a measure of the delay incurred by motorists only on the stop-controlled approach which is most impacted by traffic conditions at the intersection, is used. The correlation between average control delay and level of service for unsignalized intersections is shown in Table 5.

Table 5
Unsignalized Intersection Level of Service Definition Based on Control Delay

Level of Service	Description	Average Control Delay per Vehicle (sec.)
A	Operations with very low delays occurring with favorable progression.	up to 10.0
B	Operations with low delays occurring with good progression.	10.1 to 15.0
C	Operations with average delays resulting from fair progression.	15.1 to 25.0
D	Operation with longer delays due to a combination of unfavorable progression of high V/C ratios.	25.1 to 35.0
E	Operation with high delay values indicating poor progression and high V/C ratios. This is considered to be the limited of acceptable delay.	35.1 to 50.0
F	Operation with delays unacceptable to most drivers occurring due to oversaturation and poor progression.	Greater than 50.0

Source: Transportation Research Board, *2000 Highway Capacity Manual* (Santa Clara County and City of Gilroy adopted level of service methodology).

The level of service analysis at unsignalized intersections is supplemented with an assessment of the need for signalization of the intersection. This assessment is made on the basis of signal warrant criteria adopted by Caltrans. For this study, the need for signalization is assessed on the basis of the operating conditions at the intersection (i.e., level of service) and on the peak-hour traffic signal warrant, warrant #3, described in the *California Manual on Uniform Traffic Control Devices for Streets and Highways (CA MUTCD)*, Part 4, Highway Traffic Signals, 2014. This method provides an indication of whether traffic conditions and peak-hour traffic levels are, or would be, sufficient to justify installation of a traffic signal.

The City of Gilroy level of service standard for unsignalized intersections is based on the intersection control type as follows:

- All-way stop-controlled intersections must operate with an overall intersection average delay of LOS C or better for those intersections located within the LOS C area (as defined previously) and LOS D or better for those intersections located within the LOS D area and/or the peak-hour traffic volume level at the intersection must fall below the threshold that would warrant installation of a traffic signal.
- One-way/two-way stop-controlled intersections must operate with average delays corresponding to LOS D or better for those intersections located within the LOS C area or LOS E or better for intersections located within the LOS D area on their stop-controlled approach with the highest delay and/or the peak-hour traffic volume level at the intersection must fall below the threshold that would warrant installation of a traffic signal.

The unsignalized study intersections are two-way stop-controlled intersections located within the LOS D area. Therefore, the unsignalized study intersections have a level of service standard of LOS E for the stop-controlled approach with the highest delay.

City of Gilroy Definition of Operational Deficiencies at Unsignalized Intersections

Based on City of Gilroy intersection level of service standards, an operational deficiency at an unsignalized intersection would occur if any of the following criteria are satisfied:

One- and Two-Way Stop-Controlled Intersections:

LOS D Area

1. The worst-approach intersection delay degrades from an acceptable LOS E or better under background conditions to an unacceptable LOS F under background plus project conditions and the traffic volumes at the intersection satisfy the peak-hour volume traffic signal warrant adopted by Caltrans, or
2. The worst-approach intersection delay is already operating at an unacceptable LOS F and the addition of project traffic causes the average delay to increase by 4 second or more and the traffic volumes at the intersection satisfy the peak-hour volume traffic signal warrant adopted by Caltrans.

Operational deficiencies at unsignalized intersections may be addressed by implementing measures that would restore intersection level of service to acceptable conditions or by signalizing the intersection.

Santa Clara County Freeway CMP Guidelines

In Santa Clara County, freeway segments are evaluated using CMP procedures and methodologies. As prescribed in the CMP technical guidelines, the level of service for freeway segments is estimated based on vehicle density. Density is calculated by the following formula:

$$D = V / (N*S)$$

where:
D= density, in vehicles per mile per lane (vpmpl)
V= peak-hour volume, in vehicles per hour (vph)
N= number of travel lanes
S= average travel speed, in miles per hour (mph)

The vehicle density on a segment is correlated to level of service as shown in Table 6. The CMP requires that mixed-flow lanes and auxiliary lanes be analyzed separately from HOV (carpool) lanes.

The CMP specifies that a capacity of 2,300 vehicles per hour per lane (vphpl) be used for segments six lanes or wider in both directions and a capacity of 2,200 vphpl be used for segments four lanes wide in both directions. The CMP defines an acceptable level of service for freeway segments as LOS E or better.

CMP Definition of Adverse Operations Effects on Freeway Segments

An adverse effect on traffic conditions on a freeway segment would occur if for either peak hour:

1. The level of service on the freeway segment degrades from an acceptable LOS E or better under no project conditions to an unacceptable LOS F under with project conditions, or
2. The level of service on the freeway segment is LOS F and the amount of traffic added to that segment by the proposed project constitutes one percent or more of the capacity on that segment.

An adverse effect on freeway segments by CMP standards may be addressed by implementing measures that would restore freeway conditions to pre-project conditions or better.

Table 6
Freeway Levels of Service Based on Density

Level of Service	Description	Density (vehicles/mile/lane)
A	Average operating speeds at the free-flow speed generally prevail. Vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream.	0-11
B	Speeds at the free-flow speed are generally maintained. The ability to maneuver within the traffic stream is only slightly restricted, and the general level of physical and psychological comfort provided to drivers is still high.	>11-18
C	Speeds at or near the free-flow speed of the freeway prevail. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more vigilance on the part of the driver.	>18-26
D	Speeds begin to decline slightly with increased flows at this level. Freedom to maneuver within the traffic stream is more noticeably limited, and the driver experiences reduced physical and psychological comfort levels.	>26-46
E	At this level, the freeway operates at or near capacity. Operations in this level are volatile, because there are virtually no usable gaps in the traffic stream, leaving little room to maneuver within the traffic stream.	>46-58
F	Vehicular flow breakdowns occur. Large queues form behind breakdown points.	>58

Sources: Transportation Research Board, *2000 Highway Capacity Manual* (Santa Clara County and City of Gilroy adopted level of service methodology). *Traffic Level of Service Analysis Guidelines*, Santa Clara County Transportation Authority Congestion Management Program, June 2003.

Freeway Interchange Ramp Analysis

The freeway ramp analysis was performed at one US 101 interchange (Tenth Street/SR 152) that provides access to the project site. The analysis was performed to evaluate projected interchange operations with implementation of the proposed project and supplements the intersection level of service analysis at the freeway ramp intersections. The study freeway ramps are under the jurisdiction of Caltrans.

The analysis is based on calculated ramp capacity (volume-to-capacity (V/C) ratios) at the study freeway ramps. Evaluation of the ramps' operating levels is based on Caltrans level of service standards (LOS C or better). The correlation between V/C ratio and level of service for freeway ramps is shown in Table 7.

Table 7
Freeway Ramp Levels of Service Based on Volume-to-Capacity Ratio

Level of Service	V/C Ratio
A	Less than 0.600
B	0.600-0.699
C	0.700-0.799
D	0.800-0.899
E	0.900-0.999
F	1.000 and Greater

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

Caltrans Definition of Adverse Operations Effects on Freeway Ramps

The Caltrans level of service standard for freeway ramps is LOS C or better. An adverse effect on traffic conditions on a freeway ramp would occur if for either peak hour:

1. The level of service at the study facility degrades from an acceptable LOS C or better under background conditions to an unacceptable LOS D or worse under background plus project conditions, or
2. The level of service on the freeway ramp is deficient under background conditions and the project adds traffic to the ramp.

An adverse effect on freeway ramps by Caltrans standards may be addressed by implementing measures that would restore conditions to background conditions or better.

Intersection Operations Analysis

The operations analysis is based on vehicle queuing for high-demand movements at intersections. Vehicle queues were estimated using a Poisson probability distribution, which estimates the probability of "n" vehicles in the queue 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 number of vehicles in the queue per lane (vehicles per hour per lane/signal cycles per hour)

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 per signal cycle 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 (20 feet vehicle length plus 5-foot headway space); 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 identifying locations where potential problems may arise in the future and for estimating future storage requirements at intersections.

City of Gilroy Definition of Queue Deficiencies

Based on City of Gilroy guidelines, a queue deficiency at an intersection would occur if:

1. The 95th percentile vehicle queue in a critical turn movement at a study intersection is projected to be less than the available or planned storage length for that movement under background conditions and the addition of projected traffic to that turn movement causes the projected 95th percentile vehicle queue to exceed the available or planned storage length, or
2. The 95th percentile vehicle queue in a critical turn movement at a study intersection is projected to exceed the available or planned storage length for that movement under background conditions and the addition of projected traffic to that turn movement causes the projected 95th percentile vehicle queue to grow by at least one vehicle.

Queue deficiencies may be addressed by providing the additional queue storage capacity required to serve the projected queue length.

Lane Configurations

Existing and Background Conditions

The existing lane configurations and traffic-control devices at the study intersections were determined by observations in the field and are presented graphically on Figure 9.

It is assumed in this analysis that the transportation network under background conditions (without and with the project) would be the same as under existing conditions.

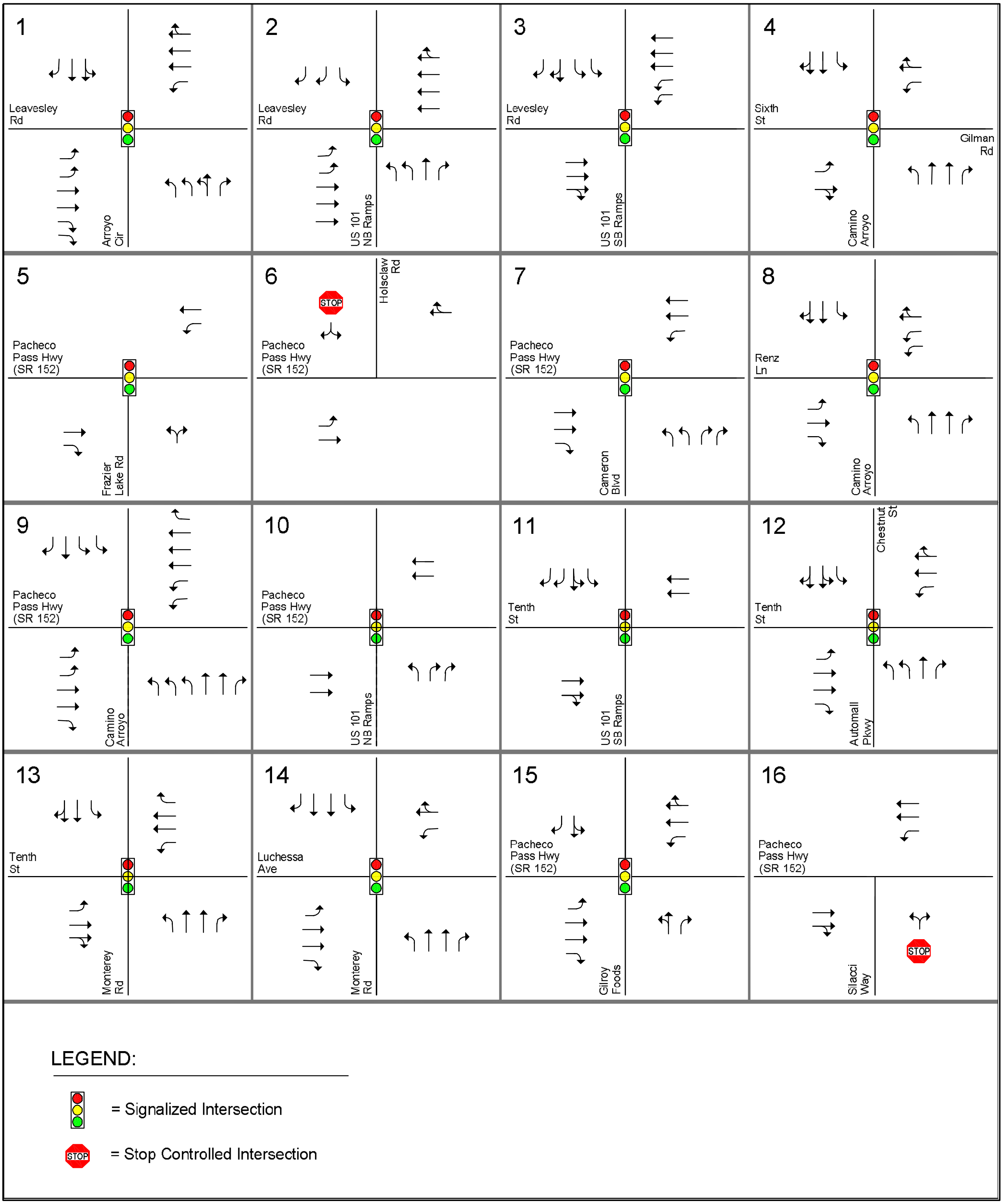
2040 General Plan Conditions

The 2040 General Plan conditions transportation network includes roadway improvements to serve the buildout of the City's General Plan land use growth projections. Some of these roadway improvements would affect the project area directly and are listed below:

Cameron Boulevard is planned to be extended from its current terminus point at SR 152 northward through the project site area to Gilman Road, and continuing north to form the south leg of the Marcella Avenue/Leavesley Road intersection. Additionally, Cameron Boulevard is planned to be extended from its current southern terminus point southward to connect to a planned extension of Luchessa Avenue and terminate at Southside Drive. This planned extension would result in the following roadway network changes near the project site:

- Cameron Boulevard/SR 152 intersection – add north leg to this existing T-intersection.
- Cameron Boulevard/Marcella Avenue/Leavesley Road intersection – add south leg to this existing T-intersection.
- Cameron Boulevard/Gilman Road intersection – create a new intersection with Gilman Road.

Figure 9
Existing Intersection Lane Configurations and Traffic Control Devices



Renz Lane is planned to be extended from its current eastern terminus point eastward through the project site area to connect to the planned Cameron Boulevard north extension. This planned extension would result in the following roadway network changes near the project site:

- Cameron Boulevard/Renz Lane intersection – create a new T-intersection with the planned Cameron Boulevard extension.

Tenth Street/Pacheco Pass Highway (SR 152) is planned to be widened to six travel lanes from Monterey Road to Holsclaw Road. This planned improvement would result in the following roadway network changes near the project site:

- Add third eastbound and westbound lanes to all study intersections between Monterey Road and Holsclaw Road.

Luchessa Avenue is planned to be extended eastward to the future Cameron Boulevard extension. This planned extension would result in the following roadway network changes near the project site:

- Cameron Boulevard/Luchessa Avenue intersection – create a new T-intersection with the planned Cameron Boulevard extension.

With the implementation of the proposed project, the planned Cameron Boulevard extension to the north, between SR 152 and Gilman Road, would not be possible. With this change to the 2040 roadway network, Camino Arroyo would continue to be the main connection between SR 152 and Sixth Street/Gilman Road east of US 101. Additionally, the planned intersection formed by the extension of Renz Lane and Cameron Boulevard would be eliminated. Renz Lane would connect to the project site's main access road.

Traffic Volumes

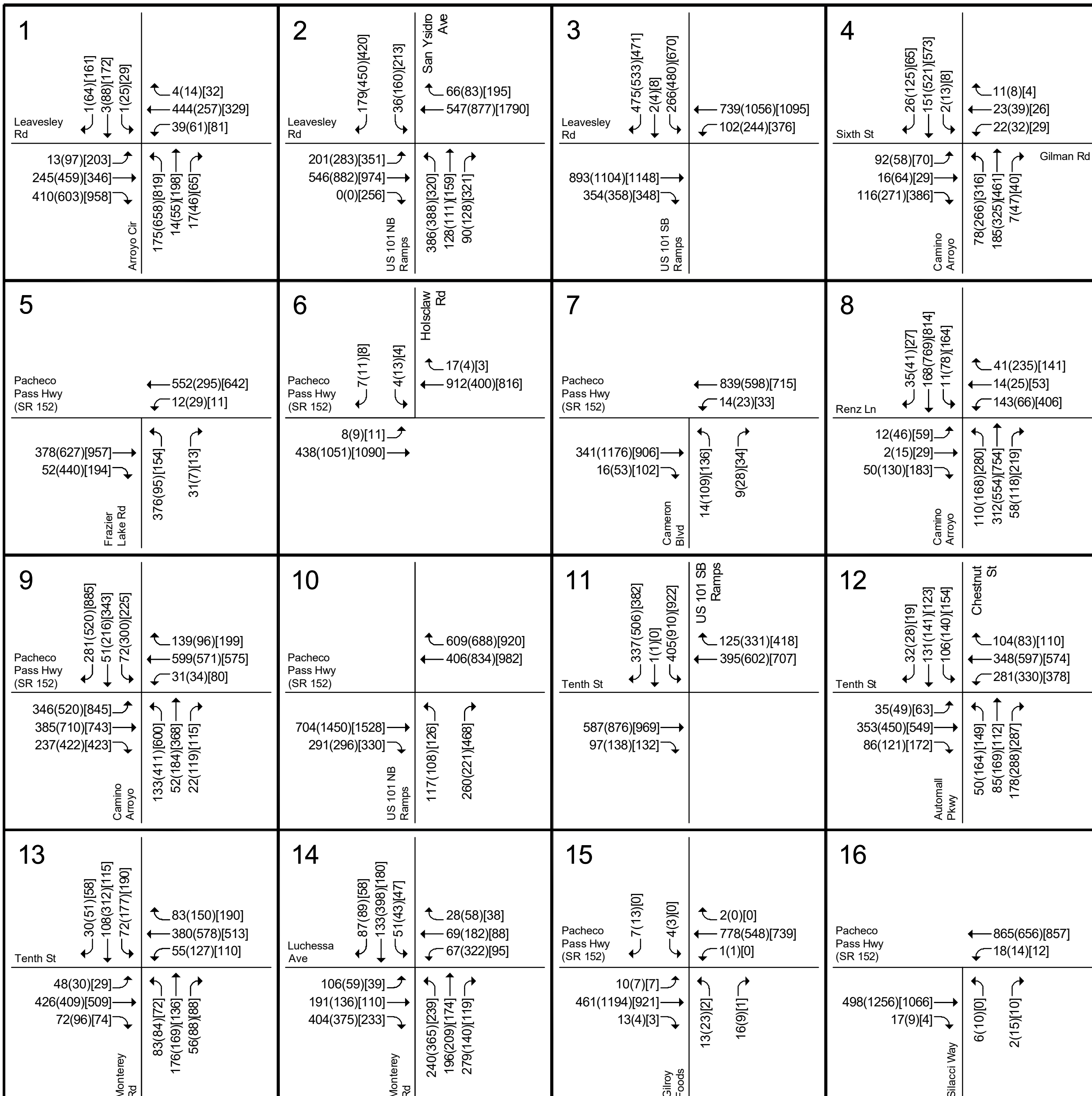
Existing Conditions

Existing weekday AM and PM and Saturday peak-hour intersection traffic volumes were obtained/derived from available manual turning-movement counts (conducted in 2017- 2019) and new traffic count data collected in 2020.

Current traffic conditions on the transportation network (and more specifically at the time this study was initiated) are affected by the ongoing Covid19 pandemic and the order to shelter in place issued by Santa Clara County Department of Public Health. Intersection turn-movement traffic counts from 2019 (prior to the pandemic) were available at most of the study intersections, with a few of the study locations only having older than 2019 (and considered outdated) count data available. In order to estimate traffic volumes that would represent pre-pandemic and current traffic conditions at all of the study intersections, new turn-movement counts were collected at all intersection with older counts and at a few locations with 2019 counts available. Year 2019 counts were compared to the new 2020 counts to derive a factor that could be applied to the 2020 counts to represent 2019 (pre-Covid) conditions. The comparison of 2019 and 2020 count data showed that, with the exception of the Saturday peak-hour counts, all new 2020 traffic counts were lower than the available 2019 counts. Based on this comparison, pre-pandemic (2019) traffic conditions were derived at all study intersections for the AM and PM peak hours and a combination of both 2019 and 2020 counts was utilized for the Saturday peak-hour.

The existing peak-hour intersection volumes are shown on Figure 10. The existing traffic count data are included in Appendix A.

Figure 10
Existing Conditions Traffic Volumes



LEGEND

XX(XX)[XX] = AM(PM)[SAT] Peak-Hour Traffic Volumes

Near-Term (Background) Conditions

Background peak-hour traffic volumes were estimated by adding to existing volumes the estimated traffic from approved but not yet constructed developments. The traffic added to the study intersections from approved developments was estimated by distributing and assigning trips generated by these developments to the roadway network using the same procedure of trip generation, distribution, and assignment described previously. Background traffic volumes are shown in Figure 11.

The project trips, as described in the previous section, were added to background traffic volumes to obtain background plus project traffic volumes, or project conditions volumes. The background plus project traffic volumes are shown graphically on Figure 12.

Approved project information was obtained from the City of Gilroy in August 2020 and is included in Appendix B.

Year 2040 General Plan Conditions

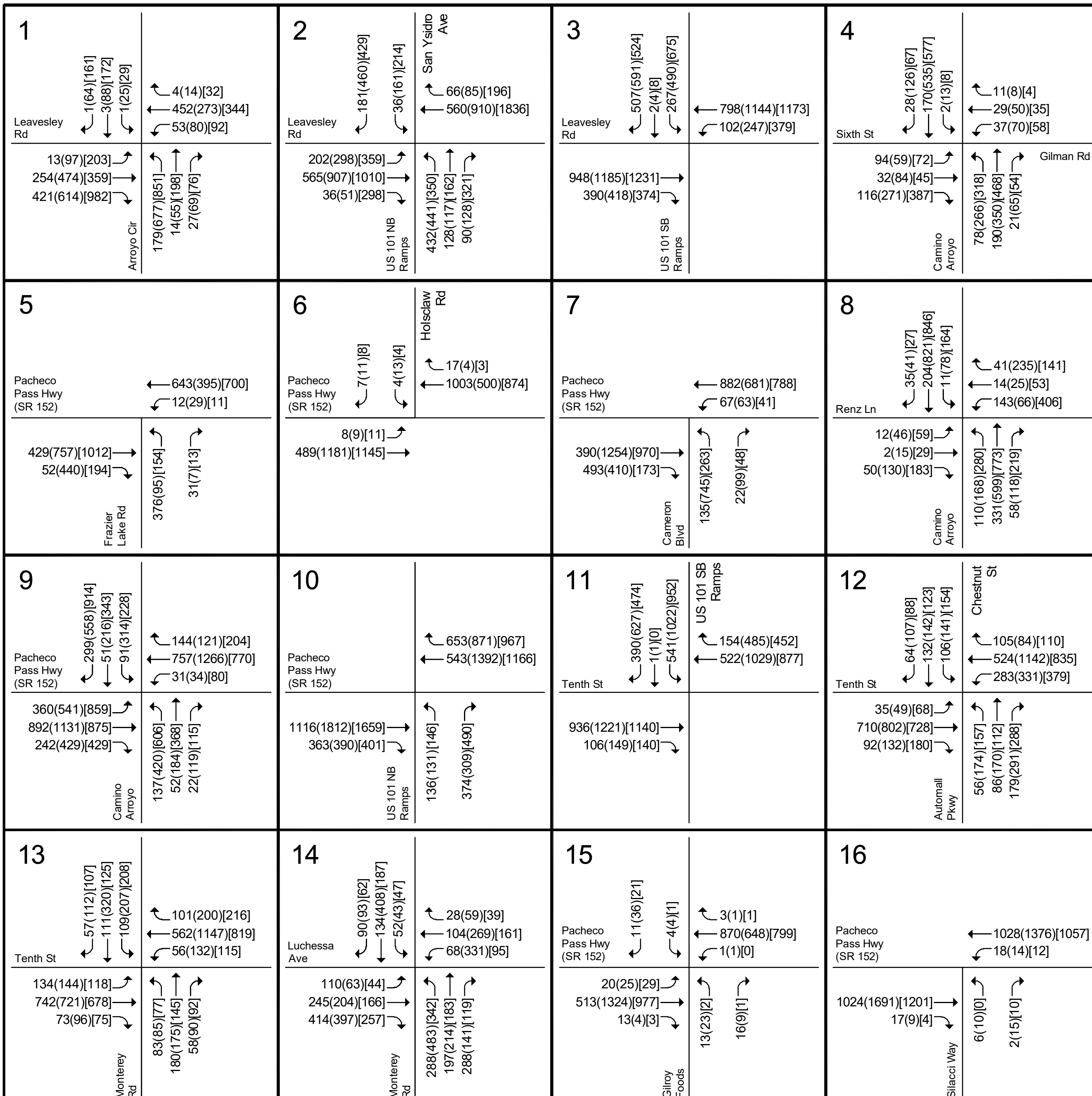
Traffic volumes under Year 2040 General Plan conditions were obtained from traffic forecasts produced using the Gilroy Travel Demand Forecasting (TDF) model. These volumes represent traffic conditions that would occur with build out of all projects and planned roadway improvements included in the 2040 General Plan, as recently adopted in November 2020.

Year 2040 General Plan plus project traffic conditions were also obtained from the Gilroy TDF model. Land use adjustments were made to the project site zone replacing the 2040 planned uses for the site with the proposed project. In addition, the extension of Cameron Boulevard, between SR 152 and Gilman Road, was eliminated from the model roadway network. The resulting traffic conditions represent Year 2040 General Plan traffic conditions with the project.

Year 2040 General Plan traffic volumes are presented on Figure 13. Year 2040 General Plan plus project traffic conditions are presented on Figure 14.

Peak-hour intersection turning movement volumes for all intersections and study scenarios are tabulated in Appendix C.

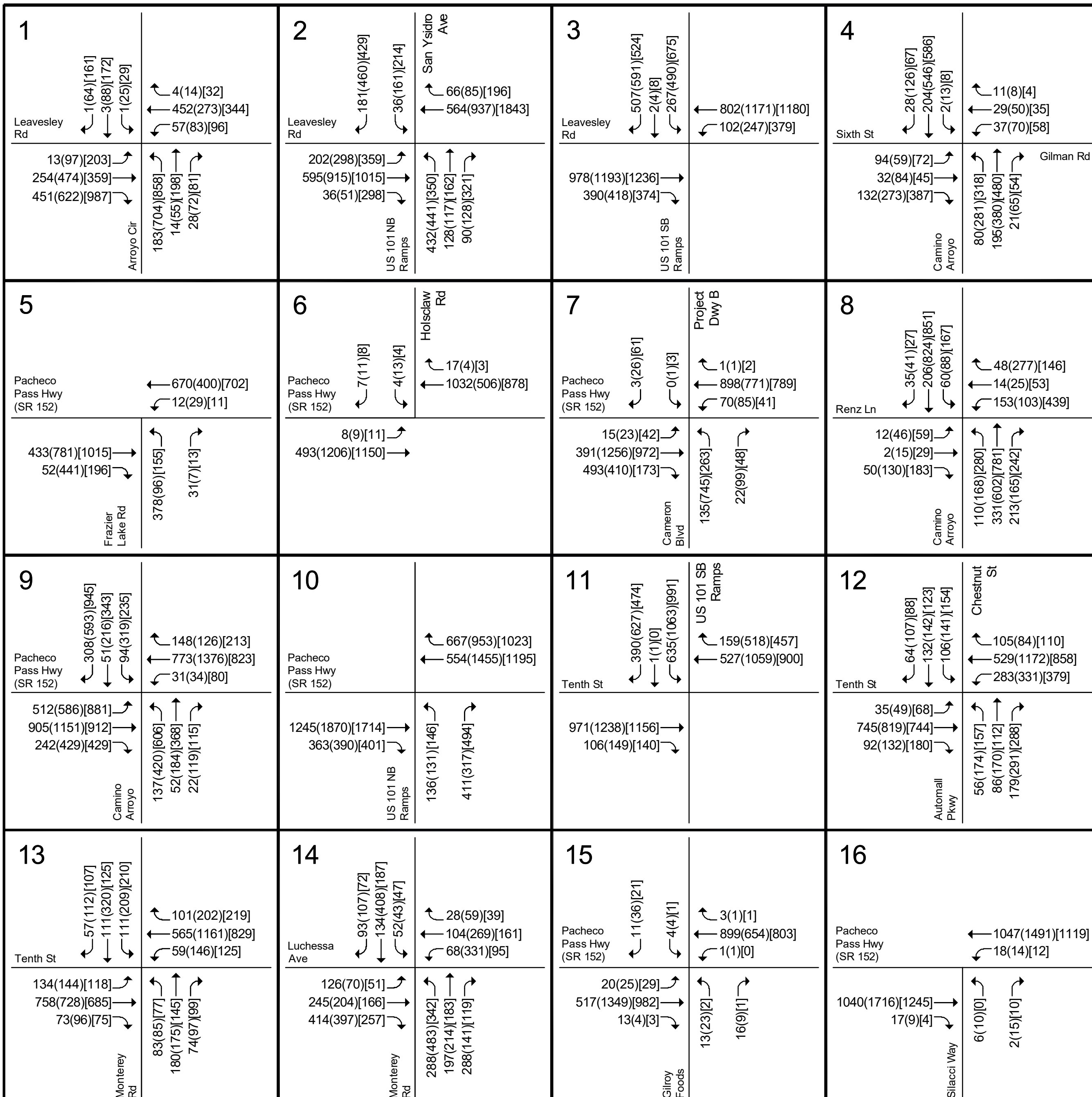
Figure 11
Background Conditions Traffic Volumes



LEGEND

XX(XX)[XX] = AM(PM)[SAT] Peak-Hour Traffic Volumes

Figure 12
Background Plus Project Conditions Traffic Volumes



LEGEND

XX(XX)[XX] = AM(PM)[SAT] Peak-Hour Traffic Volumes

Figure 13
Year 2040 General Plan Conditions Traffic Volumes

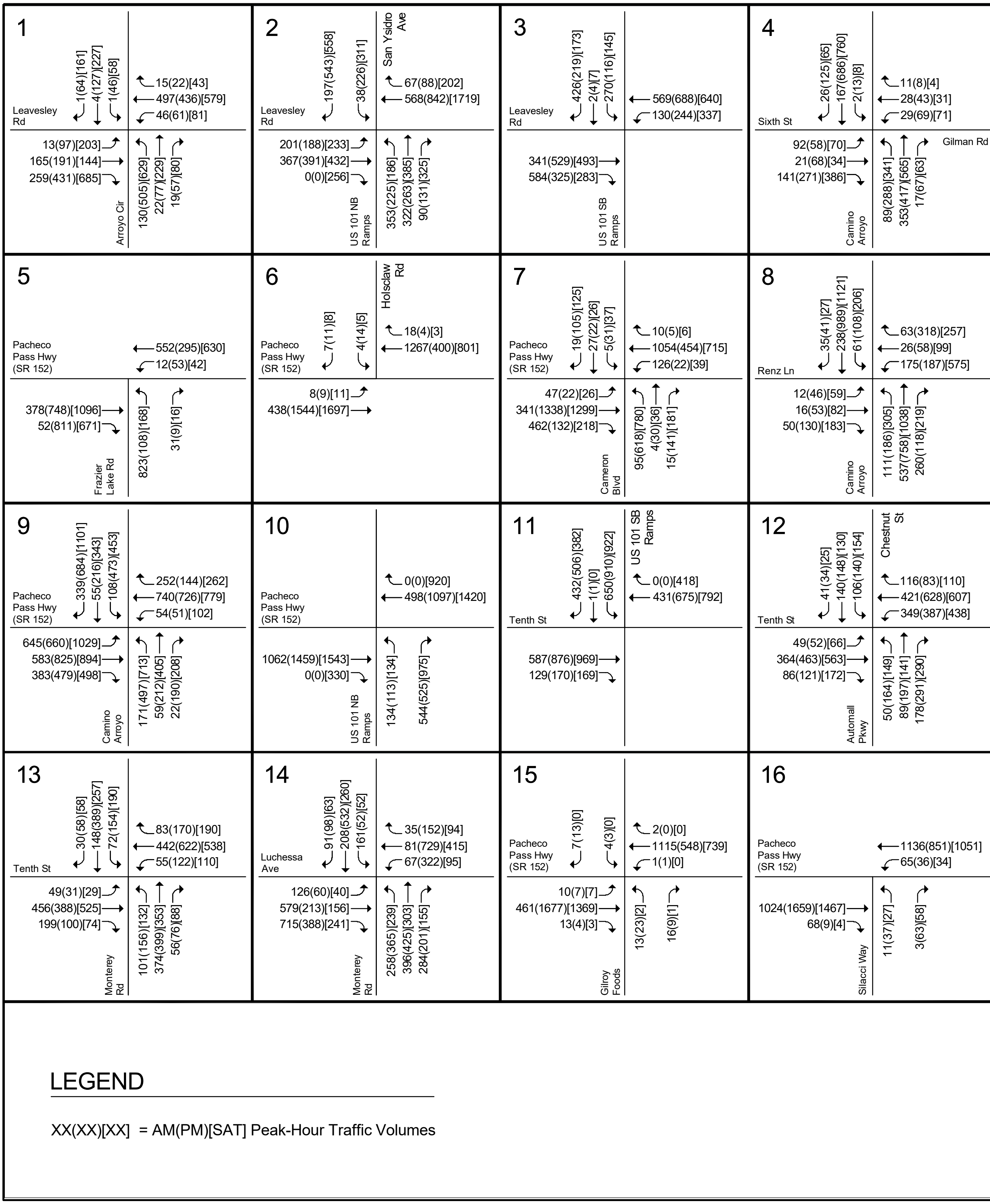
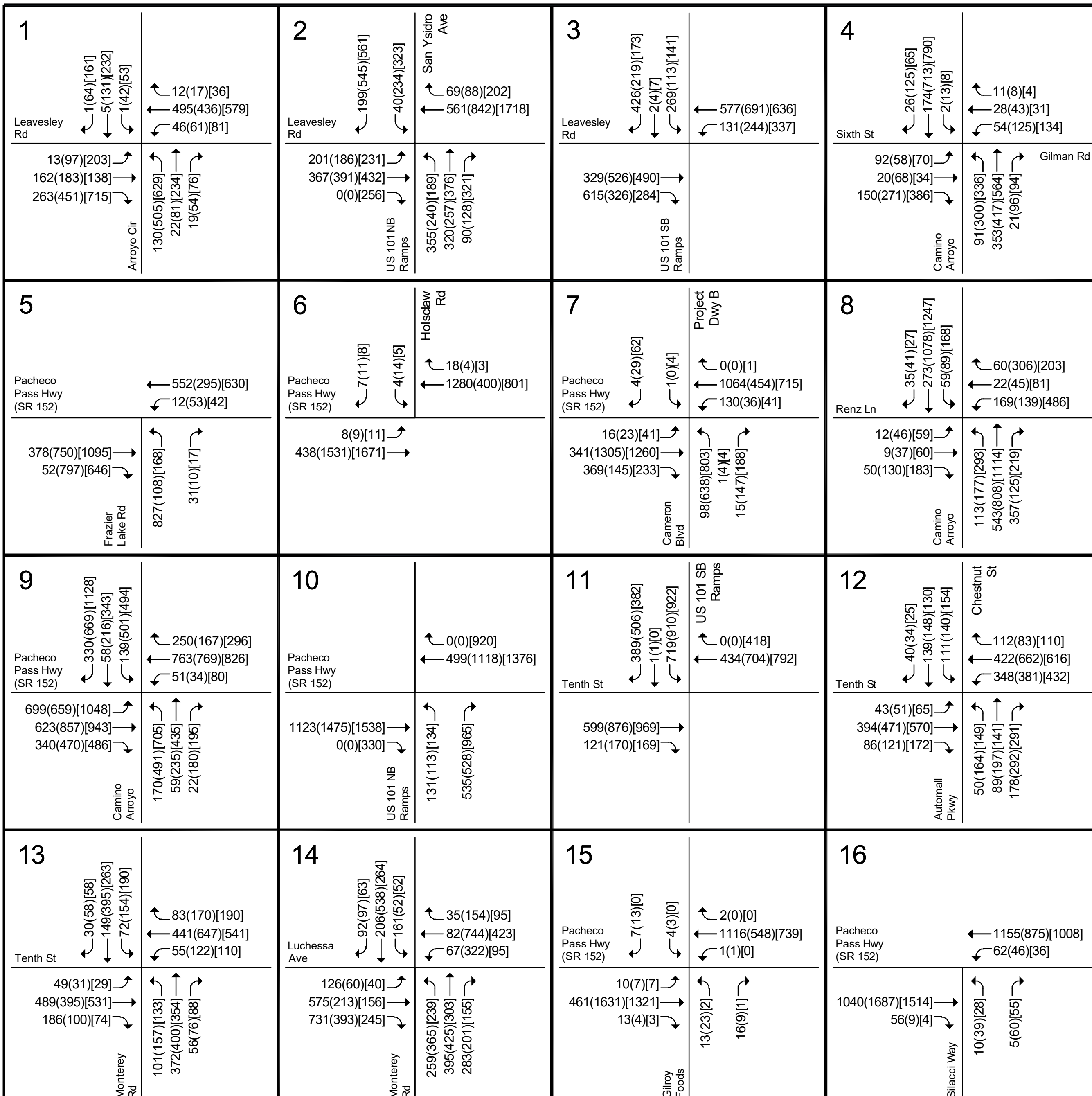


Figure 14
Year 2040 General Plan Plus Project Conditions Traffic Volumes



LEGEND

XX(XX)[XX] = AM(PM)[SAT] Peak-Hour Traffic Volumes

Intersection Level of Service Analysis Results

The results of the intersection level of service analysis are described below and summarized in Table 8. The level of service calculation sheets are included in Appendix E. The peak-hour signal warrant sheets are contained in Appendix F.

Existing and Background Intersection Level of Service Analysis

The results of the intersection level of service analysis under existing conditions indicate that the following intersections currently operate deficiently during the Saturday peak-hour:

1. Arroyo Circle and Leavesley Road (LOS E – Sat peak-hour)
9. Camino Arroyo and Pacheco Pass Highway/SR 152 (LOS E – Sat peak-hour)

Under background conditions, the above two intersections would continue to operate deficiently, with the intersection of Arroyo Circle/Leavesley Road deteriorating to a LOS F and the intersection of Camino Arroyo/Pacheco Pass Highway (SR 152) continuing to operate at LOS E during the Saturday peak-hour.

Background Plus Project Intersection Level of Service Analysis

The results of the intersection level of service analysis show that the following intersections would continue to operate deficiently under background plus project conditions:

1. Arroyo Circle and Leavesley Road (LOS F – Sat peak-hour)
9. Camino Arroyo and Pacheco Pass Highway/SR 152 (LOS E – Sat peak-hour; **Project Deficiency**: Sat peak-hour)

Based on City of Gilroy definition of operational deficiencies at signalized intersections, the project would have an operational deficiency at the intersection of Camino Arroyo/Pacheco Pass Highway (SR 152) by increasing the intersection delay by more than 4 seconds. The addition of project traffic to the remaining deficient intersection is not projected to increase the intersection's average delay by more than the 4-second operational deficiency threshold.

The remaining study intersections would continue to operate at acceptable levels of service during all three peak hours analyzed under background plus project conditions.

Year 2040 General Plan Conditions Intersection Level of Service Analysis

The results of the intersection level of service analysis under 2040 General Plan conditions show that the following intersections are projected to operate deficiently:

9. Camino Arroyo and Pacheco Pass Highway/SR 152 (LOS F – Sat peak-hour; **Project Deficiency**: Sat peak-hour)
16. Silacci Way and Pacheco Pass Highway/SR 152 (LOS F and peak-hour signal warrant met PM peak hour; **Project Deficiency**: PM peak-hour)

The addition of project traffic is projected to increase the intersection delay (or the worst approach delay) at the above two deficient intersections by more than 4 seconds during the noted peak hours. Therefore, based on the City of Gilroy definition of operational deficiencies at intersections, the project would contribute to an operational deficiency at the above two intersections under 2040 General Plan plus project conditions.

Table 8
Intersection Level of Service Results

Study Int. Number	Intersection	Intersection Control	LOS Standard	Peak Hour	Count Date	Existing Avg. Delay	Existing LOS	Existing Warrant Met?[1]	Background Avg. Delay	Background LOS	Background Warrant Met?[1]	Background Plus Project Avg. Delay	Background Plus Project LOS	Background Plus Project Delay Change[2]	Background Plus Project Warrant Met?[1]	2040 General Plan No Project Avg. Delay	2040 General Plan No Project LOS	2040 General Plan No Project Warrant Met?[1]	2040 General Plan Plus Project Avg. Delay	2040 General Plan Plus Project LOS	2040 General Plan Plus Project Delay Change[2]	2040 General Plan Plus Project Warrant Met?[1]
1	Arroyo Circle and Leavesley Road	Signal	D	AM	11/20/19	20.1	C	–	22.9	C	–	22.9	C	+0.0	–	18.7	B-	–	18.8	B-	+0.1	–
				PM	11/20/19	23.1	C	–	23.5	C	–	23.5	C	+0.0	–	23.8	C	–	23.7	C	-0.1	–
				SAT	11/7/20	**74.9**	**E**	–	**81.1**	**F**	–	**82.6**	**F**	**+1.5**	–	28.2	C	–	28.2	C	+0.0	–
2	US 101 NB Ramps/San Ysidro Ave and Leavesley Road	Signal	D	AM	10/17/19	26.2	C	–	26.5	C	–	26.5	C	+0.0	–	27.3	C	–	27.3	C	+0.0	–
				PM	10/17/19	29.0	C	–	29.6	C	–	29.5	C	-0.1	–	31.3	C	–	31.3	C	+0.0	–
				SAT	11/7/20	35.8	D	–	36.0	D	–	35.9	D	-0.1	–	40.5	D	–	40.6	D	+0.1	–
3	US 101 SB Ramps and Leavesley Road	Signal	D	AM	10/17/19	17.4	B	–	17.4	B	–	17.4	B	+0.0	–	19.0	B-	–	19.2	B-	+0.2	–
				PM	10/17/19	26.3	C	–	26.7	C	–	26.6	C	-0.1	–	20.9	C+	–	20.8	C+	-0.1	–
				SAT	7/22/17	30.8	C	–	31.0	C	–	31.0	C	+0.0	–	22.8	C+	–	22.8	C+	+0.0	–
4	Camino Arroyo and Sixth Street/Gilman Road	Signal	D	AM	11/5/20	19.5	B	–	19.5	B	–	19.5	B	+0.0	–	20.0	C+	–	20.2	C+	+0.2	–
				PM	11/5/20	31.3	C	–	32.0	C	–	32.3	C	+0.3	–	32.4	C-	–	34.6	C-	+2.2	–
				SAT	11/7/20	32.7	C	–	33.2	C	–	33.2	C	+0.0	–	35.0	D+	–	37.8	D+	+2.8	–
5	Frazier Lake Road and Pacheco Pass Highway (SR 152)	Signal	D	AM	1/23/18	15.2	B	–	16.0	B	–	16.4	B	+0.4	–	34.7	C-	–	35.2	D+	+0.5	–
				PM	1/23/18	7.0	A	–	7.3	A	–	7.4	A	+0.1	–	7.7	A	–	7.7	A	+0.0	–
				SAT	11/18/17	10.9	B	–	11.6	B	–	11.6	B	+0.0	–	12.9	B	–	13.0	B	+0.1	–
6	Holsclaw Road and Pacheco Pass Highway (SR 152)	One-Way Stop (Average Delay)	D	AM	1/23/18	0.2	A+	–	0.2	A+	–	0.2	A+	+0.0	–	0.3	A+	–	0.3	A+	+0.0	–
				PM	1/23/18	0.4	A+	–	0.5	A+	–	0.5	A+	+0.0	–	0.6	A+	–	0.6	A+	+0.0	–
				SAT	11/18/17	0.2	A+	–	0.2	A+	–	0.3	A+	+0.1	–	0.4	A+	–	0.4	A+	+0.0	–
		One-Way Stop (Worst Approach)	E	AM		20.8	C	No	23.8	C-	No	24.7	C-	+0.9	No	31.6	D	No	32.2	D-	+0.6	No
				PM		23.4	C-	No	30.8	D	No	32.1	D-	+1.3	No	44.8	E	No	44.0	E	-0.8	No
				SAT		29.6	D	No	33.7	D-	No	34.0	D-	+0.3	No	**66.5**	**F**	No	**64.1**	**F**	**-2.4**	No
7	Cameron Boulevard/Project Driveway B and Pacheco Pass Highway (SR 152)	Signal	D	AM	11/20/19	5.0	A	–	7.4	A	–	10.6	B	+3.2	–	17.6	B	–	19.1	B-	+1.5	–
				PM	11/5/20	7.8	A	–	14.6	B	–	24.9	C	+10.3	–	26.6	C	–	19.9	B-	-6.7	–
				SAT	11/7/20	7.3	A	–	8.5	A	–	18.5	B	+10.0	–	39.0	D	–	41.0	D	+2.0	–
8	Camino Arroyo and Renz Lane	Signal	D	AM	11/5/20	18.8	B	–	18.7	B	–	17.9	B	-0.8	–	16.3	B	–	15.9	B	-0.4	–
				PM	11/5/20	22.5	C	–	22.4	C	–	23.2	C	+0.8	–	26.7	C	–	26.2	C	-0.5	–
				SAT	11/7/20	37.9	D	–	37.9	D	–	38.2	D	+0.3	–	44.2	D	–	41.5	D	-2.7	–
9	Camino Arroyo and Pacheco Pass Highway (SR 152)	Signal	D	AM	5/7/19	23.8	C	–	19.7	B	–	20.4	C	+0.7	–	21.4	C+	–	22.1	C+	+0.7	–
				PM	5/7/19	29.7	C	–	33.2	C	–	35.2	D	+2.0	–	34.8	C-	–	34.6	C-	-0.2	–
				SAT	11/7/20	**59.8**	**E**	–	**67.8**	**E**	–	**72.8**	**E**	**+5.0**	–	**98.5**	**F**	–	**104.0**	**F**	**+5.5**	–
10	US 101 Northbound Ramps and Pacheco Pass Highway (SR 152)	Signal	D	AM	5/7/19	8.8	A	–	9.2	A	–	9.5	A	+0.3	–	11.5	B+	–	11.3	B+	-0.2	–
				PM	5/7/19	7.2	A	–	8.5	A	–	8.7	A	+0.2	–	12.8	B	–	12.8	B	+0.0	–
				SAT	9/7/19	10.7	B	–	11.0	B	–	11.2	B	+0.2	–	16.9	B	–	16.7	B	-0.2	–
11	US 101 Southbound Ramps and Tenth Street	Signal	D	AM	5/7/19	19.4	B	–	20.1	C	–	20.9	C	+0.8	–	20.6	C+	–	20.9	C+	+0.3	–
				PM	5/7/19	22.9	C	–	25.3	C	–	25.8	C	+0.5	–	22.4	C+	–	22.5	C+	+0.1	–
				SAT	9/7/19	27.3	C	–	28.2	C	–	28.7	C	+0.5	–	27.2	C	–	27.2	C	+0.0	–
12	Chestnut Street/Automall Parkway and Tenth Street	Signal	D	AM	5/7/19	31.3	C	–	29.9	C	–	29.8	C	-0.1	–	32.1	C-	–	32.3	C-	+0.2	–
				PM	5/7/19	34.3	C	–	33.7	C	–	33.7	C	+0.0	–	36.2	D+	–	36.0	D+	-0.2	–
				SAT	9/7/19	32.1	C	–	32.1	C	–	32.0	C	-0.1	–	34.2	C-	–	34.1	C-	-0.1	–
13	Monterey Road and Tenth Street	Signal	D	AM	5/7/19	22.7	C	–	21.5	C	–	21.6	C	+0.1	–	23.6	C	–	23.5	C	-0.1	–
				PM	9/5/19	27.4	C	–	27.5	C	–	27.8	C	+0.3	–	29.3	C	–	29.2	C	-0.1	–
				SAT	9/7/19	29.1	C	–	28.3	C	–	28.5	C	+0.2	–	32.2	C-	–	32.2	C-	+0.0	–
14	Monterey Road and Luchessa Avenue	Signal	D	AM	11/5/19	20.9	C	–	21.4	C	–	21.6	C	+0.2	–	29.6	C	–	30.1	C	+0.5	–
				PM	9/5/19	30.9	C	–	33.2	C	–	33.2	C	+0.0	–	39.2	D	–	39.4	D	+0.2	–
				SAT	9/7/19	21.2	C	–	21.8	C	–	21.9	C	+0.1	–	25.4	C	–	25.4	C	+0.0	–
15	Gilroy Foods and Pacheco Pass Highway (SR 152)	Signal	D	AM	11/5/20	9.1	A	–	9.1	A	–	9.0	A	-0.1	–	8.5	A	–	8.5	A	+0.0	–
				PM	11/5/20	10.2	B	–	10.8	B	–	10.9	B	+0.1	–	9.4	A	–	9.4	A	+0.0	–
				SAT	11/7/20	5.5	A	–	3.2	A	–	3.2	A	+0.0	–	5.0	A	–	5.0	A	+0.0	–
16	Silacci Way and Pacheco Pass Highway (SR 152)	One-Way Stop (Average Delay)	D	AM	11/5/20	0.2	A+	–	0.2	A+	–	0.2	A+	+0.0	–	0.6	A+	–	0.5	A+	-0.1	–
				PM	11/5/20	0.4	A+	–	0.8	A+	–	0.9	A+	+0.1	–	3.3	A+	–	4.2	A	+0.9	–
				SAT	11/7/20	0.1	A+	–	0.1	A+	–	0.1	A+	+0.0	–	1.5	A+	–	1.7	A+	+0.2	–
		One-Way Stop (Worst Approach)	E	AM		17.3	C+	No	35.7	E+	No	36.9	E+	+1.2	No	39.5	E+	No	35.2	E+	-4.3	No
				PM		27.3	D+	No	**90.3**	**F**	No	**105.7**	**F**	**+15.4**	No	**81.3**	**F**	**Yes**	**107.9**	**F**	**+26.6**	**Yes**
				SAT		12.4	B	No	13.2	B	No	13.5	B-	+0.3	No	42.6	E	**Yes**	49.1	E-	+6.5	**Yes**

Notes:
[1] Signal warrant analysis based on the Peak Hour Signal Warrant #3, Figure 4C Caltrans MUTCD, 2014. Signal warrant analysis is not applicable to signalized intersections.
[2] Change in delay, expressed in seconds, for background plus project conditions is measured relative to background conditions.
Change in delay for General Plan plus project conditions is measured relative to General Plan no project conditions.
Entries denoted in **bold** indicate conditions that exceed the City's current level of service standard.
☐ - Denotes project deficiency based on City of Gilroy criteria.

Freeway Segment Analysis

The City is still required to conform to the requirements of the Valley Transit Authority (VTA) which establishes a uniform program for evaluating the transportation impacts of land use decisions on the designated CMP Roadway System. The VTA's Congestion Management Program (CMP) has yet to adopt and implement guidelines and standards for the evaluation of the CMP roadway system using VMT. Therefore, the effects of the proposed project on freeway segments in the vicinity of the project area following the current methodologies as outlined in the *VTA Transportation Impact Analysis Guidelines*, was completed.

The results of the freeway level of service analysis under existing and existing plus project conditions are summarized in Table 9.

Freeway Segment Level of Service Results

Existing AM and PM peak hour traffic volumes, average speeds, and densities for the subject freeway segments were obtained from the Santa Clara Valley Transportation Authority CMP Monitoring & Conformance Report, 2018, which was the latest available monitoring report at the time the traffic analysis was prepared. Since the CMP report does not include Saturday peak-hour information, Saturday peak-hour volumes on the study freeway segments were derived by calculating a factor between Saturday peak-hour freeway count data for various of the study segments obtained from Caltrans and the CMP PM counts. The derived factor was applied to the CMP PM peak-hour counts for each study freeway segment to estimate Saturday peak-hour freeway counts. Similarly, Saturday average freeway speeds were interpolated from the AM and PM peak hour volumes and speeds.

The results of the freeway segment level of service analysis show that the following two study freeway segments currently operate at an unacceptable LOS F during at least one of the peak hours:

6. US 101, Northbound from Masten Avenue to San Martin Avenue (Saturday peak-hour)
11. US 101, Southbound from Monterey Road to Bloomingfield Avenue (SR 25) (PM and Saturday peak hours)

The proposed project is not projected to add traffic representing one percent (1%) or more of the segments' capacity to the deficient study freeway segments, therefore, the proposed project would not create a level of service deficiency at any of the study freeway segments.

Freeway Ramp Analysis

A freeway ramp analysis was conducted at the US 101 interchange at Tenth Street/Pacheco Pass Highway (SR 152), which provides access to the project site. The analysis is based on calculated volume-to-capacity (V/C) ratios at the study freeway ramps.

Freeway Ramp Volumes

Peak-hour ramp volumes were interpolated from turning-movement traffic volumes at the adjacent ramp intersections.

Freeway Ramp Capacities

The study freeway off-ramps consist of one or two lanes at the point where they diverge from the freeway mainline and some widen to multiple lanes at the off-ramp intersection. For this ramp analysis,

Table 9
Freeway Segment Level of Service Results

#	Freeway	Segment	Direction	Peak Hour	Existing Plus Project Speed[1] (mi/hr)	# of Lanes[1]	Capacity (vph)	Volume[1] (pc/h)	Density (pc/mi/ln)	LOS	Project Trip Volume (vph)	% of Capacity	Adverse Effect?
1	US 101	from Betabel Road to Bloomfield Avenue (SR 25)	NB	AM	38	2	4,400	3,796	50	E	37	0.84	No
			NB	PM	58	2	4,400	3,767	33	D	8	0.18	No
			NB	SAT	48	2	4,400	4,515	47	E	4	0.09	No
2	US 101	from Bloomfield Avenue (SR 25) to Monterey Road	NB	AM	36	2	4,400	3,728	51	E	37	0.84	No
			NB	PM	42	2	4,400	3,889	46	D	8	0.18	No
			NB	SAT	44	2	4,400	3,729	43	D	4	0.09	No
3	US 101	from Monterey Road to Pacheco Pass Highway	NB	AM	64	3	6,900	4,333	23	C	37	0.54	No
			NB	PM	63	3	6,900	4,546	24	C	8	0.12	No
			NB	SAT	66	3	6,900	4,360	22	C	4	0.06	No
4	US 101	from Pacheco Pass Highway to Leavesley Road	NB	AM	59	3	6,900	5,575	32	D	14	0.20	No
			NB	PM	59	3	6,900	5,538	31	D	82	1.19	No
			NB	SAT	61	3	6,900	5,403	30	D	56	0.81	No
5	US 101	from Leavesley Road to Masten Avenue	NB	AM	40	3	6,900	5,769	48	E	14	0.20	No
			NB	PM	57	3	6,900	5,828	34	D	82	1.19	No
			NB	SAT	46	3	6,900	7,182	52	E	56	0.81	No
6	US 101	from Masten Avenue to San Martin Avenue	NB	AM	34	3	6,900	5,425	53	E	14	0.20	No
			NB	PM	52	3	6,900	6,039	39	D	82	1.19	No
			NB	SAT	41	3	6,900	7,562	**61**	**F**	56	0.81	No
7	US 101	from San Martin Avenue to Masten Avenue	SB	AM	60	3	6,900	5,441	30	D	94	1.36	No
			SB	PM	38	3	6,900	5,669	50	E	41	0.59	No
			SB	SAT	39	3	6,900	5,442	46	D	39	0.57	No
8	US 101	from Masten Avenue to Leavesley Road	SB	AM	67	3	6,900	2,694	13	B	94	1.36	No
			SB	PM	66	3	6,900	5,551	28	D	41	0.59	No
			SB	SAT	66	3	6,900	5,439	27	D	39	0.57	No
9	US 101	from Leavesley Road to Pacheco Pass Highway	SB	AM	64	3	6,900	4,475	23	C	94	1.36	No
			SB	PM	59	3	6,900	5,511	31	D	41	0.59	No
			SB	SAT	62	3	6,900	5,236	28	D	39	0.57	No
10	US 101	from Pacheco Pass Highway to Monterey Road	SB	AM	64	3	6,900	4,211	22	C	5	0.07	No
			SB	PM	30	3	6,900	5,165	57	E	33	0.48	No
			SB	SAT	31	3	6,900	5,086	55	E	5	0.07	No
11	US 101	from Monterey Road to Bloomfield Avenue (SR 25)	SB	AM	62	2	4,400	3,301	27	D	5	0.11	No
			SB	PM	21	2	4,400	2,815	**68**	**F**	33	0.75	No
			SB	SAT	22	2	4,400	2,648	**60**	**F**	5	0.11	No
12	US 101	from Bloomfield Avenue (SR 25) to Betabel Road	SB	AM	62	2	4,400	3,208	26	C	5	0.11	No
			SB	PM	58	2	4,400	3,748	32	D	33	0.75	No
			SB	SAT	49	2	4,400	4,426	45	D	5	0.11	No

[1] Information for the AM and PM peak hours were obtained from the Santa Clara Valley Transportation Authority Congestion Management Program Monitoring Study, 2018. Average speed for the Saturday peak-hour was interpolated from the AM and PM peak hour volumes and speeds. Saturday peak-hour volumes on the study freeway segments were derived by calculating a factor between PM and Saturday peak-hour freeway count data for various of the study segments obtained from Caltrans, and applying this factor to the CMP PM peak-hour counts for each study freeway segment. This volume includes the proposed project trips.

Bold indicates unacceptable LOS.

the ramp capacity for the off-ramps is dictated by the number of lanes at the ramps' diverging point from the freeway mainline, since this is the location that dictates how much traffic exits the freeway.

The study on-ramps consist of one or two mixed-flow lanes with or without a separate HOV lane and are controlled by a ramp meter during the peak hours in the peak commute direction only (northbound in the morning and southbound in the evening). All multiple-lane on-ramps studied narrow to a single lane after the ramp meter before the freeway merge point. For metered on-ramps, the constraint point is at the meter. For non-metered on-ramps, the constraint point is at the ramps' merging point with the freeway.

The typical capacity for a diagonal freeway ramp is 1,800 vehicles per hour per lane (vphpl). Loop ramps have a typical capacity of 1,600 vphpl. For metered on-ramps, the capacity depends on the ramp meter rate. Freeway ramp meter rates for the study on-ramps were assumed to be 900 vph (maximum allowable rate per ramp in Caltrans District 4).

Freeway Ramp Configurations

The *US 101 at Tenth Street/Pacheco Pass Highway (SR 152)* interchange consists of a full-access partial cloverleaf interchange and includes the following ramps:

- US 101 southbound diagonal off-ramp (SB off-ramp) – this ramp is controlled by a traffic signal on Tenth Street and consists of two lanes where it diverges from the freeway main line, for a total capacity of 3,600 vph.
- US 101 southbound diagonal on-ramp (SB on-ramp) – this ramp is controlled by a ramp meter during the PM peak hour only and narrows down to a single lane after the meter to the freeway merging point. The capacity of the ramp is as follows:
  - AM peak hour (unmetered) – 1,800 vph
  - PM peak hour (metered) – 900 vph
- US 101 southbound loop on-ramp (SB loop on-ramp) – this ramp is controlled by a ramp meter during the PM peak hour only and narrows down to a single lane after the meter to the freeway merging point. The capacity of the ramp is as follows:
  - AM peak hour (unmetered) – 1,600 vph
  - PM peak hour (metered) – 900 vph
- US 101 northbound diagonal off-ramp (NB off-ramp) – this ramp is controlled by a traffic signal on Pacheco Pass Highway and consists of one lane where it diverges from the freeway main line, for a total capacity of 1,800 vph.
- US 101 northbound diagonal on-ramp (NB on-ramp) – this ramp is controlled by a ramp meter during the AM peak hour only and narrows down to a single lane after the meter to the freeway merging point. The capacity of the ramp is as follows:
  - AM peak hour (metered) – 900 vph
  - PM peak hour (unmetered) – 1,800 vph
- US 101 northbound loop on-ramp (NB loop on-ramp) – this ramp is controlled by a ramp meter during the AM peak hour only and narrows down to a single lane after the meter to the freeway merging point. The capacity of the ramp is as follows:
  - AM peak hour (metered) – 900 vph
  - PM peak hour (unmetered) – 1,600 vph

Freeway Ramp Analysis Results

The results of the freeway ramp analysis under existing and background plus project conditions are described below and summarized in Table 10.

Based on the calculated V/C ratios, all of the study freeway ramps currently operate at acceptable levels. Under background plus project conditions, based on the ramp capacities and traffic volume projections, it is projected that all of the study freeway ramps would continue to operate at acceptable levels.

Intersection Operations Analysis

The analysis of the intersection levels of service was supplemented with an analysis of intersection operations for selected intersections. The intersection operations analysis is an important component of the process to evaluate traffic conditions at an intersection. Although calculated levels of service may appear adequate at some locations, traffic operations problems caused by inadequate storage space for vehicle queues could prevent the intersection from ever realizing the calculated level of service. When inadequate storage space becomes an issue, queues in one turn movement might spill into an adjacent lane and block traffic in that lane from proceeding through the intersection.

Vehicle queues were estimated using a Poisson probability distribution. Key intersections where the project is anticipated to add more than 10 peak-hour trips per lane to the left-turn movement were selected for evaluation. Additionally, locations where the project would add a significant amount trips to the right-turn movement also were included. The adequacy of the queue storage capacity for the following intersection movements was evaluated in this analysis:

1. Arroyo Circle and Leavesley Road – Northbound left-turn movement
4. Camino Arroyo and Sixth Street/Gilman Road – Northbound left-turn movement
7. Cameron Boulevard (Project Driveway) and SR 152 – Eastbound and Westbound left-turn movements
8. Camino Arroyo and Renz Lane – Southbound and Westbound left-turn movements; Northbound right-turn movement
9. Camino Arroyo and SR 152 – Southbound and Eastbound left-turn movements; Southbound and Westbound right-turn movements
10. US 101 NB Off-Ramp and SR 152 – Northbound right-turn movement
11. US 101 SB Off-Ramp and Tenth Street – Southbound left-turn movement

The operations analysis results under background plus project conditions are summarized in Table 11. The intersection queue calculation sheets are included in Appendix G.

Intersection Operations Analysis Results

The results of the queue analysis show that projected queue lengths for the following turn-movements would exceed the available queue storage capacity during at least one of the study peak hours:

4. Camino Arroyo and Sixth Street/Gilman Road – Northbound left-turn movement

The maximum queue length for the northbound left-turn movement at the *Camino Arroyo/Sixth Street/Gilman Road* intersection is projected to exceed the existing queue storage capacity for this movement during the PM and Saturday peak hours under existing, background, and background plus project conditions. However, the addition of project traffic to this turn-movement is not projected to increase the 95th percentile vehicle queue length from background conditions. Therefore, the project would not affect the projected deficiency for this movement.

Table 10
Freeway Ramp Analysis Results

					Existing					Background Plus Project				
Interchange/Ramp	Peak Hour	Ramp Type	Ramp Type	Constraint Point[1]	Control	Volume[3] (vph)	Capacity[2] (vph)	V/C	LOS	Control	Volume (vph)	Capacity[2] (vph)	V/C	LOS
US 101 at Tenth Street/Pacheco Pass Highway (SR 152)														
Southbound Off-Ramp	AM	Diagonal	Off	2	Signal	743	3,600	0.206	A	Signal	1,028	3,600	0.286	A
	PM				Signal	1,417	3,600	0.394	A	Signal	1,700	3,600	0.472	A
	SAT				Signal	1,304	3,600	0.362	A	Signal	1,472	3,600	0.409	A
Southbound On-Ramp	AM	Loop	On	1	Meter-Off	125	1,600	0.078	A	Meter-Off	159	1,600	0.099	A
	PM				Meter-On	331	900	0.368	A	Meter-On	518	900	0.576	A
	SAT				Meter-Off	418	1,600	0.261	A	Meter-Off	457	1,600	0.286	A
Northbound Off-Ramp	AM	Diagonal	Off	1	Signal	377	1,800	0.209	A	Signal	547	1,800	0.304	A
	PM				Signal	329	1,800	0.183	A	Signal	448	1,800	0.249	A
	SAT				Signal	594	1,800	0.330	A	Signal	640	1,800	0.356	A
Northbound On-Ramp	AM	Diagonal	On	1	Meter-On	609	900	0.677	B	Meter-On	667	900	0.741	C
	PM				Meter-Off	688	1,800	0.382	A	Meter-Off	953	1,800	0.529	A
	SAT				Meter-Off	920	1,800	0.511	A	Meter-Off	1,023	1,800	0.568	A

Notes:
1. The constraint point of a ramp is the location on the ramp that dictates how much traffic enters/exits the freeway. The constraint point determines the ramp's capacity.
   For freeway off-ramps, the constraint point is at the ramp's diverging point from the freeway mainline.
   For non-metered on-ramps, the constraint point is at the ramp's merging point with the freeway.
   For metered on-ramps, the constraint point is at the meter.
2. Typical capacities for diagonal and loop ramps are 1,800 and 1,600 vehicles per hour per lane (vphpl), respectively.
   The capacity for non-metered ramps is determined based on the number of lanes at the ramp's constraint point.
   The capacity for metered on-ramps was assumed to be 900 vph (Caltrans District 4 maximum meter rate).
3. Existing ramp volumes were interpolated from existing peak-hour turn-movement counts at the ramp intersections.
   The ramp level of service corresponds to the calculated ramp V/C ratios.

Table 11
Intersection Vehicle Queue Analysis

Measurement	1. Arroyo Circle/ Leavesley Rd			4. Camino Arroyo/ Sixth St (Gilman)			7. Cameron Boulevard(Project Driveway)/ SR 152						8. Camino Arroyo/ Renz Lane								
	NBL AM	NBL PM	NBL SAT	NBL AM	NBL PM	NBL SAT	EBL AM	EBL PM	EBL SAT	WBL AM	WBL PM	WBL SAT	SBL AM	SBL PM	SBL SAT	WBL AM	WBL PM	WBL SAT	NBR AM	NBR PM	NBR SAT
Existing Conditions																					
Cycle/Delay[1] (sec)	100	90	100	60	95	90				60	60	60	60	70	120	60	70	120	60	70	120
Lanes	2	2	2	1	1	1				1	1	1	1	1	1	2	2	2	1	1	1
Volume (vph)	175	658	819	78	266	316				14	23	33	11	78	164	143	66	406	29	92	110
Volume (vphpl)	88	329	410	78	266	316				14	23	33	11	78	164	71	33	203	29	92	110
Avg. Queue (veh/ln.)	2	8	11	1	7	8				0	0	1	0	2	5	1	1	7	0	2	4
Avg. Queue[2] (ft./ln)	61	206	284	33	176	198				6	10	14	5	38	137	30	16	169	12	45	91
95th %. Queue (veh/ln.)	5	13	17	3	12	13				1	2	2	1	4	10	3	2	11	2	4	7
95th %. Queue (ft./ln)	125	325	425	75	300	325				25	50	50	25	100	250	75	50	275	50	100	175
Storage (ft./ ln.)	635	635	635	200	200	200				475	475	475	250	250	250	425	425	425	200	200	200
Adequate (Y/N)	YES	YES	YES	YES	NO	NO				YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Background Conditions																					
Cycle/Delay[1] (sec)	100	90	100	60	95	90				60	60	60	60	70	120	60	70	120	60	70	120
Lanes	2	2	2	1	1	1				1	1	1	1	1	1	2	2	2	1	1	1
Volume (vph)	179	677	851	78	266	318				67	63	41	11	78	164	143	66	406	29	92	110
Volume (vphpl)	90	339	426	78	266	318				67	63	41	11	78	164	71	33	203	29	92	110
Avg. Queue (veh/ln.)	2	8	12	1	7	8				1	1	1	0	2	5	1	1	7	0	2	4
Avg. Queue[2] (ft./ln)	62	212	295	33	176	199				28	26	17	5	38	137	30	16	169	12	45	91
95th %. Queue (veh/ln.)	5	13	18	3	12	13				3	3	2	1	4	10	3	2	11	2	4	7
95th %. Queue (ft./ln)	125	325	450	75	300	325				75	75	50	25	100	250	75	50	275	50	100	175
Storage (ft./ ln.)	635	635	635	200	200	200				475	475	475	250	250	250	425	425	425	200	200	200
Adequate (Y/N)	YES	YES	YES	YES	NO	NO				YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Background Plus Project Conditions																					
Cycle/Delay[1] (sec)	100	90	100	60	95	90	80	80	80	60	60	60	60	70	120	60	70	120	60	70	120
Lanes	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1
Volume (vph)	183	704	858	80	281	318	3	27	64	70	85	41	60	88	167	153	103	439	151	123	121
Volume (vphpl)	92	352	429	80	281	318	3	27	64	70	85	41	60	88	167	76	52	220	151	123	121
Avg. Queue (veh/ln.)	3	9	12	1	7	8	0	1	1	1	1	1	1	2	6	1	1	7	3	2	4
Avg. Queue[2] (ft./ln)	64	220	298	33	186	199	2	15	36	29	35	17	25	43	139	32	25	183	63	60	101
95th %. Queue (veh/ln.)	5	14	18	3	12	13	1	2	4	3	4	2	3	4	10	3	3	12	5	5	8
95th %. Queue (ft./ln)	125	350	450	75	300	325	25	50	100	75	100	50	75	100	250	75	75	300	125	125	200
Storage (ft./ ln.)	635	635	635	200	200	200	475	475	475	475	475	475	250	250	250	425	425	425	200	200	200
Adequate (Y/N)	YES	YES	YES	YES	NO	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Note: Vehicle queue calculated using the Poisson probability distribution and 95-percent confidence level.
NB = Northbound, SB = Southbound, EB = Eastbound, WB = Westbound, R = Right, T = Through, L = Left.
Right-turn movements with overlapping protected left-turn phasing were adjusted manually to account for the right-turns on red.
[1] Vehicle queue calculations based on cycle length for signalized intersections and control delay for unsignalized intersections.
[2] Assumes 25 feet per vehicle in the queue.

Table 11 (continued)
Intersection Vehicle Queue Analysis

	9. Camino Arroyo/ SR 152												10. US 101 NB Off-Ramp/ SR 152			11. US 101 SB Off-Ramp/Tenth		
Measurement	**SBL AM**	**SBL PM**	**SBL SAT**	**SBR AM**	**SBR PM**	**SBR SAT**	**EBL AM**	**EBL PM**	**EBL SAT**	**WBR AM**	**WBR PM**	**WBR SAT**	**NBR AM**	**NBR PM**	**NBR SAT**	**SBL AM**	**SBL PM**	**SBL SAT**
Existing Conditions																		
Cycle/Delay[1] (sec)	100	100	180	100	100	180	100	100	180	100	100	180	65	85	75	125	125	150
Lanes	2	2	2	1	1	1	2	2	2	1	1	1	2	2	2	2	2	2
Volume (vph)	72	300	225	143	312	547	346	520	845	110	48	109	260	221	468	405	910	922
Volume (vphpl)	36	150	113	143	312	547	173	260	423	110	48	109	130	111	234	203	455	461
Avg. Queue (veh/ln.)	1	4	6	4	9	27	5	7	21	3	1	5	2	3	5	7	16	19
Avg. Queue[2] (ft./ln)	25	104	141	99	217	684	120	181	528	76	33	136	59	65	122	176	395	480
95th %. Queue (veh/ln.)	3	8	10	7	14	36	9	12	29	6	3	10	5	5	9	12	23	27
95th %. Queue (ft./ln)	75	200	250	175	350	900	225	300	725	150	75	250	125	125	225	300	575	675
Storage (ft./ ln.)	475	475	475	650	650	650	600	600	600	175	175	175	300	300	300	950	950	950
Adequate (Y/N)	YES	YES	YES	YES	YES	**NO**	YES	YES	**NO**	YES	YES	**NO**	YES	YES	YES	YES	YES	YES
Background Conditions																		
Cycle/Delay[1] (sec)	100	100	180	100	100	180	100	100	180	100	100	180	65	85	75	125	125	150
Lanes	2	2	2	1	1	1	2	2	2	1	1	1	2	2	2	2	2	2
Volume (vph)	91	314	228	155	342	570	360	541	859	108	61	113	374	309	490	541	1022	952
Volume (vphpl)	46	157	114	155	342	570	180	271	430	108	61	113	187	155	245	271	511	476
Avg. Queue (veh/ln.)	1	4	6	4	10	29	5	8	21	3	2	6	3	4	5	9	18	20
Avg. Queue[2] (ft./ln)	32	109	143	108	238	713	125	188	537	75	42	141	84	91	128	235	444	496
95th %. Queue (veh/ln.)	3	8	10	8	15	38	9	12	29	6	4	10	7	7	9	15	25	27
95th %. Queue (ft./ln)	75	200	250	200	375	950	225	300	725	150	100	250	175	175	225	375	625	675
Storage (ft./ ln.)	475	475	475	650	650	650	600	600	600	175	175	175	300	300	300	950	950	950
Adequate (Y/N)	YES	YES	YES	YES	YES	**NO**	YES	YES	**NO**	YES	YES	**NO**	YES	YES	YES	YES	YES	YES
Background Plus Project Conditions																		
Cycle/Delay[1] (sec)	100	100	180	100	100	180	100	100	180	100	100	180	65	85	75	125	125	150
Lanes	2	2	2	1	1	1	2	2	2	1	1	1	2	2	2	2	2	2
Volume (vph)	94	319	235	164	412	632	512	586	881	116	63	119	411	317	494	635	1063	991
Volume (vphpl)	47	160	118	164	412	632	256	293	441	116	63	119	206	159	247	318	532	496
Avg. Queue (veh/ln.)	1	4	6	5	11	32	7	8	22	3	2	6	4	4	5	11	18	21
Avg. Queue[2] (ft./ln)	33	111	147	114	286	790	178	203	551	81	44	149	93	94	129	276	461	516
95th %. Queue (veh/ln.)	3	8	10	8	17	41	12	13	30	6	4	10	7	7	9	17	26	28
95th %. Queue (ft./ln)	75	200	250	200	425	1025	300	325	750	150	100	250	175	175	225	425	650	700
Storage (ft./ ln.)	475	475	475	650	650	650	600	600	600	175	175	175	300	300	300	950	950	950
Adequate (Y/N)	YES	YES	YES	YES	YES	**NO**	YES	YES	**NO**	YES	YES	**NO**	YES	YES	YES	YES	YES	YES

Note: Vehicle queue calculated using the Poisson probability distribution and 95-percent confidence level.
NB = Northbound, SB = Southbound, EB = Eastbound, WB = Westbound, R = Right, T = Through, L = Left.
Right-turn movements with overlapping protected left-turn phasing were adjusted manually to account for the right-turns on red.
[1] Vehicle queue calculations based on cycle length for signalized intersections and control delay for unsignalized intersections.
[2] Assumes 25 feet per vehicle in the queue.

9. Camino Arroyo and SR 152 –

Southbound right-turn movement

The maximum queue length for the southbound right-turn movement at the *Camino Arroyo/SR 152* intersection is projected to exceed the existing queue storage capacity for this movement during the Saturday peak-hour under existing, background, and background plus project conditions. The addition of project traffic to this turn-movement is projected to increase the 95th percentile vehicle queue length by three vehicles (75 feet) from background conditions during the Saturday peak-hour, exceeding the available storage capacity by a total of 15 vehicles (375 feet). This is considered a project deficiency, according to the City of Gilroy definition of queue deficiencies.

Eastbound left-turn movement

The maximum queue length for the eastbound left-turn movement at the *Camino Arroyo/SR 152* intersection is projected to exceed the existing queue storage capacity for this movement during the Saturday peak-hour under existing, background, and background plus project conditions. The addition of project traffic to this turn-movement is projected to increase the 95th percentile vehicle queue length by one vehicle (25 feet) per lane from background conditions during the Saturday peak-hour, exceeding the available storage capacity by a total of 6 vehicles (150 feet) per lane. This is considered a project deficiency, according to the City of Gilroy definition of queue deficiencies.

Westbound right-turn movement

The maximum queue length for the westbound right-turn movement at the *Camino Arroyo/SR 152* intersection is projected to exceed the existing queue storage capacity for this movement during the Saturday peak-hour under existing, background, and background plus project conditions. The available storage capacity of 175 feet would be exceeded by a total of 3 vehicles (75 feet). However, the addition of project traffic to this turn-movement is not projected to increase the 95th percentile vehicle queue length from background conditions. Therefore, the project would not affect the projected deficiency for this movement.

Projected Deficiencies and Possible Improvements

Described below are deficiencies that are projected to occur with implementation of the proposed project. The project's contribution to the projected deficiencies and/or possible improvements to improve operating conditions also are described below.

9. Camino Arroyo and Pacheco Pass Highway/SR 152 – Level of Service Deficiency: Background Plus Project and 2040 General Plan Plus Project Conditions

This City of Gilroy signalized intersection is projected to operate at unacceptable LOS E during the Saturday peak-hour under background conditions and the addition of project traffic would cause the intersection average delay to increase by 4 or more seconds. This is considered a project deficiency based on the definition of operational deficiencies at signalized intersections identified in the City of Gilroy General Plan Transportation Policies.

The projected deficiency at this intersection could be improved with the implementation of a second southbound right-turn lane. A second right-turn lane would provide the additional capacity needed to serve the projected southbound right-turn movement volumes, projected to be the heaviest movement of the intersection during the Saturday peak-hour. The doble right-turn lanes could be designed to feed directly into the US 101 northbound on-ramp and Tenth Street, with the outer right-turn lane (curb lane) becoming a trap lane to the freeway and the second right-turn lane having the option to continue onto the freeway on-ramp or merge into the westbound through lane (similar to the operations of the existing southbound right-turn lane and corresponding receiving lane). The southbound right-turn lanes would begin south of the Best Buy driveway along Camino Arroyo, similar to the existing right-turn lane. Westbound through traffic from the intersection heading to the US 101 northbound on-ramp would continue to merge with traffic in the second receiving lane, similar to today's operations. Adding a second southbound right-turn lane would require widening of the north side of Pacheco Pass Highway, west of Camino Arroyo, (and potentially the west side of Camino Arroyo, north of SR 152) to provide the necessary right-of-way for the second receiving lane. Adequate merging distance also must be provided for westbound through traffic and southbound right-turn traffic to merge in and out of the second receiving lane while accessing the US 101 northbound on ramp and the westbound through lanes. With implementation of these improvements, the intersection level of service would improve to acceptable LOS D during the Saturday peak-hour.

It should be noted that the addition of a second southbound right-turn lane is necessary to improve operating conditions at the intersection to acceptable levels. However, due to the close proximity of this intersection with the US 101 northbound on-ramp, and the merging of traffic between the westbound through lanes and the southbound right-turn receiving lane, which feeds into the freeway on-ramp, operations at the merging point between the westbound through and southbound right-turn traffic may affect projected operational levels of the doble right-turn lanes. Therefore, additional analysis would be required to verify the feasibility of these improvements, including drawings of the potential improvements and a more detailed evaluation of the intersection's operations with the use of a simulation software. If the additional analysis shows that implementing the second southbound right-turn lane is not feasible, additional or alternative improvements would be required, such as extending the westbound merging distance by reconfiguring the US 101 northbound on-ramp/interchange or by grade separation of the intersection.

16. Silacci Way and Pacheco Pass Highway/SR 152 – Level of Service Deficiency: 2040 General Plan Plus Project Conditions

This City of Gilroy unsignalized intersection is projected to operate deficiently (average delays corresponding to LOS F on its highest-delay approach) and its peak-hour traffic volume would be high enough to meet the thresholds that warrant installation of a traffic signal during the PM peak-hour under 2040 General Plan plus project conditions. The addition of project traffic to this intersection would cause the worst approach delay to increase by 4 or more seconds during PM peak-hour. The projected deficiency at this intersection is caused cumulatively by the proposed project and buildout of all other development projects included in the City of Gilroy General Plan.

The projected deficiency at this intersection could be improved with the installation of a traffic signal or by restricting left-turn access to and from Silacci Way. The projected deficiency would be caused cumulatively by the proposed project and all other development projects that are part of the 2040 General Plan buildout conditions. Therefore, the project is required to pay the applicable traffic impact fee (TIF) as a fair-share contribution toward future improvements that would restore operations at the intersection to acceptable levels.

9. Camino Arroyo and Pacheco Pass Highway/SR 152 – Queue Deficiency (Southbound Right-Turn)

The addition of project traffic to the southbound right-turn movement at the *Camino Arroyo/SR 152* intersection would cause the projected 95th percentile vehicle queue to increase by 3 vehicles (to 41 vehicles, or 1,025 feet) during the Saturday peak-hour under background plus project conditions, exceeding the existing queue storage capacity (approximately 650 feet) by 15 vehicles (approximately 375 feet).

The project deficiency at this intersection could be improved with the addition of a second southbound right-turn lane. The addition of a second southbound right-turn lane would require widening of the north side of Pacheco Pass Highway, west of Camino Arroyo, (and potentially the west side of Camino Arroyo, north of SR 152) to provide the necessary right-of-way for the second receiving lane. This improvement also has been identified as a potential improvement for the level of service deficiency at this intersection.

9. Camino Arroyo and Pacheco Pass Highway/SR 152 – Queue Deficiency (Eastbound Left-Turn)

The addition of project traffic to the eastbound left-turn movement at the *Camino Arroyo/SR 152* intersection would cause the projected 95th percentile vehicle queue to increase by 1 vehicle per lane (to 30 vehicles per lane, or 750 feet) during the Saturday peak-hour under background plus project conditions, exceeding the existing queue storage capacity (approximately 600 feet) by 6 vehicles (150 feet) per lane.

The project deficiency at this intersection could be improved with the addition of a third eastbound left-turn lane. Providing a third eastbound left-turn lane would require the widening of the south side of Pacheco Pass Highway/SR 152 and the east side of Camino Arroyo to accommodate a third eastbound left-turn lane and the corresponding receiving lane in the northbound direction of Camino Arroyo. If the addition of a third eastbound left-turn lane is not feasible, additional or alternative improvements would be required, such as the extension of the existing eastbound left-turn pockets (to the maximum extent possible), reconfiguration of the US 101/Tenth Street/SR 152 interchange and Camino Arroyo/SR 152 intersection, or grade separation of the intersection.

5.
Other Transportation Issues

Other transportation issues such as site access and on-site circulation review, parking, and the effects of the project on bicycle, pedestrian, and transit facilities are discussed within this chapter. An evaluation of an alternative site access consisting of providing left-turn inbound access from Pacheco Pass Highway/SR 152 to the industrial site also is presented within this chapter.

Other issues related to transportation were evaluated to determine if any deficiencies would exist under project conditions that are not specifically linked to environmental impact reporting (CEQA) or roadway capacity analysis (level of service). The other transportation issues considered in this chapter include:

- Site access and on-site circulation
- Parking
- Alternative site access evaluation
- Potential impacts to bicycle, pedestrian, transit facilities

The analyses of other transportation related issues are based on professional judgment in accordance with the standards and methods employed by the traffic engineering community.

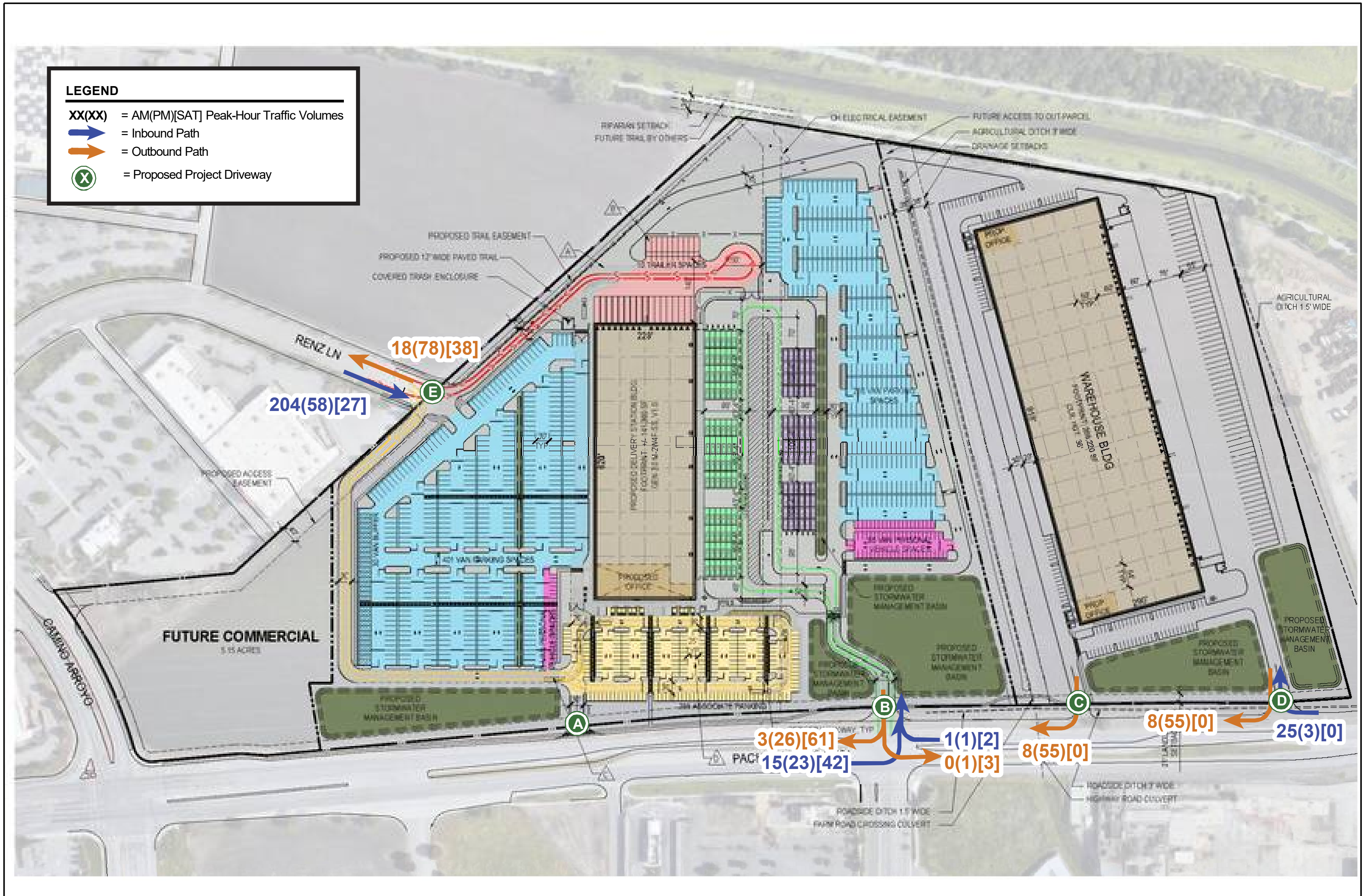
Project Site Access and On-Site Circulation

This analysis is based on a review of the project site plan, dated January 6, 2021. The site plan is presented on Figure 2 of this report.

Site Access

Access to the delivery station area would be provided via two driveways along Pacheco Pass Highway/SR 152 (labeled as Driveways A and B on Figure 15) and via Renz Lane. Project Driveway B would be located at the existing signalized intersection of Cameron Boulevard/SR 152, providing full access to the delivery station site. Driveway A would be located west of Cameron Boulevard and would provide right-in and out access only. Renz Lane is proposed to provide direct access to the project site's main access road, which provides direct access to the semi-truck docks located north of the delivery station building and the parking areas both east and west of the delivery station building. Additionally, the internal access road is proposed to be extended over the existing drainage channel currently dividing the delivery station and industrial sites to provide access to the industrial site area. On the west side of the delivery station site, the access road would extend along the perimeter of the site providing access to the van and associate parking areas as well as providing a future connection to the future commercial site at the northeast corner of the Camino Arroyo/SR 152 intersection.

Figure 15
Project Traffic at the Project Site Driveways



Access to the industrial site area is proposed to be provided via two right-in and out access driveways along Pacheco Pass Highway/SR 152 (labeled as Driveways C and D on Figure 15) in addition to the proposed Renz Lane/access road extension.

The City of Gilroy *General Guidelines* document, dated August 18, 2014, specifies that industrial and commercial driveways should have a minimum and maximum approach width of 35 and 45 feet, respectively. The site plan shows Driveways A, C, and D to be 30 feet wide each while Drive B is shown to be 42 feet wide. Although Driveways A, C, and D do not satisfy the City's minimum width requirements for commercial driveways, these driveways would provide two 15-foot-wide lanes, adequate for the limited right-in and out operations.

Operations at the Project Driveways

The proposed project is projected to add between 200-300 trips (both inbound and outbound) during the peak hours to all five site access points. Project traffic at the driveways was assigned based on its origin/destination, the existing roadway network, site layout, and project driveway locations and turn restrictions. Following this method, it is estimated that Renz Lane would serve 40 percent (%) or more of the total project traffic during the peak hours, as illustrated on Figure 15.

Traffic operations at the project driveways along SR 152 are discussed below.

Driveway B (Cameron Boulevard/SR 152 intersection)

The main project driveway along Pacheco Pass Highway/SR 152 would be located at the intersection of Cameron Boulevard and SR 152 (the project driveway would form the north leg of the existing T-intersection). This driveway (Driveway B) would provide direct access to the loading area as well as access to the parking area east of the delivery station building. The site plan shows Driveway B to be 42 feet wide and include three lanes, one inbound lane and two outbound lanes (one shared left-through lane and one right-turn lane). The proposed lane configuration at Driveway B would require the signal operations at this intersection to include split phasing in the northbound/southbound direction. Cameron Boulevard, opposing Driveway B, is approximately 100 feet wide and currently consists of two left-turn and two right turn-lanes with a middle striped median (right-of-way for future through lane), in addition to two receiving lanes in the southbound direction.

The level of service calculations at the intersection of Cameron Boulevard/Driveway B and SR 152 show that the intersection is projected to operate at acceptable LOS C or better during the peak hours under background plus project conditions. The queue analysis at the intersection also shows adequate queue storage capacity within the left-turn pockets on SR 152.

Recommendation: Drive B must be designed to meet Caltrans design standards, including aligning with Cameron Boulevard to the south. The lane configuration on the south leg of the intersection should dictate the width and lane configuration of the project site driveway. The alignment of the north and south legs of the intersection must ensure there is no conflict between the various movements at the intersection. A few of the intersection characteristics to consider during the design of this intersection include:

- The lane configuration and overall width of the driveway should be such that the northbound and southbound through lanes through the intersection line up from the approach side of the intersection to the departure side of the intersection.
- Left-turn movement out of Driveway B should not be in conflict with the left-turn movements from Cameron Boulevard so that these two movements can run simultaneously, if needed.

- Although the projected traffic volumes at this driveway during the peak hours are relatively low, it is recommended that the driveway lane configuration does not include a shared through and left-turn lane. Providing three outbound lanes (including an exclusive left-turn lane) at Driveway B is recommended in order to align the lanes at the driveway with the lanes on Cameron Boulevard and be able to run the intersection traffic signal as an 8-phase signal.
- In order to accommodate pedestrian access across SR 152 at this intersection, it is recommended that the north and south corners of the intersection line up to be able to provide a straight crosswalk across SR 152.
- The project driveway and intersection with Cameron Boulevard/SR 152 must be design to the satisfaction of Caltrans design standards. Any improvements to this intersection ultimately will have to be coordinated with and approved by Caltrans.

Right-In and Out Driveways on SR 152

The three remaining project driveways on Pacheco Pass Highway/SR 152 would provide right-in and out access only. All inbound project traffic at these driveways would come from the east on SR 152 and would be relatively low that no operational issues are anticipated for inbound traffic at these driveways.

Sight Distance

Adequate sight distance should be provided at the project driveways. Outbound traffic at the driveways must be able to see opposing traffic in order to safely complete a turn out of the site. All project site driveways along SR 152 would be located along a straight roadway segment with minimal visual obstruction.

The posted speed limit on SR 152 along the project site frontage is 40 miles per hour (mph). According to the Caltrans *Highway Design Manual*, the minimum required stopping sight distance for a roadway with a posted speed limit of 40 mph is 300 feet. The sight distance from the proposed driveways on SR152 to the east would be well beyond the 300 feet minimum distance requirement. Therefore, based on Caltrans requirements, the available sight distance at the project site driveways would be adequate.

Recommendation: The design of the project site should ensure that design features, such as the landscaping and signage along the project site frontage and at the project site driveways, would not interfere with the sight distance at the proposed site driveways.

Emergency Vehicle Access

Project site driveways must be design with adequate width to allow emergency vehicles access in and out of the site. Per City design guidelines, a fire access roadway greater than or equal to 20 feet in width is applicable to all commercial, industrial, and residential buildings. The fire access roadway should be provided within 150 feet of structures.

An emergency vehicle access plan was prepared as part of the site design (see Figure 16). Emergency vehicle access plans typically show the wheel travel path of a fire engine (or any other larger vehicle) entering, traveling through, and exiting the project site and are used to demonstrate that the proposed site plan layout, drive aisle widths, and corner radii would provide adequate emergency vehicular access and circulation. The fire truck circulation plan shows the wheel travel path of a 44-foot-long fire truck accessing the site from all project site driveways and traveling through all parts of the site. The project driveways and all drive aisles within the site are shown on the site plan to be 26 to 30 feet wide, providing the minimum width requirement for emergency vehicle access and circulation. Therefore, the proposed site plan layout and driveway/drive aisle width dimensions would be adequate for a 44-foot long or smaller emergency vehicle to access and circulate the project site.

The project site is served by the Chestnut Fire Station, located at the northeast corner of the Chestnut Street/Tenth Street intersection, less than one mile west of the project site. Emergency vehicles accessing the delivery station site would most likely enter the site via the Cameron Boulevard/SR 152 intersection, circulate the site, and exit via any of the project driveways. However, because of the restricted access to the industrial site from SR 152, emergency vehicles accessing the industrial site would have to enter the site via Renz Lane, potentially increasing their response time. For this reason, the project is proposing to provide emergency vehicle access to the industrial site area from eastbound SR 152 (left-turn in access) at Driveway D. This left-turn inbound access at Driveway D, as proposed, would be controlled by a traffic signal and would be restricted to emergency vehicles only. However, in order to prevent non-emergency vehicles from entering the site from eastbound SR 152 at Driveway D, additional traffic control devices (such as signage, gates, flashing beacons, raised medians) would have to be implemented. Because this left-turn access and traffic signal would be located along a Caltrans facility, the installation of a traffic signal at this location must be reviewed and approved by Caltrans. Should Caltrans deem the proposed traffic signal undesirable, an alternative emergency vehicle access to the industrial site from eastbound SR 152 shall be provided.

Alternatively, the project proposes to provide a direct connection from the Cameron Boulevard/SR 152 intersection (Driveway B), over the SCVWD channel (Llagas Creek) to the industrial site. This connection would be restricted to emergency vehicles only and would provide inbound access from eastbound SR 152 via a signalized intersection (see Figure 17).

Recommendation: The project should investigate the feasibility of providing emergency vehicle left-turn inbound access from eastbound SR 152 to the industrial site at Driveway D. Should Caltrans deem the proposed left-turn access and traffic signal at Driveway D undesirable, an alternative emergency vehicle access to the industrial site from eastbound SR 152 shall be provided. An alternative, as being proposed by the project, would be to provide emergency vehicle access via the Cameron Boulevard/SR 152 intersection (Driveway B), with a direct connection from this driveway over the SCVWD channel (Llagas Creek) to the industrial site.

Haul Trucks Access

Haul truck access to the delivery station site would be provided via Renz Lane. Approximately 21 line haul trucks are anticipated to access the site every day to deliver packages to the delivery station from a fulfillment center. These trucks would be traveling on US 101 or SR 152 and access the site from Renz Lane, via the Camino Arroyo/SR 152 intersection. Fifteen truck loading docks and 10 trailer parking spaces are proposed along the north side of the delivery station building, adjacent to the main access road. The location of the loading docks and trailer parking would facilitate access to/from the project site and minimize circulation within the project site of these larger truck. The truck dock area would be designed with a truck turn-around to allow trucks to complete a U-turn within the site if necessary.

Because of the location of the truck dock and parking area, adjacent to the access road, it is imperative that haul truck traffic within the dock area do not block the access road at any time. Vehicular queues extending out of the truck dock area would block access to/from the east side of the project site, including access to/from the industrial site.

Figure 16
Proposed Fire Truck Circulation Plan

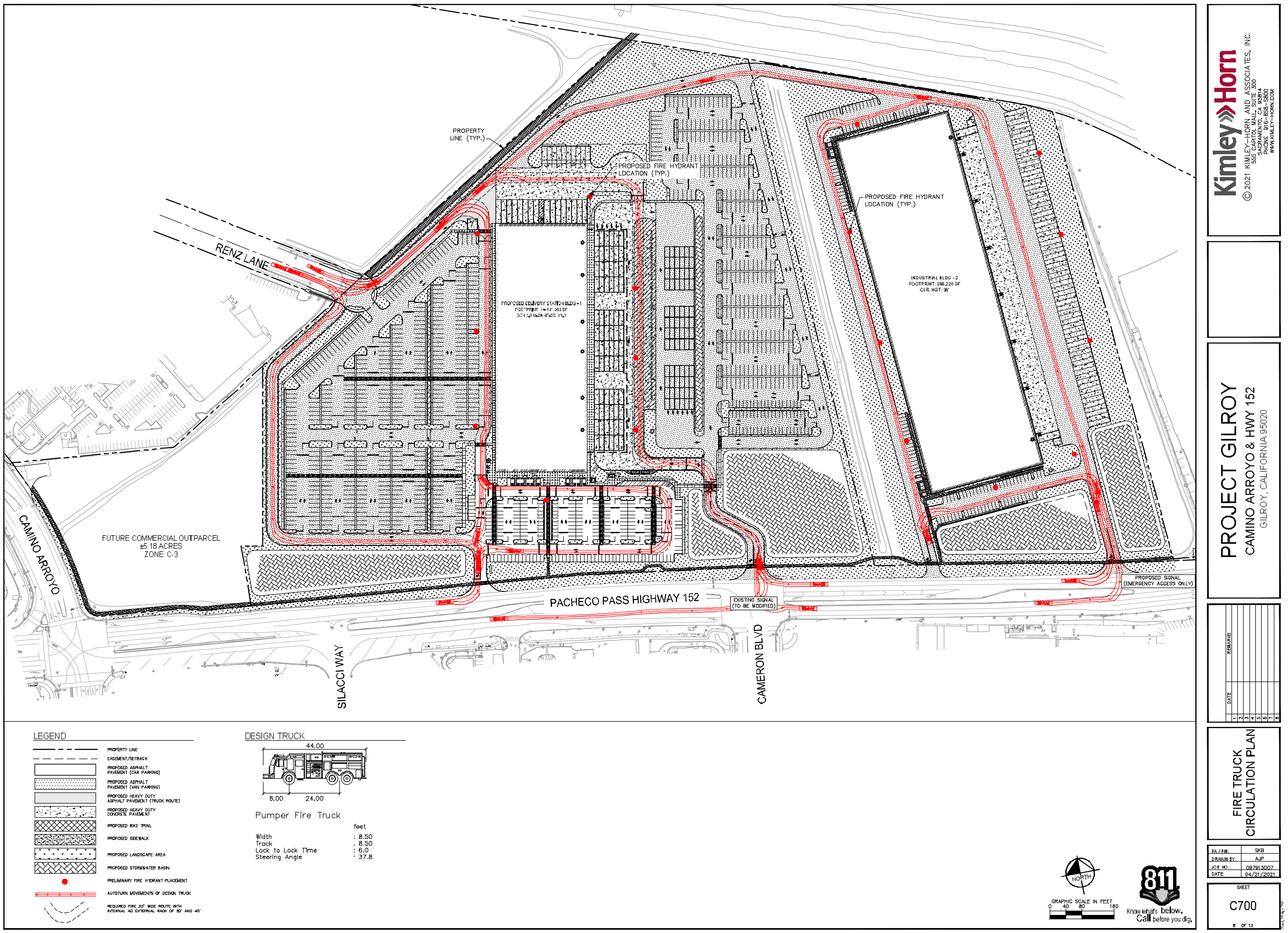
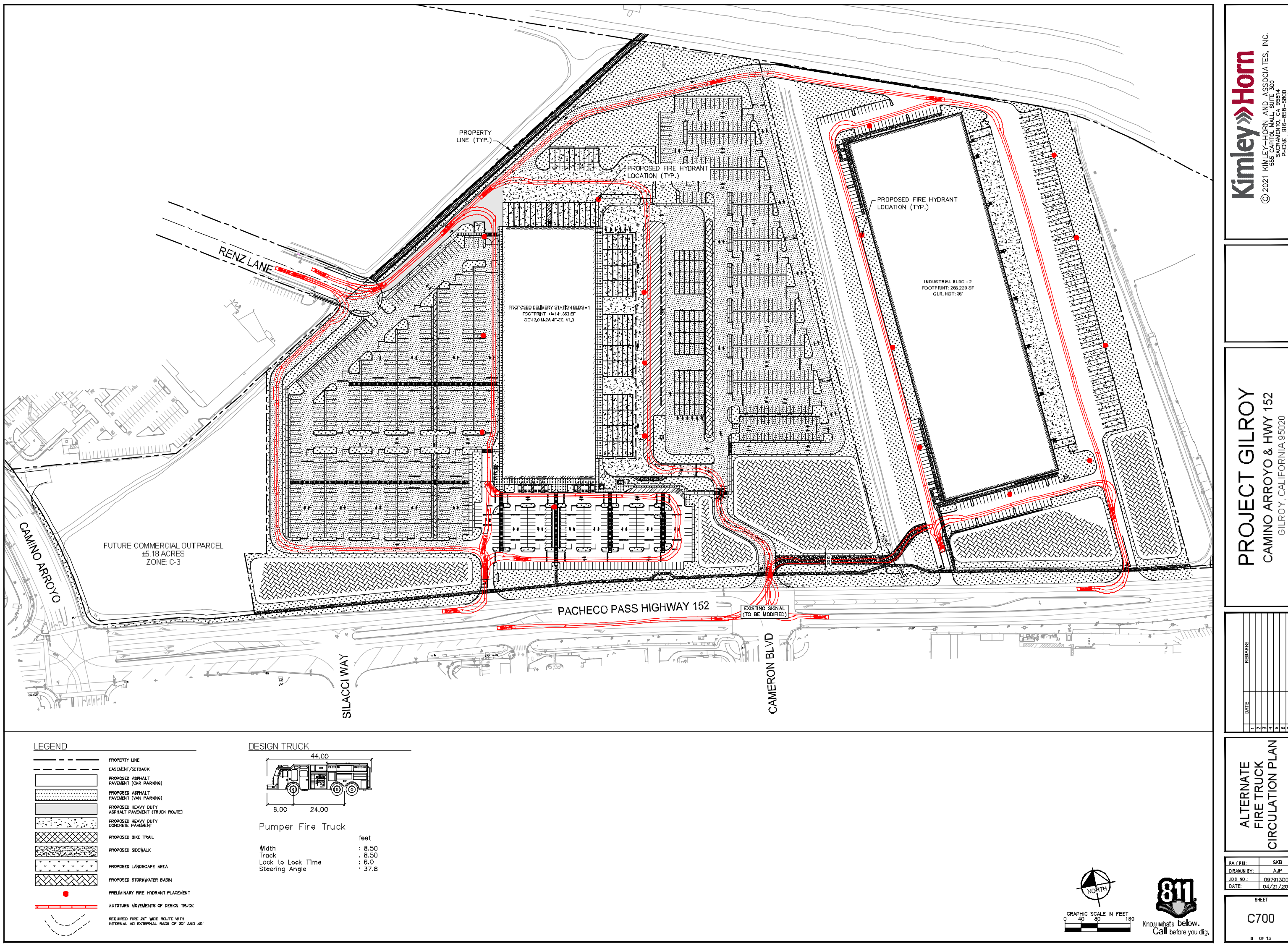


Figure 17
Proposed Alternate Fire Truck Circulation Plan



Solid Waste Collection Trucks Access

A solid waste handling plan was prepared as part of the site design. The plan shows waste collector trucks entering the delivery station site via Renz lane, accessing the trash enclosure located near the northwest corner of the delivery station building and completing a U-turn in the turn-around/truck dock area to exit the site via Renz Lane. This segment of Renz Lane/access road would be 30 feet wide, providing adequate width to accommodate the larger wheel travel path associated with larger trucks.

At the industrial site area, two trash enclosures would be provided: one near to the northeast corner and a second one near the southeast corner of the building. All drive aisles within the industrial site are proposed to be a minimum of 30 feet wide, providing adequate width for larger truck circulation. The solid waste handling plan shows waste collector trucks utilizing both project driveways on SR 152 to enter/exit the site, entering the site via one of the two driveways, accessing the trash enclosures, and exiting the site via the second driveway. However, this access and circulation pattern can only be implemented if waste collector trucks arrive to the site from the east on SR 152. If originating from the west, these trucks would have to access the industrial site via Renz Lane.

Access to Future Commercial Site

Although not proposed to be developed as part of the project, access to the future commercial site at the northeast corner of the Camino Arroyo/SR 152 intersection must be provided. Due to its close proximity to the Camino Arroyo/SR 152 intersection, access to the future commercial site from SR 152 is not feasible. Additionally, it is recommended that only right-turn inbound access from Camino Arroyo into the future commercial site be provided. The right-in only driveway must be located along the northern site property line, farthest distance from the Camino Arroyo/SR 152 intersection.

Since right-in only access from Camino Arroyo to the future commercial site is recommended, full access to the site must be provided via Renz Lane and the proposed access road serving the delivery station site.

On-Site Circulation

The site plan shows 90-degree parking spaces within both project areas served by manly 30-foot-wide drive aisles (25-26-foot-wide drive aisles within the employee parking).

Delivery Station On-Site Circulation

The intersection of Cameron Boulevard/SR 152 would provide access to all delivery van/flex vehicle traffic to and from the van loading area. Driveway A would mainly provide access to outbound employee traffic while Renz Lane would provide access to all vehicles and all project site areas. Once on site, all parking areas would be designated, with wide (30-foot) drive aisles providing access to all the parking areas. Continuous circulation throughout the site would be provide with no dead-end aisles. Overall, on-site circulation within the delivery station site is anticipated to be adequate.

Recommendation: A four-legged intersection would be formed as the existing cul-de-sac on Renz Lane connects with the main on-site access road. Appropriate traffic control devices and pavement markings, including crosswalks connecting the project site to the existing sidewalks on Renz Lane, should be provided at this intersection.

Industrial Building On-Site Circulation

Since it is anticipated that the majority of the traffic to the industrial site would originate from the west, most of the inbound traffic would utilize Renz Lane to access the site. Outbound traffic would utilize

Driveways C and D. Once on site, traffic circulation within the industrial site would be simple with a single drive aisle running around the building. On-site circulation within the industrial site is anticipated to be adequate.

Pedestrian On-Site Circulation

The site plan shows pedestrian pathways connecting the parking areas to the proposed buildings and proposed sidewalks along the project site frontage on SR 152. In addition, the project is proposing a new Class I multi-use trail running along the northwest site boundary extending between the Renz Lane cul-de-sac and the north site boundary (Santa Clara Valley Water District channel). This proposed multi-use trail would provide a connection between the existing bike lanes along Renz Lane and the planned future multi-use trail along the SCVWD channel (Llagas Creek).

The only pedestrian connection between the two proposed buildings/project sites would be provided by the proposed sidewalks along the project site frontage on SR 152.

Recommendation: A defined pedestrian connection should be provided between the delivery station's western parking lot and the existing sidewalks on Renz Lane and proposed multi-use trail. This should include crosswalks along the east and west legs of the Renz Lane intersection with the main access road. This connection would provide a direct pedestrian connection between the project site and the adjacent shopping centers located northwest of the project site.

Parking

The projected parking demand for the proposed project was estimated based on the City of Gilroy parking requirements contained within the City of Gilroy Zoning Ordinance (Section 30, Article 31, Off-street parking requirements) and project information.

Delivery Station Parking Demand

There are no standard parking rates for delivery station. The closes land use categories with available parking rates to a delivery station are the warehouse and office land uses. However, operations at the delivery station would not be representative of a typical warehouse or office use. The parking demand for the delivery station would be directly associated with the number of deliveries processed at the station on a daily basis. The greater the number of deliveries, the greater the number of employees and drivers needed to process the deliveries and hence the greater need for parking.

According to the site plan and information provided by the project applicant, below is a summary of the amount of parking proposed to serve the delivery station.

Type of Parking	Proposed Number of Parking Spaces
Associate (Auto Parking Stalls)	230
Accesible (Auto and Van Stalls)	10
Personal Van Spaces	86
Total Proposed Parking for Employees	**326**
Delivery Van Spaces	689
Total Proposed Parking On-Site	**1,015**

The summary of proposed parking presented above shows that there would be 326 parking spaces to serve the employee demand plus an additional 689 van parking spaces.

The delivery station is anticipated to operate with a total of 197 full-time employees working on three work-shifts and 223 drivers. Based on the shift times and proposed number of employees per work shift information provided by the project applicant, there could be up to 360 employees (including associates, dispatchers, managers, and drivers) on site at a given time that would need to park on-site. Based on the proposed parking information, there would not be enough parking to serve the employees on site.

The project must ensure that adequate parking is provided to serve the delivery station's parking demand.

Industrial Site Parking Demand

The City of Gilroy parking code specifies that light industrial uses must provide one parking stall per 350 s.f. of gross floor area. Based on this parking rate and a project site of 266,220 s.f., the proposed project would need to provide a total of 761 parking spaces.

However, in calculating the required parking for the proposed industrial land use, the project broke down the total building square footage into industrial (256,220 s.f.) and office (10,000 s.f.) land uses and applied the city's warehouse and office parking rates to those uses. The City requires warehouse land use to provide one parking stall for every 5,000 s.f. of gross floor area while office land use is required to provide one parking stall for every 300 s.f. of gross floor area. Based on these rates and assumptions, the project would need to provide 51 parking stalls to serve the warehouse portion of the building and 33 parking stalls to serve the office portion of the building, for a total of 85 parking spaces (see Table 12).

Table 12
Industrial Site Parking Calculations

Land Use	size [1]	City Rate [2]	Required Parking
Light Industrial	266,220	1 stall per 350 s.f.	761
Warehouse	256,220	1 stall per 5,000 s.f.	51
Office	10,000	1 stall per 300 s.f.	33
Total:	266,220		85

[1] Information obtained from the project site plan dated January 6, 2021.
[2] Source: City of Gilroy Zoning Ordinance Section 30.31.

The above required parking calculations result in significant differences in the amount of parking that would need to be provided to serve the industrial site. City staff will have to determine the amount of parking that ultimately would need to be provided at the industrial site.

Americans with Disabilities Act Requirements

The proposed project must provide adequate accessible parking spaces to satisfy the Americans with Disabilities Act (ADA) requirements, which are based on the total number of parking being provided.

Accessible parking spaces shall be at least 96 inches (8 feet) wide and shall be located on the shortest accessible route of travel from adjacent parking to an accessible entrance. In addition, one in every 8 accessible spaces, but no less than one, shall be served by an access aisle at least 96 inches wide and shall be designated as “van accessible”. It should be noted that the accessible parking spaces are not additional parking spaces but are part of the minimum parking spaces required.

The site plan shows ten accessible parking spaces would be provided within the delivery station site and five accessible spaces within the industrial site.

Alternative Site Access Evaluation

An alternative site access scenario consisting of allowing eastbound left-turn inbound access to the industrial site was evaluated. This alternative site access scenario assumes that all access to the industrial site would be provided via SR 152 and no direct connection between the two sites would be provided. Under the alternative access scenario, Driveway C would continue to provide right-in and out access only while Driveway D would provide right-in and out access as well as left-turn in access.

Under the site access alternative scenario, only intersections providing direct access to the project site, or along the project site frontage, would be affected. Intersection outside of the immediate project site area would not be affected by the alternative site access. The project trip assignment at the project driveways under the alternative access scenario is shown on Figure 18.

Intersection Level of Service Results – Alternative Site Access

A level of service analysis was conducted under background plus project conditions and assuming the alternative site access discussed above. The results of the analysis show that the proposed project would continue to have an operational deficiency at the intersection of Camino Arroyo/SR 152 (intersection #9), as identified under background plus project and 2040 General Plan plus project conditions. In addition, although the new intersection of Driveway D with SR 152 is projected to operate with delays corresponding to acceptable levels of service, the estimated eastbound left-turn inbound project trips at Driveway D would be high enough to satisfy the peak-hour traffic signal warrant during the AM peak-hour.

The results of the intersection level of service analysis under the alternative site access scenario are summarized in Table 13 below.

Intersection Operations – Alternative Site Access

In addition to the level of service analysis conducted under the alternative site access scenario, the projected queue lengths also were evaluated. The result of the analysis shows that the alternative site access would have minimal effect on the projected queue lengths at the study intersections compared to the background plus project conditions scenario. The intersections of Camino Arroyo/Renz Lane and Camino Arroyo/SR 152 are the only study intersections projected to experience changes to some of the turn-movement queue lengths under background plus project conditions. However, no additional queue storage capacity deficiencies than those identified under the background plus project conditions would occur under the alternative site access scenario (see Table 14).

Although the evaluation of the alternative site access shows that this scenario would result in similar traffic operations at the study intersections as those identified under the proposed project scenario, the addition of left-turn inbound access at Driveway D would require the installation of a left-turn pocket and a traffic signal at Driveway D along SR 152 to control the westbound through and eastbound left-turn movements at the new intersection.

Figure 18
Project Traffic at the Project Site Driveways – Alternative Site Access Scenario

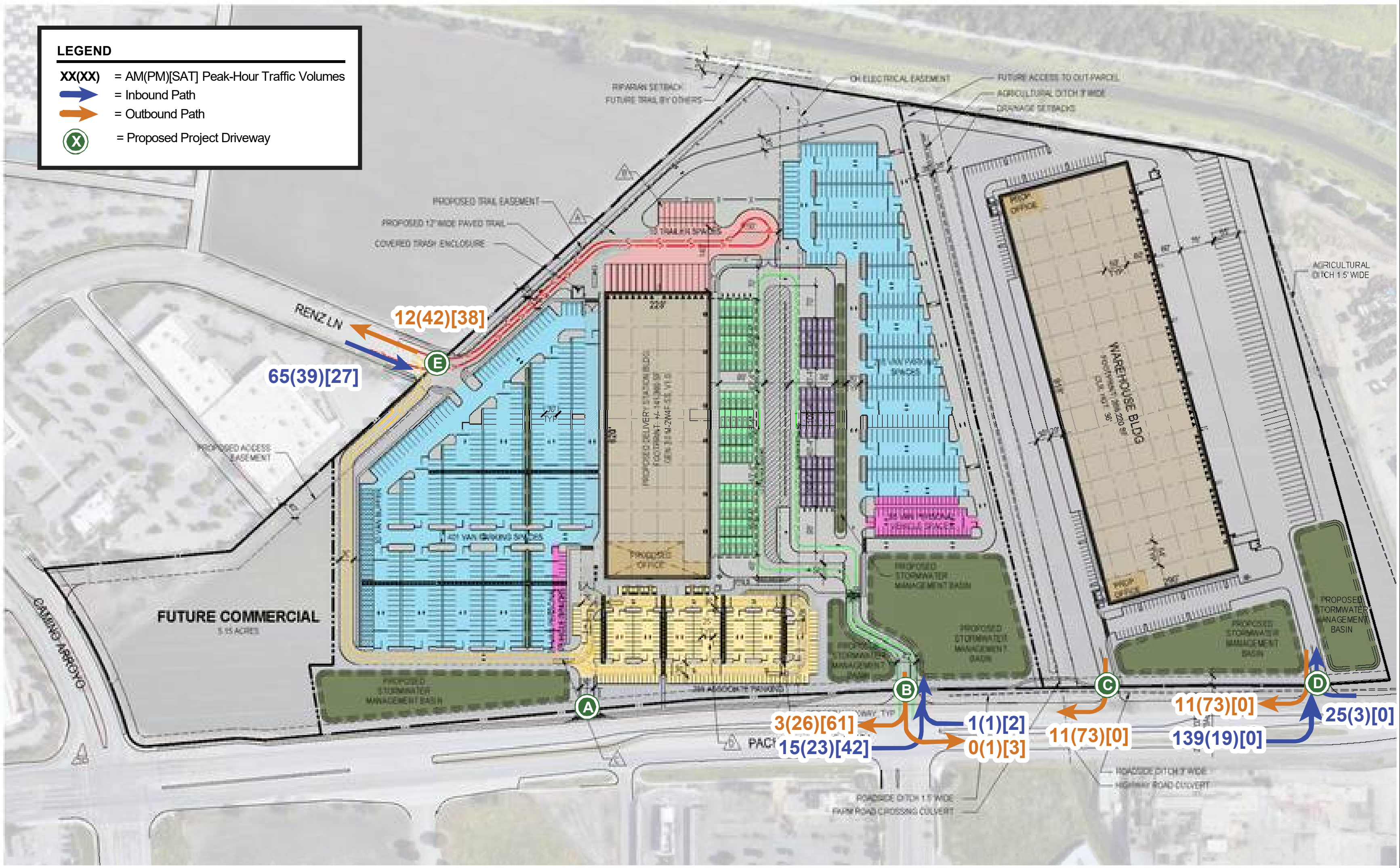


Table 13
Intersection Level of Service Results – Alternative Site Access

Study Int. Number	Intersection	Intersection Control	LOS Standard	Peak Hour	Background Avg. Delay	Background LOS	Background Warrant Met?[1]	Background Plus Project (Alternative Site Access) Avg. Delay	LOS	Delay Change[2]	Warrant Met?[1]
7	Cameron Boulevard/Project Driveway B and Pacheco Pass Highway (SR 152)	Signal	D	AM	7.4	A	–	10.8	B	+3.4	–
				PM	14.6	B	–	25.1	C	+10.5	–
				SAT	8.5	A	–	18.5	B	+10.0	–
8	Camino Arroyo and Renz Lane	Signal	D	AM	18.7	B	–	18.2	B	-0.5	–
				PM	22.4	C	–	22.4	C	+0.0	–
				SAT	37.9	D	–	38.2	D	+0.3	–
9	Camino Arroyo and Pacheco Pass Highway (SR 152)	Signal	D	AM	19.7	B	–	20.1	C	+0.4	–
				PM	33.2	C	–	35.1	D	+1.9	–
				SAT	**67.8**	**E**	–	$\boxed{\textbf{72.8}}$	$\boxed{\textbf{E}}$	$\boxed{\textbf{+5.0}}$	–
16	Silacci Way and Pacheco Pass Highway (SR 152)	One-Way Stop (Average Delay)	D	AM	0.2	A+	–	0.2	A+	+0.0	–
				PM	0.8	A+	–	0.9	A+	+0.1	–
				SAT	0.1	A+	–	0.1	A+	+0.0	–
		One-Way Stop (Worst Approach)	D	AM	**35.7**	**E+**	No	**45.2**	**E-**	**+9.5**	No
				PM	**90.3**	**F**	No	**113.8**	**F**	**+23.5**	No
				SAT	13.2	B	No	13.5	B-	+0.3	No
D	Project Driveway D and Pacheco Pass Highway (SR 152)	One-Way Stop (Average Delay)	D	AM				1.5	A+		–
				PM				0.2	A+		–
				SAT				0.0	A+		–
		One-Way Stop (Worst Approach)	D	AM				11.8	B		**Yes**
				PM				11.5	B+		No
				SAT				0.0	A+		No

Notes:
[1] Signal warrant analysis based on the Peak Hour Signal Warrant #3, Figure 4C Caltrans MUTCD, 2014.
Signal warrant analysis is not applicable to signalized intersections.
[2] Change in delay, expressed in seconds, for background plus project conditions is measured relative to background conditions.
Entries denoted in **bold** indicate conditions that exceed the City's current level of service standard.
☐ - Denotes project deficiency based on City of Gilroy criteria.

Table 14
Vehicle Queue Analysis Summary – Alternative Site Access

	8. Camino Arroyo/ Renz Lane									9. Camino Arroyo/ SR 152											
Measurement	SBL AM	SBL PM	SBL SAT	WBL AM	WBL PM	WBL SAT	NBR AM	NBR PM	NBR SAT	SBL AM	SBL PM	SBL SAT	SBR AM	SBR PM	SBR SAT	EBL AM	EBL PM	EBL SAT	WBR AM	WBR PM	WBR SAT
Background Plus Project Conditions																					
Cycle/Delay1 (sec)	60	70	120	60	70	120	60	70	120	100	100	180	100	100	180	100	100	180	100	100	180
Lanes	1	1	1	2	2	2	1	1	1	2	2	2	1	1	1	2	2	2	1	1	1
Volume (vph)	60	88	167	153	103	439	151	123	121	94	319	235	164	412	632	512	586	881	116	63	119
Volume (vphpl)	60	88	167	76	52	220	151	123	121	47	160	118	164	412	632	256	293	441	116	63	119
Avg. Queue (veh/ln.)	1	2	6	1	1	7	3	2	4	1	4	6	5	11	32	7	8	22	3	2	6
Avg. Queue2 (ft./ln)	25	43	139	32	25	183	63	60	101	33	111	147	114	286	790	178	203	551	81	44	149
95th %. Queue (veh/ln.)	3	4	10	3	3	12	5	5	8	3	8	10	8	17	41	12	13	30	6	4	10
95th %. Queue (ft./ln)	75	100	250	75	75	300	125	125	200	75	200	250	200	425	1025	300	325	750	150	100	250
Storage (ft./ ln.)	250	250	250	425	425	425	200	200	200	475	475	475	650	650	650	600	600	600	175	175	175
Adequate (Y/N)	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	**NO**	YES	YES	**NO**	YES	YES	**NO**
Background Plus Project Conditions (Alternative Site Access)																					
Cycle/Delay1 (sec)	60	70	120	60	70	120	60	70	120	100	100	180	100	100	180	100	100	180	100	100	180
Lanes	1	1	1	2	2	2	1	1	1	2	2	2	1	1	1	2	2	2	1	1	1
Volume (vph)	19	83	167	153	103	439	53	110	121	135	325	235	164	412	632	414	573	881	99	82	119
Volume (vphpl)	19	83	167	76	52	220	53	110	121	68	163	118	164	412	632	207	287	441	99	82	119
Avg. Queue (veh/ln.)	0	2	6	1	1	7	1	2	4	2	5	6	5	11	32	6	8	22	3	2	6
Avg. Queue2 (ft./ln)	8	40	139	32	25	183	22	53	101	47	113	147	114	286	790	144	199	551	69	57	149
95th %. Queue (veh/ln.)	1	4	10	3	3	12	3	5	8	4	8	10	8	17	41	10	13	30	6	5	10
95th %. Queue (ft./ln)	25	100	250	75	75	300	75	125	200	100	200	250	200	425	1025	250	325	750	150	125	250
Storage (ft./ ln.)	250	250	250	425	425	425	200	200	200	475	475	475	650	650	650	600	600	600	175	175	175
Adequate (Y/N)	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	**NO**	YES	YES	**NO**	YES	YES	**NO**

Note: Vehicle queue calculated using the Poisson probability distribution and 95-percent confidence level.
NB = Northbound, SB = Southbound, EB = Eastbound, WB = Westbound, R = Right, T = Through, L = Left.
Right-turn movements with overlapping protected left-turn phasing were adjusted manually to account for the right-turns on red.
[1] Vehicle queue calculations based on cycle length for signalized intersections and control delay for unsignalized intersections.
[2] Assumes 25 feet per vehicle in the queue.

Bicycle Circulation

Various bicycle facilities exist in the vicinity of the project site, including bike lanes (Class II bikeways) along Camino Arroyo, Sixth Street, and Renz Lane, in addition to the Western Ronan Channel Trail (Class I mixed-use trail) located along the western side of Ronan Channel, north of Sixth Street.

The Bicycle Transportation Plan contained in the City of Gilroy General Plan, the City of Gilroy Bicycle/Pedestrian Transportation Plan, and the City of Gilroy Trails Master Plan indicate that a variety of bicycle facilities are planned in the City of Gilroy, some of which would serve the study area.

Of the planned facilities, those relevant to the project include:

<u>Planned Class I multi-use trail:</u>

Along the Miller Slough (Llagas Creek) – between the Sixth Street trailhead west of US 101 to Pacheco Pass Highway/SR 152.

<u>Planned Class II bikeways:</u>

- SR 152 – between the US 101 interchange and Holsclaw Road
- Gilman Road – between Camino Arroyo and Holsclaw Road
- Cameron Boulevard extension – both north and south extensions
- Luchessa Avenue extension – between Monterey Road and Cameron Boulevard
- Holsclaw Road – between SR 152 and Leavesley Road

Project's Effect on Bicycle Facilities

The proposed project could increase the demand on bicycle facilities in the vicinity of the project site. The potential demand could be served by the various bicycle facilities available in the vicinity of the project site, including the existing bike lanes along Sixth Street, Camino Arroyo, and Renz Lane, which would provide a connection between the project site and the residential areas on the west side of US 101. In addition, the project is proposing to construct a multi-use trail along the northwest project site boundary connecting the project site and the existing bike lanes on Renz Lane to the planned future multi-use trail along the Santa Clara Valley Water District channel (Llagas Creek). Therefore, potential project generated bicycle traffic could be accommodated by the existing/proposed bicycle facilities in the project area.

Although the City of Gilroy currently does not have requirements for bicycle parking, VTA recommends bicycle-parking rates for new developments in their *Bicycle Technical Guidelines*, revised in December 2012. The Bicycle Technical Guidelines recommend that industrial land use provide one Class I (bike locker) bicycle parking space for every 30 employees <u>or</u> for every 15,000 s.f. of floor area. The guidelines do not have recommended parking rates for delivery stations.

Based on the recommended rates for industrial land uses and the size of the project, the delivery station should provide a minimum of 9 (based on square footage) or 12 (based on employees) Class I (bike lockers) bicycle parking and the industrial site should provide a minimum of 18 Class I bicycle parking (see Table 15 below).

Table 15
Recommended Bicycle Parking

Site	Size	Rate [1]	Required Bicycle Parking
Delivery Station	141,360 s.f.	1 Class I bike parking per 15,000 s.f.	9
	360 employees [2]	1 Class I bike parking per 30 employees	12
Industrial Building	266,220 s.f.	1 Class I bike parking per 15,000 s.f.	18

Source: VTA's Bicycle Parking Supply Recommendations (*Bicycle Technical Guidelines*, December 2012)
[1] Rates are for industrial land use, which are specified per land use square footage or per employee.
[2] Number of employees represent the maximum number of employees at the site at any one time.

Recommendation: It is recommended that the proposed project provide adequate bicycle parking supply on site, based on VTA's recommends bicycle-parking rates, to serve the potential demand of the project. Based on VTA's bicycle parking supply recommendations for industrial land use, the proposed delivery station should provide 9-12 Class I (bike lockers) bicycle parking spaces while the industrial site should provide 18 Class I bicycle parking spaces.

Pedestrian Circulation

Pedestrian traffic between the project site and the surrounding commercial areas would be able to utilize the existing pedestrian facilities (sidewalks, crosswalks, pedestrian signal phasing at signalized intersections) along the adjacent streets. Sidewalks are found along both sides of the street within all commercial areas north, west, and south of the project site.

Project's Effect on Pedestrian Facilities

It can be expected that new pedestrian traffic would be generated by the proposed project. The project is proposing 5-foot sidewalks along its entire frontage on SR 152 and Camino Arroyo, connecting to the existing sidewalks along these roadways.

The project site is located within walking distance (within a half-mile radius) of various restaurant, retail, and service uses. The nearest bus stops to the project site are located along Camino Arroyo, less than one-half mile west of the project site. These existing uses potentially could attract pedestrian traffic from the project site. The existing and proposed sidewalks, along with the crosswalks and pedestrian push buttons, would provide a pedestrian connection between all shopping centers in the study area, including those located along the south side of SR 152, the bus stops along Camino Arroyo, and the project site. However, no direct pedestrian connection is currently provided between the project site and the existing shopping center to the south, across SR 152.

City guidelines require minimum sidewalk width of 10 feet in commercial areas. They also require development projects to install (or upgrade existing) pedestrian crossings and Americans with Disabilities Act (ADA)-compliant curb ramps at intersections. The existing sidewalks along Camino Arroyo and SR 152 (as well as all proposed sidewalks along the project site frontage) are 5 feet wide.

The northwest corner of the intersection of Camino Arroyo/SR 152 was recently modified to include a pedestrian signal phase to cross the southbound right-turn movement lane (segment between the northwest corner of the intersection and the adjacent pork chop island). The improvement includes ADA-compliant wheelchair access within the pork chop island. However, none of the corners of the intersection currently include ADA-complaint curb ramps.

Recommendation: It is recommended that ADA-compliant curb ramps be installed at all corners of the Camino Arroyo/SR 152 intersection.

Recommendation: It is recommended that with the modification of the Cameron Boulevard/SR 152 intersection and traffic signal to include the north leg (project Driveway B) of the intersection, a crosswalk and pedestrian signal phase be installed along the west leg of the intersection, providing pedestrian access between the project site and the existing shopping center at the southwest corner of this intersection. ADA-compliant curb ramps also should be installed at this intersection.

Transit Service

The project site is directly served by Local Bus Route 84, which provides weekday and weekend service between the Gilroy Transit Center and Saint Louise Regional Hospital, with a bus stop at the intersection of Camino Arroyo/Renz Lane, less than one-half mile west of the project site.

Additional transit services are provided at the Gilroy Transit Center, located in Downtown Gilroy, just over one mile northwest of the project site.

Project's Effect on Transit Services

Although no reduction to the project trip generation estimates was applied due to transit services, it can be assumed that some of the project trips could be made by public transportation. Applying an estimated three percent transit mode share, which is probably the highest that could be expected for the project, to the local employee project trips equates to approximately 5 new transit riders added to the local transit service. The estimated number of new transit riders to the proposed project could be served by the existing bus line currently serving the project site. However, the limited-service area covered by the existing transit route and the hour-long headways could discourage potential transit users from using public transportation to access the site.

6. Conclusions

This transportation analysis has been prepared in accordance with the standards and methodologies set forth by the City of Gilroy, the Santa Clara Valley Transportation Authority (VTA) Congestion Management Program's *Transportation Impact Guidelines* (October 2014), and by the California Environmental Quality Act (CEQA).

In adherence to SB 743, the effects and impacts to the transportation network as the result of the proposed project were evaluated based on VMT. In addition to the evaluation of VMT, this transportation study also includes level of service analysis to evaluate the effects of the project on the citywide transportation system, including intersections, freeway segments, and freeway ramps. The level of service analysis is presented to determine conformance to General Plan transportation policies. The determination of project impacts per CEQA requirements is based solely on the VMT analysis.

CEQA VMT Evaluation Results

For the purpose of this analysis, and for consistency with the City of Gilroy General Plan, the VMT analysis considers OPR's recommended 15 percent (%) below baseline conditions as the threshold to identify potential VMT impacts. This represents an impact threshold of 15% below the citywide average employment VMT of 20.14 miles per job.

Project Impact: The results of the VMT evaluation, using the City's TDF Model, indicate that the project is projected to have an average daily employment VMT of 19.23 miles per job, which would exceed the established impact threshold of 17.12 miles per job. Therefore, the proposed project would result in a significant CEQA transportation impact, based on the threshold of significance recommended by the City of Gilroy Draft VMT guidelines.

Mitigation Measures: Based on recommendations from City staff and preliminary discussion between City staff and the project applicant, the project will be required to prepare and implement a Transportation Demand Management (TDM) program that will reduce the project's VMT impact to a less-than-significant level. The project applicant has prepared a draft TDM program describing the proposed TDM measures for the project and the anticipated employee participation rate for each measure.

The proposed TDM measures must reduce the project VMT below the established impact threshold. Thus, the effect the above TDM measures would have on the project VMT was quantified with the use of the VTA's Santa Clara Countywide VMT Evaluation Tool. The VTA VMT Evaluation Tool identifies TDM measures (Tier 4) as VMT reduction strategies that can be implemented to reduce a project's VMT.

The proposed TDM measures include the following:

- Compress work week – 4-day shifts (80% employee participation)
- Carpool programs – (20% eligible employee participation)
- Pre-tax benefits for qualified commute services (such as transit passes, vanpools, and carpool programs) – (20% eligible employee participation)
- Bike racks/lockers

The VMT Evaluation Tool shows that with implementation of the above TDM Programs (corresponding to VTA TP08, 11, and 13), the project's VMT would be reduced by approximately 3.93 miles per job, reducing the project's VMT from 19.23 to 15.3 miles per job, below the established impact threshold of 17.12 miles per job. Therefore, implementation of the above TDM measures and employee participation rate would mitigate the project VMT impact to less than significant.

Roadway Capacity Analysis Results

Intersection Level of Service Analysis Results

Background Plus Project Intersection Level of Service Analysis

Based on City of Gilroy definition of operational deficiencies at signalized intersections, the project would have an operational deficiency at the following intersection under background plus project conditions:

9. Camino Arroyo and Pacheco Pass Highway/SR 152 (LOS E – Sat peak-hour; **Project Deficiency**: Sat peak-hour)

Year 2040 General Plan Plus Project Intersection Level of Service Analysis

Based on City of Gilroy definition of operational deficiencies at intersections, the project would contribute to an operational deficiency at the following two intersections under 2040 General Plan plus project conditions:

9. Camino Arroyo and Pacheco Pass Highway/SR 152 (LOS F – Sat peak-hour; **Project Deficiency**: Sat peak-hour)
16. Silacci Way and Pacheco Pass Highway/SR 152 (LOS F and peak-hour signal warrant met PM peak hour; **Project Deficiency**: PM peak-hour)

Freeway Segment Evaluation

The proposed project is not projected to add traffic representing one percent (1%) or more of the segments' capacity to the deficient study freeway segments, therefore, the proposed project would not create a level of service deficiency at any of the study freeway segments.

Freeway Ramp Analysis Results

Based on the calculated volume-to-capacity (V/C) ratios, all of the study freeway ramps currently operate at acceptable levels. Under background plus project conditions, based on the ramp capacities and traffic volume projections, it is projected that all of the study freeway ramps would continue to operate at acceptable levels.

Intersection Operations Analysis Results

The results of the queue analysis show that the proposed project would contribute to the projected queue length storage capacity deficiencies for the following turn-movements:

9. Camino Arroyo and SR 152 – Southbound right-turn movement

9. Camino Arroyo and SR 152 – Eastbound left-turn movement

Projected Deficiencies and Possible Improvements

Described below are possible improvements to improve operating conditions for the projected deficiencies.

9. Camino Arroyo and Pacheco Pass Highway/SR 152 – Level of Service Deficiency: Background Plus Project and 2040 General Plan Plus Project Conditions

The projected deficiency at this intersection could be improved with the implementation of a second southbound right-turn lane. A second right-turn lane would provide the additional capacity needed to serve the projected southbound right-turn movement volumes, projected to be the heaviest movement of the intersection during the Saturday peak-hour. The doble right-turn lanes could be designed to feed directly into the US 101 northbound on-ramp and Tenth Street, with the outer right-turn lane (curb lane) becoming a trap lane to the freeway and the second right-turn lane having the option to continue onto the freeway on-ramp or merge into the westbound through lane (similar to the operations of the existing southbound right-turn lane and corresponding receiving lane). The southbound right-turn lanes would begin south of the Best Buy driveway along Camino Arroyo, similar to the existing right-turn lane. Westbound through traffic from the intersection heading to the US 101 northbound on-ramp would continue to merge with traffic in the second receiving lane, similar to today's operations. Adding a second southbound right-turn lane would require widening of the north side of Pacheco Pass Highway, west of Camino Arroyo, (and potentially the west side of Camino Arroyo, north of SR 152) to provide the necessary right-of-way for the second receiving lane. Adequate merging distance also must be provided for westbound through traffic and southbound right-turn traffic to merge in and out of the second receiving lane while accessing the US 101 northbound on ramp and the westbound through lanes. With implementation of these improvements, the intersection level of service would improve to acceptable LOS D during the Saturday peak-hour.

It should be noted that the addition of a second southbound right-turn lane is necessary to improve operating conditions at the intersection to acceptable levels. However, due to the close proximity of this intersection with the US 101 northbound on-ramp, and the merging of traffic between the westbound through lanes and the southbound right-turn receiving lane, which feeds into the freeway on-ramp, operations at the merging point between the westbound through and southbound right-turn traffic may affect projected operational levels of the doble right-turn lanes. Therefore, additional analysis would be required to verify the feasibility of these improvements, including drawings of the potential improvements and a more detailed evaluation of the intersection's operations with the use of a simulation software. If the additional analysis shows that implementing the second southbound right-turn lane is not feasible, additional or alternative improvements would be required, such as extending the westbound merging distance by reconfiguring the US 101 northbound on-ramp/interchange or by grade separation of the intersection.

16. Silacci Way and Pacheco Pass Highway/SR 152 – Level of Service Deficiency: 2040 General Plan Plus Project Conditions

The projected deficiency at this intersection could be improved with the installation of a traffic signal or by restricting left-turn access to and from Silacci Way. The projected deficiency would be caused cumulatively by the proposed project and all other development projects that are part of the 2040 General Plan buildout conditions. Therefore, the project is required to pay the applicable traffic impact fee (TIF) as a fair-share contribution toward future improvements that would restore operations at the intersection to acceptable levels.

9. Camino Arroyo and Pacheco Pass Highway/SR 152 – Queue Deficiency (Southbound Right-Turn)

The project deficiency at this intersection could be improved with the addition of a second southbound right-turn lane. The addition of a second southbound right-turn lane would require widening of the north side of Pacheco Pass Highway, west of Camino Arroyo, (and potentially the west side of Camino Arroyo, north of SR 152) to provide the necessary right-of-way for the second receiving lane. This improvement also has been identified as a potential improvement for the level of service deficiency at this intersection.

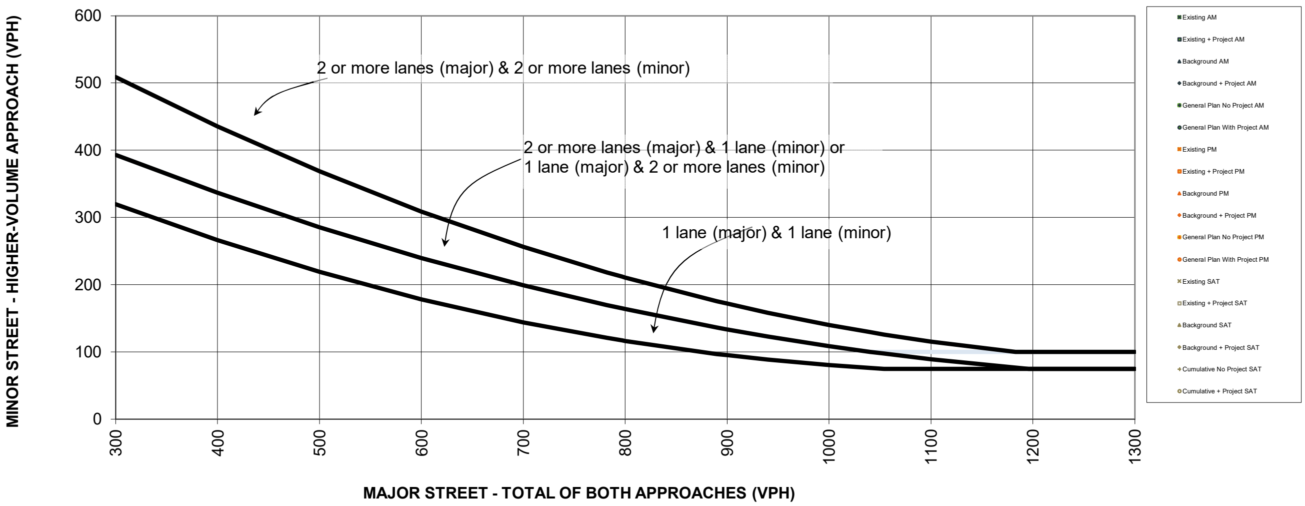
9. Camino Arroyo and Pacheco Pass Highway/SR 152 – Queue Deficiency (Eastbound Left-Turn)

The project deficiency at this intersection could be improved with the addition of a third eastbound left-turn lane. Providing a third eastbound left-turn lane would require the widening of the south side of Pacheco Pass Highway/SR 152 and the east side of Camino Arroyo to accommodate a third eastbound left-turn lane and the corresponding receiving lane in the northbound direction of Camino Arroyo. If the addition of a third eastbound left-turn lane is not feasible, additional or alternative improvements would be required, such as the extension of the existing eastbound left-turn pockets (to the maximum extent possible), reconfiguration of the US 101/Tenth Street/SR 152 interchange and Camino Arroyo/SR 152 intersection, or grade separation of the intersection.

Camino Arroyo/152 Delivery Station

6 . Holsclaw Road & Pacheco Pass Highway (SR 152)

MUTCD PEAK-HOUR VOLUME SIGNAL WARRANT - WARRANT 3 (70% Factor)
(community less than 10,000 population or above 40 MPH on major street)



Source: Figure 4C-4 of the Manual on Unifrom Traffic Control and Devices (MUTCD) from California Department of Transportation (Caltrans).
* 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

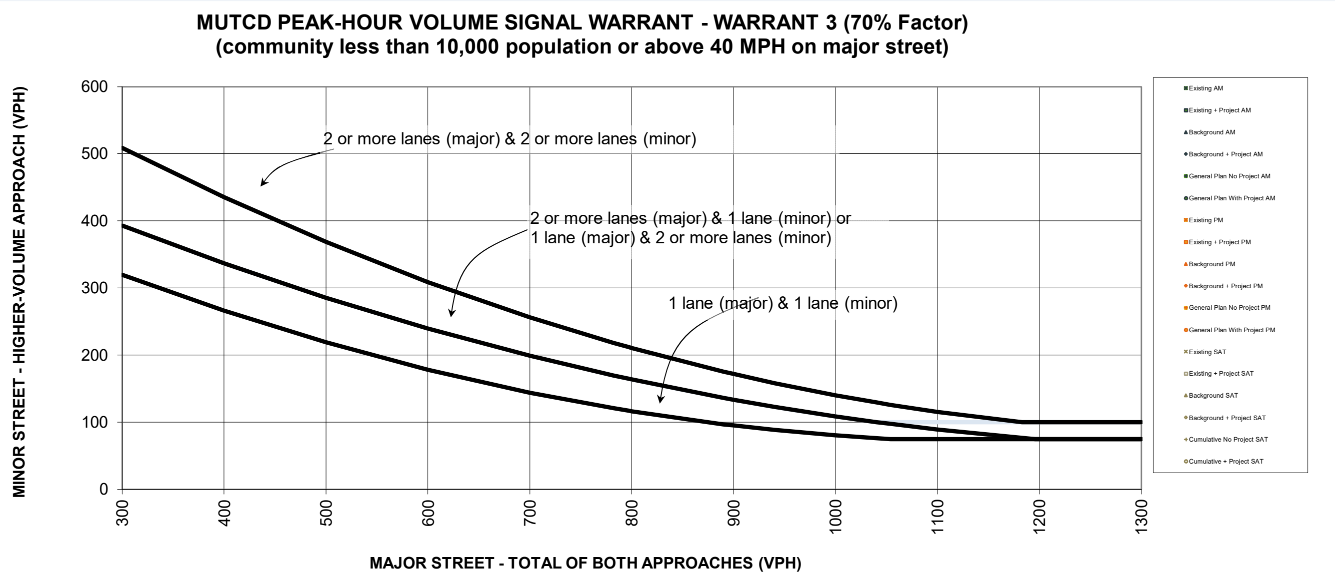
		Approach Lanes: One	Approach Lanes: 2 or More	AM Peak Hour: Existing AM	Existing + Project AM	Existing + Project Alt AM	Background AM	Background + Project AM	Background + Project Alt AM	General Plan No Project AM	General Plan With Project AM	General Plan With Project AM
Major Street - Both Approaches	Pacheco Pass Highway (SR 152)	X		1374	1407	1407	1516	1549	1549	1731	1744	1744
Minor Street - Highest Approach	Holsclaw Road	X		11	11	11	11	11	11	11	11	11
Maximum warrant threshold for minor street volume				75	75	75	75	75	75	75	75	75
Difference between warrant threshold & minor street volume				64	64	64	64	64	64	64	64	64
		Warrant Met?		No	No	No	No	No	No	No	No	No

		Approach Lanes: One	Approach Lanes: 2 or More	PM Peak Hour: Existing PM	Existing + Project PM	Existing + Project Alt PM	Background PM	Background + Project PM	Background + Project Alt PM	General Plan No Project PM	General Plan With Project PM	General Plan With Project PM
Major Street - Both Approaches	Pacheco Pass Highway (SR 152)	X		1464	1495	1495	1694	1725	1725	1957	1944	1944
Minor Street - Highest Approach	Holsclaw Road	X		24	24	24	24	24	24	25	25	25
Maximum warrant threshold for minor street volume				75	75	75	75	75	75	75	75	75
Difference between warrant threshold & minor street volume				51	51	51	51	51	51	50	50	50
		Warrant Met?		No	No	No	No	No	No	No	No	No

		Approach Lanes: One	Approach Lanes: 2 or More	SAT Peak Hour: Existing SAT	Existing + Project SAT	Existing + Project Alt SAT	Background SAT	Background + Project SAT	Background + Project Alt SAT	General Plan No Project SAT	General Plan With Project SAT	General Plan With Project SAT
Major Street - Both Approaches	Pacheco Pass Highway (SR 152)	X		1920	1929	1929	2033	2042	2042	2512	2486	2486
Minor Street - Highest Approach	Holsclaw Road	X		12	12	12	12	12	12	13	13	13
Maximum warrant threshold for minor street volume				75	75	75	75	75	75	75	75	75
Difference between warrant threshold & minor street volume				63	63	63	63	63	63	62	62	62
		Warrant Met?		No	No	No	No	No	No	No	No	No

Camino Arroyo/152 Delivery Station

16 . Silacci Way & Pacheco Pass Highway (SR 152)



Source: Figure 4C-4 of the Manual on Unifrom Traffic Control and Devices (MUTCD) from California Department of Transportation (Caltrans).
* 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

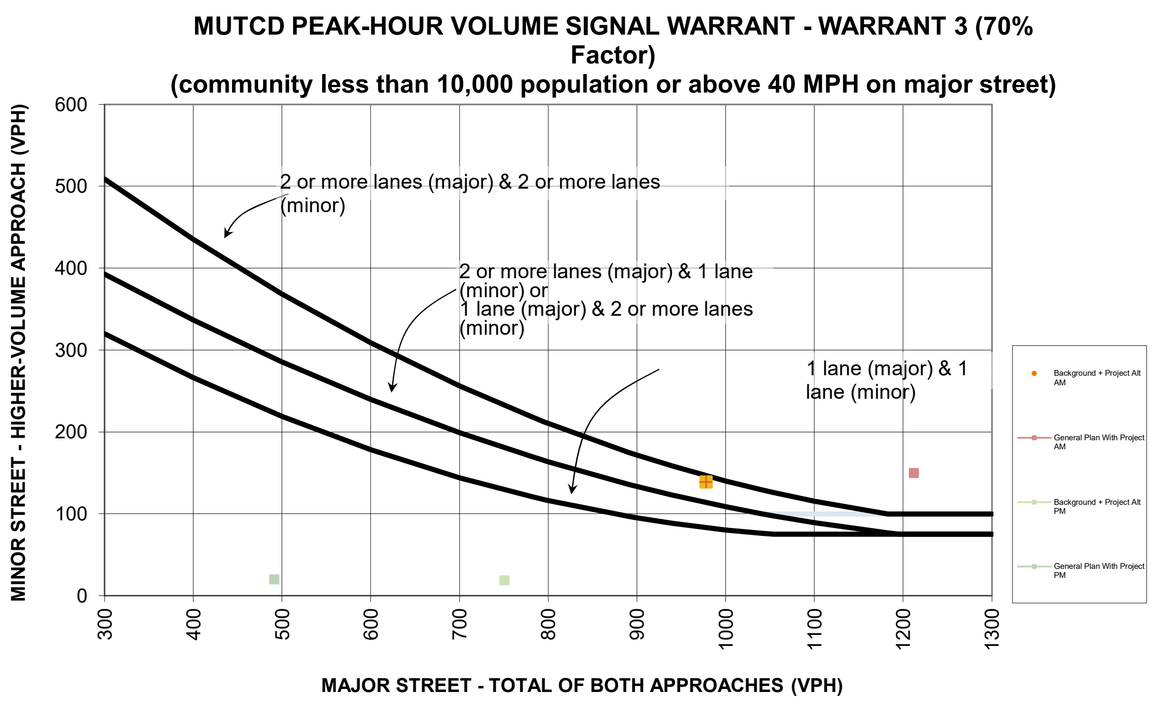
		Approach Lanes: One	Approach Lanes: 2 or More	AM Peak Hour: Existing AM	Existing + Project AM	Existing + Project Alt AM	Background AM	Background + Project AM	Background + Project Alt AM	General Plan No Project AM	General Plan With Project AM	General Plan With Project AM
Major Street - Both Approaches	Pacheco Pass Highway (SR 152)		X	1398	1433	1578	2087	2122	2267	2293	2313	2455
Minor Street - Highest Approach	Silacci Way	X		8	8	8	8	8	8	14	15	15
Maximum warrant threshold for minor street volume				75	75	75	75	75	75	75	75	75
Difference between warrant threshold & minor street volume				67	67	67	67	67	67	61	60	60
		Warrant Met?		No	No	No	No	No	No	No	No	No

		Approach Lanes: One	Approach Lanes: 2 or More	PM Peak Hour: Existing PM	Existing + Project PM	Existing + Project Alt PM	Background PM	Background + Project PM	Background + Project Alt PM	General Plan No Project PM	General Plan With Project PM	General Plan With Project PM
Major Street - Both Approaches	Pacheco Pass Highway (SR 152)		X	1935	2075	2131	3090	3230	3286	2555	2617	2660
Minor Street - Highest Approach	Silacci Way	X		25	25	25	25	25	25	100	99	99
Maximum warrant threshold for minor street volume				75	75	75	75	75	75	75	75	75
Difference between warrant threshold & minor street volume				50	50	50	50	50	50	25	24	24
		Warrant Met?		No	No	No	No	No	No	Yes	Yes	Yes

		Approach Lanes: One	Approach Lanes: 2 or More	SAT Peak Hour: Existing SAT	Existing + Project SAT	Existing + Project Alt SAT	Background SAT	Background + Project SAT	Background + Project Alt SAT	General Plan No Project SAT	General Plan With Project SAT	General Plan With Project SAT
Major Street - Both Approaches	Pacheco Pass Highway (SR 152)		X	1939	2045	2045	2274	2380	2380	2556	2562	2562
Minor Street - Highest Approach	Silacci Way	X		10	10	10	10	10	10	85	83	83
Maximum warrant threshold for minor street volume				75	75	75	75	75	75	75	75	75
Difference between warrant threshold & minor street volume				65	65	65	65	65	65	10	8	8
		Warrant Met?		No	No	No	No	No	No	Yes	Yes	Yes

Camino Arroyo/152 Delivery Station

19 . Project Driveway D & Pacheco Pass Highway (SR 152)



Source: Figure 4C-4 of the Manual on Unifrom Traffic Control and Devices (MUTCD) from California Department of Transportation (Caltrans).
* 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

		Approach Lanes: One	Approach Lanes: 2 or More	AM Peak Hour: Background + Project Alt AM	AM Peak Hour: General Plan With Project AM
Major Street - Both Approaches	Pacheco Pass Highway (SR 152)		X	978	1212
Minor Street - Highest Approach	Project Driveway D	X		139	150
Maximum warrant threshold for minor street volume				114	75
Difference between warrant threshold & minor street volume				25	75
		Warrant Met?		Yes	Yes

		Approach Lanes: One	Approach Lanes: 2 or More	PM Peak Hour: Background + Project Alt PM	PM Peak Hour: General Plan With Project PM
Major Street - Both Approaches	Pacheco Pass Highway (SR 152)		X	751	491
Minor Street - Highest Approach	Project Driveway D	X		19	20
Maximum warrant threshold for minor street volume				180	290
Difference between warrant threshold & minor street volume				161	270
		Warrant Met?		No	No