
APPENDIX A

HEWELL USA LESA WORKSHEETS (2015)

Hewell USA Amendment LESA February 2015

Land Evaluation Worksheet 1.

Land Capability Classification (LCC) and Storie Index Scores

A	B	C	D	E	F	G	H
Soil Map Unit	Project Acres	Proportion of Project Area	LCC	LCC Rating	LCC Score	Storie Index	Storie Index Score
PpA	2.12	0.41	IIs	80	32.5	72	29.2
SdA	3.1	0.59	IIIs	60	35.6	51	30.3
		(Must Sum to 1.0)		LCC		Storie Index	
Totals	5.22			Total Score	68.1	Total Score	59.5

Site Assessment Worksheet 1.

Project Size Score

	I	J	K
	LCC Class I - II	LCC Class III	LCC Class IV - VIII
	2.12	3.1	
Total Acres	2.12	3.1	0
Project Size	0	0	0
Scores			

Highest Project Size Score

0

Source: US Department of Agriculture. Soil Survey of Eastern Santa Clara Area, California. 1974.

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Site Assessment Worksheet 2. Water Resources Availability

A	B	C	D	E
Project Portion	Water Source	Proportion of Project Area	Water Availability Score	Weighted Availability Score (C x D)
1	Ground water	1	100	100
		(Must Sum to 1.0)	Total Water Resource Score	100

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Site Assessment Worksheet 3.

Surrounding Agricultural Land and Surrounding Protected Resource Land

A	B	C	D	E	F	G
Zone of Influence ¹					Surrounding Agricultural Land Score (From Table)	Surrounding Protected Resource Land Score (From Table)
Total Acres	Acres in Agriculture ²	Acres of Protected Resource Land	Percent in Agriculture (A/B)	Percent Protected Resource Land (A/C)		
426.88	205.70	0	48	0	20	0

Source: California Department of Conservation Farmland Mapping & Monterey Program. 2012

Notes:

1. Zone of influence: land within one quarter mile (1320 ft) of the project site.

2. Area of land in agricultural use estimated using aerial photographs and site investigations.

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Final LESA Score Sheet

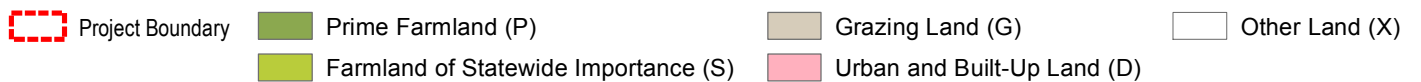
Calculation of the Final LESA Score:

- (1) Multiply each factor score by the factor weight to determine the weighted score and enter in Weighted Factor Scores column.
- (2) Sum the weighted factor scores for the LE factors to determine the total LE score for the project.

NOTES

- (3) Sum the weighted factor scores for the SA factors to determine the total SA score for the project.
- (4) Sum the total LE and SA scores to determine the Final LESA Score for the project.

		Factor Scores	Factor Weight	Weighted Factor Scores
Land Evaluation	LE Factors			
	Land Capability Classification	<1> 68.1	0.25	17.0
	Storie Index	<2> 59.5	0.25	14.9
	LE Subtotal			31.9
Site Assessment	SA Factors			
	Project Size	<3> 0.0	0.15	0.0
	Water Resource Availability	<4> 100.0	0.15	15.0
	Surrounding Agricultural Land	<5> 20.0	0.15	3.0
	Protected Resource Land	<6> 0.0	0.05	0.0
	SA Subtotal			18.0
			Final LESA Score	49.9



Source: California Department of Conservation Farmland Mapping & Monitoring Program 2012, ESRI 2012

Figure 1

Important Farmlands Map

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- Project Boundary
 Pleasanton Gravelly Loam, 0 to 2 Percent Slopes (PpA)
 San Ysidro Loam, 0 to 2 Percent Slopes (SdA)



0 200 feet

Source: Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture 2014, ESRI 2012

Figure 2

Soils Map



Hewell USA Amendment LESA



- | | | | |
|--|--|--|--------------------------------------|
| | Parcels Under Williamson Act (Non-Renewed) | | Prime Farmland (P) |
| | Project Boundary | | Farmland of Statewide Importance (S) |
| | LESA Inner Rectangle | | Unique Farmland (U) |
| | LESA .25-mile Buffer of Inner Rectangle | | Farmland of Local Importance (L) |
| | Parcels Within Zone of Influence | | |



0 1000 feet

Source: California Department of Conservation Farmland Mapping & Monitoring Program 2012, County of Santa Clara 2015, ESRI 2012

Figure 3

E

M

C

Surrounding Agricultural and Protected Resources Land

Hewell USA Amendment LESA

APPENDIX B

GHG ANALYSIS REPORT AND CALEEMOD RESULTS (PREPARED BY
EMC PLANNING GROUP, DATED JULY 2017)

July 25, 2017

Melissa Durkin
Planner II
City of Gilroy Community Development Department
7351 Rosanna Street
Gilroy, CA95020-6197

**Re: USA 12-01 (#12070023) Wren Investors, and USA 14-02 (#14070058), Hewell,
Greenhouse Gas Analysis**

Dear Melissa:

Thank you for the opportunity to prepare a greenhouse gas emissions analysis and to make a determination of impact significance for the Wren Investors and the Hewell projects.

The conclusions of our analysis indicate that the combined operations of future development of both projects would not result in significant greenhouse gas emissions effects. Therefore, no mitigation measures are necessary.

Please contact me or Polaris Kinison Brown, principal planner, in my office if you have any questions.

Sincerely,

A handwritten signature in black ink that reads "Teri Wissler Adam". The signature is written in a cursive, flowing style.

Teri Wissler Adam
Senior Principal

PROJECT OVERVIEW

The proposed project consists of an adjustment to the City of Gilroy Urban Service Area (USA) to include two sites totaling approximately 55 acres located north and west of the Gilroy city limit. Both sites are located within the City of Gilroy 2002 General Plan 20-year planning boundary. No development is proposed on either site at this time; however, the applicants have submitted preliminary development plans to the city for purposes of showing how the property could be developed and for use in the forthcoming environmental review process for the project. It is assumed that future development on both sites would occur once the boundary adjustment is approved and the sites are annexed to the City of Gilroy. It is also assumed that both projects would be occupied by 2024.

BACKGROUND

EMC Planning Group previously completed California Environmental Quality Act (CEQA) and Local Agency Formation Commission (LAFCO) documentation for the Wren Investors project in 2014. A portion of the environmental analysis for the Hewell/Sheedy Urban Service Area Amendment, Rezoning, and Annexation project (hereinafter “Hewell project”) was prepared in 2015. However the environmental impact report (EIR) for the Wren Investors project was never certified and the Hewell project was put on hold before the CEQA documentation could be completed.

Since the time the prior greenhouse gas (GHG) analyses were prepared for the two projects, expectations of local, regional, and state agencies to advance their analytical and mitigation approaches for addressing climate change in the CEQA process for land use projects have grown. New state legislation and outcomes of GHG related CEQA legal cases have “raised the bar” for how lead agencies analyze and mitigate GHG impacts. There are now additional regulations in place for reducing GHG emissions, and the emissions modeling program (CalEEMod) has been updated to more accurately reflect the GHG emissions accounting for land use projects.

PROJECT DESCRIPTION

The Wren Investors project site is located immediately north of the Gilroy city limits southwest of the intersection of Vickery Avenue and Wren Avenue. The approximately 50.3-acre site consists of six parcels developed with low-density residential uses, one parcel that is occupied by the Gilroy High School Future Farmers of America Club farm laboratory, vacant land (grassland) and two vacant Santa Clara Valley Water District parcels through which run the Lions Creek channel and a paved community bike path. Future development would consist of 137 low-density single-family residential units, 20 medium density (duet) units, 102 townhome/apartment units, 8,000 square feet of neighborhood commercial uses and a 9,000 square foot parking lot on a 0.4-acre parcel, and related infrastructure (MH Engineering Co. 2012).

The Hewell project site is located just outside the northern city limits northeast of the intersection of Vickery Avenue and Kern Avenue. The approximately 5.4-acre project site consists of two parcels. A portion of the site is developed with one single-family residence and the remainder of the site is vacant grassland. The conceptual development plan for the Hewell project identifies development of 28 single-family homes and 20 higher density single-family homes, and related infrastructure (MH Engineering Co. 2013).

This assessment provides an analysis of GHG emissions associated with the combined operations of future development of both projects (hereinafter, “proposed project” or “project”).

GREENHOUSE GAS LEGISLATIVE GUIDANCE

This section provides the framework and background and existing legislative guidance that are used in this GHG analysis.

California Assembly Bill 32 (Global Warming Solutions Act) and the 2008/2014 Scoping Plan Guidance

In September 2006, the Governor signed Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions. AB 32 requires that

statewide GHG emissions be reduced to 1990 levels by 2020. AB 32 is the statewide framework for evaluating the contribution of individual development projects located within the boundaries of individual lead agencies to achieving or hindering the statewide reduction goal. The strategies the state is to implement to achieve the 2020 goal are embedded in scoping plans. The scoping plan was first approved by the California Air Resources Board in 2008 and the first update was approved in 2014. With the adoption of AB 32, local and regional agencies began to align their CEQA processes and craft GHG thresholds of significance to be consistent with the year 2020 reduction goal.

California Senate Bill 32 (California Global Warming Solutions Act of 2006: Emissions Limit)

Senate Bill (SB) 32 was adopted in September 2016. It sets a new statewide GHG emissions reduction target of at least 40 percent below 1990 levels by the end of 2030. It represents an interim GHG reduction target designed to ensure that the state continues to adopt rules and regulations that keep the state on track to meet the 2050 statewide GHG reduction goal of 80 percent below 1990 levels by 2050 set forth in Executive Order S-03-05. The emissions reduction goal set in SB 32 sets expectations for GHG emissions reductions in the state in the post-AB 32 2020 environment given that emissions reduction goals set forth in AB 32 should will have been reached by 2020. With SB 32, the Legislature passed companion legislation AB 197, which provides additional direction for developing the Scoping Plan. The California Air Resources Board (CARB) has completed an update to the scoping plan to reflect the 2030 target codified by SB 32.

City of Gilroy Interim Climate Action Plan

The city adopted an interim climate action plan in 2012. The interim climate action plan is not a qualified GHG reduction plan because the city determined that implementation of some of the GHG reduction measures included in the document may not be feasible and potential environmental impacts associated with implementing the interim climate action plan were not evaluated. Because the climate action plan is not a qualifying GHG reduction plan, the city does not have the ability to use the document to streamline the CEQA analysis of GHG impacts pursuant to CEQA Guidelines Section 15130.5.

GREENHOUSE GAS THRESHOLDS

This section provides background and methodology for identifying a greenhouse gas threshold of significance for the project. It is noted that the Bay Area Air Quality Management District thresholds are presented to provide background and context only and do not guide the methodology used in this report. The reasons are explained below.

The Bay Area Air Quality Management District Thresholds

The proposed project is located within the San Francisco Bay Air Basin. The Bay Area Air Quality Management District (air district) is charged with managing air quality within the basin. The air district implements policies and programs designed to ensure that air quality meets standards established under federal and state laws.

The air district is the only agency that, to date, has developed a plan for GHG emissions reductions that can be utilized by the city. The air district has published comprehensive guidance on evaluating, determining significance of, and mitigating GHG impacts of projects and plans. The guidance is contained in the *California Environmental Quality Act Air Quality Guidelines* (Bay Area Air Quality Management District 2017) (air quality guidelines). The 2010 version of the air quality guidelines was the first to include draft thresholds of significance for GHG emissions and screening criteria designed to assess project types and intensities whose GHG emissions would not exceed project-specific GHG standards of significance. These thresholds are included in the most recent update to the air quality guidelines (May 2017).

The air district thresholds are based on GHG reductions needed within the air basin by 2020, including from new land development projects, for the district to contribute its fair share to the statewide reductions identified in AB 32 and the 2014 scoping plan. The thresholds apply only to year 2020 reduction goals; they are not designed to enable the district to meet the reduction target of 40 percent below business-as-usual or 80 percent below business-as-usual as identified SB 32 and Executive Order B-30-15, respectively. The air district is not expected to adopt new CEQA thresholds of significance for post-2020 conditions in the near term.

Project Threshold of Significance

The air district's GHG thresholds of significance and its GHG screening criteria are contained in its CEQA Air Quality Guidelines and are keyed to ensuring that GHG emissions within the air district are reduced by a fair share towards achieving the statewide year 2020 GHG emissions reduction target embedded in the 2007 Scoping Plan by the year 2020. The thresholds and screening criteria are not applicable after the year 2020. The project is not expected to build out until 2024. Therefore, the air district's 2020 thresholds and screening criteria are not applicable, as they do not consider the deeper emissions cuts needed between 2020 and 2030 to achieve the statewide reduction goal of 40 percent 1990 levels by 2030 as codified in SB 32. The city has not adopted a qualified climate action plan. Therefore, there is no local GHG reduction plan against which the project can be assessed for its GHG emissions effects.

In light of these circumstances, a project-specific GHG threshold of significance for the year 2024 must be developed for use in the GHG analysis. The threshold is a quantified emissions efficiency target that is crafted to determine whether or not the proposed project would impede the state's ability to achieve the 2030 emissions reduction target of 40 percent below 1990 levels as mandated in SB 32.

An efficiency-based threshold represents the rate of emissions from land use driven GHG emissions contained in the state GHG emission inventory at or below which it would not impede the state's ability to achieve the SB 32 GHG emissions reduction target. An efficiency threshold allows lead agencies to assess whether any given project or plan would accommodate projected population and employment growth in a way that is consistent with the emissions limit established under SB 32.

Threshold of Significance Calculation Methodology

The threshold is derived by calculating the projected statewide land use driven GHG emissions volume in 2024 (the proposed project buildout year) and dividing it by projected statewide service population in 2024. The service population is the sum of projected year 2024 employment and year 2024 population.

A volume of GHG emissions at or below which emissions from statewide land use driven GHG sectors would not impede the SB 32 emissions reduction goal is first needed as the numerator of the emissions rate calculation. Land use sector driven emissions

include those from the statewide GHG emissions inventory that are generated by emissions sectors that support land uses which accommodate population growth and employment (e.g. residential and commercial uses).

The year 2024 projected statewide emissions volume is identified by applying an annual emissions reduction rate to the sum of the statewide year 2020 land use driven GHG inventory emission sectors for a period of four years – to the 2024 buildout date for the proposed project. The California Air Resources Board has stated that an average statewide GHG reduction of 5.2 percent per year from the projected 2020 statewide GHG emissions inventory volume (which under AB 32, is to be no greater than the 1990 statewide emissions inventory volume) will be needed to stay on a trajectory to achieve the state reduction targets for 2030 and 2050, respectively (California Air Resources Board 2015, California Air Resources Board 2016). By applying the annual rate of reduction to the 2020 emissions inventory volume for land use driven GHG emissions in particular, a target GHG emissions volume for any particular year after 2020 can be calculated.

Land use driven GHG emissions can be isolated out of the 1990 statewide emissions inventory by eliminating emissions sources that are not land use driven and that would not accommodate projected new population or employment growth. For example, emissions associated with ocean transport or agriculture are not driven by land use development projects. However, emissions associated with on-road transportation, electricity generation from fossil fuels, natural gas combustion, wastewater treatment, and solid waste are land use driven. [Table 1, 1990 California Greenhouse Gas Inventory for Land Use Driven Emissions Sectors](#), on the following page, presents the adjusted land use-driven emissions inventory for 1990 (which also represents the target emissions levels for the year 2020 under AB 32).

As identified in [Table 1](#), total land use driven emissions were projected at 286.71 million metric tons (MMT) carbon dioxide equivalent (CO₂e) in 1990. Carbon dioxide equivalent describes how much global warming a given type of GHG will cause, with the global warming potential of CO₂ as the base reference of one. It is useful because it allows comparisons of the impact from different GHGs with differing global warming potentials. If a project is a source of several types of GHGs, their individual global warming potentials can be standardized and expressed in terms of CO₂e.

Table 1 1990 California Greenhouse Gas Inventory for Land Use Driven Emissions Sectors

Land Use Driven Emissions	Emissions (MMT CO ₂ e)
On-Road Transportation	
Passenger Cars	63.77
Light Duty Trucks	44.75
Motorcycles	0.43
Heavy Duty Trucks	29.03
Freight	0.02
Subtotal	138.00
Electricity Generation In-State	
Commercial Cogeneration	0.70
Merchant Owned	2.33
Transmission and Distribution	1.56
Utility Owned	29.92
Subtotal	34.51
Electricity Generation	
Specified Imports	29.61
Transmission and Distribution	1.02
Unspecified Imports	30.96
Subtotal	61.59
Commercial	
CHP: Commercial	0.40
Communication	0.07
Domestic Utilities	0.34
Education	1.42
Food Services	1.89
Healthcare	1.32
Hotels	0.67
Not Specified Commercial	5.58
Offices	1.46
Retail and Wholesale	0.68

Transportation Services	0.03
Subtotal	13.86
Residential	
Household Use	29.66
Subtotal	29.66
Industrial	
Landfills	6.26
Domestic Wastewater Treatment	2.83
Subtotal	9.09
Total Emissions	286.71

SOURCE: California Air Resources Board. No Date.

A statewide emissions volume target for 2024 is derived by applying the California Air Resources Board's 5.2 percent annual emissions reduction rate to the 2020 projected state inventory volume of 286.71 MMT CO₂e for four years (compounded). This calculation results in a projected emissions volume of approximately 232.88 MMT CO₂e in 2024 $((286.71)(e^{((-0.052)(4))})$.

The statewide 2024 service population is derived from projected 2024 statewide population plus projected statewide 2024 employment. The projected 2024 statewide population is 42,074,892 (California Department of Finance 2017b). The projected 2024 employment is 19,720,500 (California Employment Development Department 2016). The 2024 service population equals 42,074,892 plus 19,720,500, for a total of 61,795,392.

The 2024 threshold of significance is 231.33 MMT CO₂e/61,795,392 or 3.70 MT CO₂e/service population. [Table 2, 2024 Threshold of Significance](#), summarizes the factors used to derive the threshold.

The 2024 threshold of significance is only applicable for determining the significance of individual land use projects with a buildout year of 2024. The methodology used reflects the consultant's best current effort to identify a threshold of significance in a GHG analysis environment that is in a state of flux.

Table 2 2024 Threshold of Significance

	Year 2024
Population	42,074,892
Employment	19,720,500
Service Population	61,795,392
Emissions Target	232.88 MMT CO ₂ e
2024 Threshold	232.88 MMT CO ₂ e/61,795,392 = 3.70 MT CO ₂ e/Service Population

SOURCE: EMC Planning Group 2017; California Department of Finance 2017b; California Employment Development Department 2016

ANALYSIS

If the proposed project rate of GHG emissions is below the 3.70 MT CO₂e/service population threshold of significance, the project would not conflict with the state’s ability to achieve the 2030 emissions reduction target embedded in SB 32. To make this determination, the project’s rate of GHG emissions must be determined. This is done by projecting the annual volume of GHG emissions generated by the project in the project buildout year of 2024 and dividing that volume by the project service population at buildout.

GHG emissions from the annual operations of the proposed project have been estimated using the California Emissions Estimator Model (CalEEMod) Version 2016.3.1 software. For a detailed discussion of the modeling methodology and CalEEMod inputs and results please refer to the *Wren Investors/Hewell USA Amendments, Gilroy CA Air Quality/Greenhouse Gas Emissions Assessment* memo (“AQ/GHG memo”) and results included as an attachment to this report.

Proposed Project Annual Operational Emissions Estimate

Unmitigated annual operational GHG emissions are reported in Table 3, Unmitigated Operational GHG Emissions (MT per year) of the GHG/AQ memo, attached to this report. The proposed project would generate an estimated 3,052.56 MT CO₂e per year. This emissions volume does not reflect any GHG emissions reduction measures that

may be proposed for incorporation into future development projects by the project applicants or emissions reductions that may accrue to GHG reduction measures that may be required for incorporation by the City of Gilroy.

Existing Use GHG Emissions

The project site contains existing residential uses and the Gilroy High School Future Farmers of America Club farm laboratory, all of which would be removed to enable future development of the site. According to the CalEEMod modeling results, GHG emissions produced by existing land uses are projected at 115.95 MT CO₂e per year. This represents an emissions “credit” that can be deducted from the proposed project estimated annual emissions volume.

Annual Carbon Sequestration Offset

Modeling for the proposed project included removal of 64 trees and planting of 2,264 new trees for a total 2,200 net new trees. The carbon sequestration offset from planting 2,200 net new trees is 1,428.30 MT CO₂e assuming a 20-year life cycle for the trees. For ease of reporting, this amount is averaged over thirty-years to yield an annual carbon sequestration offset of 47.61 MT CO₂e. This represents an emissions “credit” which can be deducted from the proposed project estimated annual emissions volume.

Proposed Project Net Annual Greenhouse Gas Emissions

The total net GHG emission volume attributable to the proposed project is determined by subtracting GHG emissions from existing uses and the carbon sequestration offset emissions volume from the annual operational emissions estimate for the proposed project. The net annual GHG emissions volume is 2,889.00 MT CO₂e (3,052.56 MT CO₂e - 115.95 MT CO₂e - 47.61 MT CO₂e).

Proposed Project Service Population

The conceptual plans for the proposed project include 307 new residential units plus neighborhood commercial uses on a 0.4-acre parcel. Development of the proposed project is anticipated to generate a new residential population of 1,081 persons based on an estimated average of 3.52 persons per household for the City of Gilroy (Department of Finance 2017a). The commercial uses on a 0.4-acre parcel would generate an estimated

eight new jobs (Applied Development Economics 2013). Therefore, the project service population is 1,089.

Proposed Project Rate of Emissions

The total annual GHG emissions volume attributable to the project is 2,889.00 MT CO₂e per year. The service population is 1,089. Therefore, the proposed project would generate GHG emissions at a rate of 2.65 MT CO₂e per service population per year (2,889.00 MT CO₂e/1,089 service population).

Conclusion

The project rate of GHG emissions of 2.65 MT CO₂e per service population per year is below the threshold of significance for this project of 3.70 MT CO₂e per service population per year. Consequently, the proposed project would have a less-than-significant impact from generation of GHG emissions. No mitigation measures are required.

SOURCES

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To: Teri Wissler Adam, Project Manager
From: Sally Rideout, Principal Planner
Cc: File: ENV 725
Date: July 6, 2017

Re: Wren Investors/Hewell USA Amendments, Gilroy CA
Air Quality/Greenhouse Gas Emissions Assessment

Project Description

The proposed project consist of two urban service area (USA) boundary adjustments on two sites north and west of the Gilroy city limit. Gilroy is located within the San Francisco Bay Area Air Basin, which is within the jurisdiction of the Bay Area Air Quality Management District (air district). Although no development is currently proposed on either site, for the purposes of the emissions modeling it is assumed that future development on both sites would occur once the boundary adjustment is approved and the sites are annexed to the City of Gilroy.

The 50.3-acre Wren Investors project site consists of six parcels developed with low-density residential uses, one parcel that is occupied by the Gilroy High School Future Farmers of America Club farm laboratory, vacant land (grassland) and two vacant Santa Clara Valley Water District (SCVWD) parcels through which run the Lions Creek channel and a paved community bike path. Future development would consist of 137 low-density single-family residential dwelling units, 20 medium density (duets) dwelling units, 102 townhome/apartment units, neighborhood commercial uses on a 0.4-acre parcel, and related infrastructure.

The Hewell project includes development of 28 single-family homes and 20 higher density residential units, and related infrastructure on a 5.4-acre site. Existing sources of emissions on

MEMORANDUM

the project site consist of one single-family residence. The remainder of the site is vacant grassland.

Scope of Assessment

This assessment provides an estimate of criteria air pollutant and greenhouse gas (GHG) emissions associated with the combined operations of future development of both projects. Project-related air and GHG emissions are estimated using California Emissions Estimator Model (CalEEMod) Version 2016.3.1 software. The CalEEMod platform is recommended by the California Air Resources Board (CARB) and accepted by the air district. The air district approach to CEQA analyses for construction air quality and GHG emissions impacts is to emphasize implementation of effective and comprehensive control measures rather than detailed quantification of emissions. Therefore, estimates of construction criteria air pollutant or construction GHG emissions are not included in this assessment.

Emissions Model

The CalEEMod software utilizes U.S. Environmental Protection Agency (USEPA) AP-42 emission factors, CARB vehicle emission models studies and studies commissioned by other California agencies such as the California Energy Commission and CalRecycle in its emissions calculations. Version 2016.3.1 utilizes 2014 Title 24 building energy efficiency standards. The model calculates indirect emissions from processes “downstream” of the project under evaluation such as GHG emissions from energy use, solid waste disposal, wastewater and water use. CalEEMod also estimates changes in carbon sequestration potential due to changes in vegetation.

Methodology

This assessment provides an estimate of operational criteria air pollutant and GHG emissions that would be generated by future development of the project sites with proposed land uses described in more detail below. Operational GHG emissions from existing development are also estimated. For modeling purposes, data inputs to the model take into account the type and size of proposed uses utilizing CalEEMod default land uses and size metrics provided by the applicants.

Assumptions

Unless otherwise noted, data inputs for the project model are based on the following primary assumptions:

1. Emissions are estimated for an operational date of 2024.
2. Existing operational emissions on the eight parcels with existing uses were estimated using the CalEEMod default land use subtype of single-family Housing. Use of the Gilroy High School Future Farmers of America Club farm Laboratory property is not a source of substantial emissions. For the purposes of this assessment use of this property is expected to generate emissions similar to a single-family use).
3. Operational emissions from future development are based on the following CalEEMod default land use subtypes:
 - a. Emissions generated by the proposed single family housing use are assumed to be generally similar to emissions that would be generated by the CalEEMod default land use subtype "Single Family Housing", which consists of all single-family detached homes on individual lots typical of a suburban subdivision.
 - b. Emissions generated by townhomes are assumed to be generally similar to emissions that would be generated by the CalEEMod default land use subtype "Condo/Townhouse", which are defined as ownership units that have at least one other owned unit within the same building structure.
 - c. Operational emissions generated by residential apartment uses are assumed to be generally similar to emissions that would be generated by the CalEEMod default residential land use subtype "Apartments, low-rise", which are apartments in rental buildings that have between one and three levels.
 - d. Operational emissions generated by anticipated commercial retail uses are assumed to be generally similar to emissions that would be generated by the CalEEMod default retail land use subtype "Strip Mall", which is considered specialty retail by the Institute of Traffic Engineers (ITE). These specialty retail uses consist of a variety of retail shop types specializing in goods and services, professional uses, and hard goods such as quality apparel, florists and small restaurants.

- e. Emissions from commercial use parking lots are assumed to be generally similar to emissions that would be generated by the CalEEMod default land use subtype “Parking Lot”, which is a single surface parking lot typically covered with asphalt.
 - f. Emissions from internal paved roadways and access routes on the commercial site are assumed to be generally similar to emissions that would be generated by the CalEEMod default land use subtype “Other Asphalt Surfaces”, which is described as an asphalt area not used as a parking lot.
- 4. The model’s default CO₂ intensity factor of 641 pounds/megawatt hour was reduced to 290 pounds/megawatt hour to reflect Pacific Gas & Electric energy CO₂ intensity projections for 2020, which is the current horizon year for Pacific Gas & Electric projections. The intensity factor has been falling, in significant part due to the increasing percentage of Pacific Gas & Electric’s energy portfolio obtained from renewable energy. Emissions intensity data is from Pacific Gas & Electric’s Greenhouse Gas Factors: Guidance for PG&E Customers, dated November 2015.
 - 5. Within the project site, Lions Creek runs through two parcels (5.7 acres), which are owned and managed by the Santa Clara Valley Water District. This portion of the project site is not a substantial source of existing or proposed emissions. Therefore, this acreage is not included in the emissions calculations for existing or future uses.
 - 6. The most common existing vegetation type on vacant areas of the project site is grassland (approximately 35 acres).

Operational Emissions Data Inputs

A modeled estimate of existing operational emissions is provided assuming eight single-family residences. The model results for this estimate are included as attachments to this memorandum. Estimates of operational criteria air pollutant and GHG emissions that would be generated by the land uses identified in Table 1 are derived using the model default land use categories and trip generation rates based on future development of a 50-acre site (does not include waster district parcels). Size metrics are provided by the applicant or are shown on project conceptual plans. The model default for building energy efficiencies (2014 Title 24) was adjusted to reflect a 28 percent increase in Title 24 building energy efficiencies that will be

achieved through compliance with 2016 Title 24 building energy efficiency standards (California Energy Commission 2016).

The characteristics of the proposed project and their respective default land use categories are presented in [Table 1, Project Characteristics](#).

Table 1 Project Characteristics¹

Project Components	CalEEMod Land Use ²	Existing	Proposed
Single-family Residential	Single-family Housing ³	8 Units	185 Units
Apartments	Apartments, Low-rise	-	20 Units
Townhomes/Condos	Townhomes/Condos	-	102 Units
Neighborhood Commercial	Strip Mall	-	8,000 Square Feet
Commercial Parking Lot	Parking Lot	-	9,000 Square Feet
Access Roads	Other Asphalt Surfaces	-	14.5 Acres
Trees ⁴	Trees – Miscellaneous Species	61	2,264

SOURCE: MH Engineering Co. 2012, MH Engineering Co. 2013, Oliver 2017, Breeze Software 2016, EMC Planning Group 2017.

NOTES:

1. Numbers may vary due to rounding
2. CalEEMod default land use subtype. Descriptions of the model default land use categories and subtypes are found in the CalEEMod Version 2016.3.1 User Guide available online at: <http://www.aqmd.gov/caleemod/guide.htm>.
3. Includes duplex (duet) uses.
4. Dick Oliver, email communication with consultant June 28, 2017.

Model Baseline

The baseline for criteria air pollutant emissions that affect air quality are already quantified in air quality management plans. CalEEMod default values for baseline conditions assume new development on a vacant site. For development that replaces existing improvements on specific sites, project-specific contributions to regional GHG emissions are derived by comparing the proposed project GHG emissions to the baseline GHG emissions under existing conditions. The difference between the two would be the project's contribution to operational GHG emissions.

Carbon Sequestration Potential

CalEEMod also estimates a one-time only change in sequestration potential resulting from changes in land use such as replacing vegetation with impervious surfaces and planting new trees. The conversion of approximately 35 acres of fallow agricultural cropland (grasslands) to developed uses is included in the modeling. The model also calculates a one-time only change

in carbon sequestration potential based upon the number of net new trees proposed, averaged over a 20-year growth cycle. The model combines these two inputs to provide an estimate of net losses (from vegetation conversion) or gains (new trees). The model's sequestration potential default (tree plantings) assumes the number of new tree plantings is equal to 1:1 replacement acreage and/or tree replacement as this would result in a "net-zero" steady state. According to the proposed initial study, 61 trees are present on the Wren Investors site and several more are present on the Hewell site. At the time of this modeling, according to information provided by the Wren Investors applicant, approximately 2,264 new trees would be planted by future development (street trees, parks/open space areas, home sites, etc.). Information regarding the extent of future tree planting for the Hewell project was received after modeling, and is not included in the model. Nevertheless, the carbon sequestration potential that would result from the planting of a minimum of 2,200 net new trees is included in this assessment. The model results for changes in vegetation due to a loss of sequestration potential from the conversion of grassland to urban uses and gains in sequestration potential from tree growth are averaged over a 30-year time period "out-of-model" and for ease of reporting is noted as an aggregate annual amount.

Results

GHG emissions model results are reported on an annual basis in metric tons of carbon dioxide equivalent (CO₂e). Criteria air pollutant emissions are expressed in pounds per day. Detailed emissions results for existing and proposed annual GHG emissions and operational daily criteria pollutant emissions are attached to this memorandum.

Criteria Air Pollutants

The model reports winter and summer emissions based on climate conditions within the air basin. Unmitigated and mitigated operational criteria pollutant emissions resulting from the proposed project's operations are summarized in [Table 2, Operational Criteria Pollutant Emissions \(Pounds per Day\)](#).

Table 2 Operational Criteria Pollutant Emissions (Pounds per Day)¹

Emissions	Reactive Organic Gases (ROG)	Nitrogen Oxides (NO _x)	Suspended Particulate Matter (PM ₁₀)	Carbon Monoxide (CO)
Winter (unmitigated)	257.98	19.23	58.57	378.19
Winter (mitigated) ²	28.40	17.62	14.35	65.30
Summer (unmitigated)	258.50	18.61	58.56	378.63
Summer (mitigated) ²	28.93	17.00	14.35	65.74

SOURCE: CalEEMod Results, EMC Planning Group 2017

NOTES:

1. Results may vary due to rounding.
2. Mitigated emissions are due to prohibitions on woodburning hearths and use of low VOC paints and solvents on building interiors and exteriors.

Greenhouse Gas Emissions

The model estimates that the existing land uses on the site generates 115.95 MT CO₂e per year.

The model results for unmitigated operational GHG emissions for the proposed project are summarized in [Table 3, Unmitigated Operational GHG Emissions \(MT per year\)](#).

Table 3 Unmitigated Operational GHG Emissions (MT per year)¹

Emissions Source	Bio CO ₂	NBio CO ₂	CH ₄	N ₂ O	CO ₂ e
Area	29.08	11.78	0.06	<0.01	42.79
Energy ²	0.00	673.73	0.04	0.01	678.55
Mobile	0.00	2,136.514	0.07	0.00	2,138.19
Waste	58.20	0.00	3.44	0.00	144.18
Water	27.17	20.63	0.67	0.02	48.84
Total	93.81	2,842.65	4.27	0.03	3,052.56

Source: CalEEMod Results, EMC Planning Group 2017

Note:

1. Amounts may vary due to rounding.
2. Adjusted to include anticipated building energy efficiencies resulting from compliance with 2016 Title 24 building standards (California Energy Commission 2017).

Carbon Sequestration Potential

Modeled emissions associated with the changes in vegetation (loss of sequestration potential) and planting new trees (gain in sequestration potential) would indicate that lifetime emissions associated with the proposed project would be offset by 1,428.30 MT CO₂e. For ease of reporting this amount is averaged over thirty-years to yield an annual carbon sequestration potential of 47.61 MT CO₂e, which is deducted from the proposed project's estimated annual emissions.

GHG Emissions Attributable to the Proposed Project

The total unmitigated GHG emissions attributable to the proposed project (net emissions) are determined by comparing the existing emissions with proposed unmitigated operational emissions. The net unmitigated GHG emissions attributable to the proposed project are presented in [Table 4, Net Unmitigated GHG Emissions \(MT CO₂e per Year\)](#).

Table 4 Annual Net Unmitigated GHG Emissions (MT CO₂e per Year)¹

Operational Emissions	Carbon Sequestration Potential	Project Emissions	Existing Emissions	Estimated Net Emissions ²
3,052.56	<47.61 >	3,004.95	<115.95 >	2,889.00

Source: CalEEMod Results, EMC Planning Group 2017

Notes:

1. Results may vary due to rounding.

2. Net unmitigated emissions is the difference between existing and project emissions.

The estimated net unmitigated operational GHG emissions volume attributable to the proposed project is 2,889 MT CO₂e per year.

Energy Efficiency and Energy Demand Reduction Measures

An additional model scenario was created to estimate the extent that GHG emissions would be reduced by increasing building energy efficiencies by five percent beyond 2016 Title 24 building energy efficiency standards and by reducing overall electrical energy demand by 50 percent through the use of an on-site nonrenewable energy source such as solar photo-voltaic (PV) panels. The modeled estimate of mitigated project CO₂e emissions with implementation of these measures is 2,876.97 MT CO₂e per year, which represents an overall reduction of 175.59 MT CO₂e when compared with the model results for operational emissions (3052.56-2,876.97). With

implementation of these measures, the net GHG emissions attributable to the proposed project would be reduced to 2,713.41 MT CO₂e per year (2,889.00-175.59).

Sources

1. BREEZE Software. A Division of Trinity Consultants. California Emissions Estimator (CalEEMod) Version 2016.3.1. September 2016. Available online at: <http://www.aqmd.gov/caleemod.htm>.
2. BREEZE Software. A Division of Trinity Consultants. CalEEMod User's Guide (Version 2016.3.1). September 2016. Available online at: <http://www.aqmd.gov/caleemod/guide.htm>.
3. BAAQMD. California Environmental Quality Act Air Quality Guidelines. May 2017. Available online at: <http://www.baaqmd.gov>.
4. MH Engineering CO., 2013. Conceptual Development Plan, Vickery Avenue Reorganization 12-01.
5. Oliver, Richard. Email Correspondence with Consultant. 28 June 2017.
6. Pacific Gas & Electric. November 2015. Greenhouse Gas Factors: Guidance for PG&E Customers. Accessed online March 23, 2017 at: https://www.pge.com/includes/docs/pdfs/shared/environment/calculator/pge_ghg_emission_factor_info_sheet.pdf.
7. California Energy Commission. 2017. 2016 Building Energy Efficiency Standards FAQ. Accessed June 28, 2017. http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/2016_Building_Energy_Efficiency_Standards_FAQ.pdf.
8. MH Engineering Co. 2012. Density Exhibit, dated November 8, 2012.

ATTACHMENT

AQ/GHG MEMO



EMC PLANNING GROUP INC.
A LAND USE PLANNING & DESIGN FIRM

301 Lighthouse Avenue Suite C Monterey California 93940
Tel 831-649-1799 Fax 831-649-8399 www.emcplanning.com

To: Teri Wissler Adam, Project Manager
From: Sally Rideout, Principal Planner
Cc: File: ENV 725
Date: July 6, 2017

Re: Wren Investors/Hewell USA Amendments, Gilroy CA
Air Quality/Greenhouse Gas Emissions Assessment

Project Description

The proposed project consist of two urban service area (USA) boundary adjustments on two sites north and west of the Gilroy city limit. Gilroy is located within the San Francisco Bay Area Air Basin, which is within the jurisdiction of the Bay Area Air Quality Management District (air district). Although no development is currently proposed on either site, for the purposes of the emissions modeling it is assumed that future development on both sites would occur once the boundary adjustment is approved and the sites are annexed to the City of Gilroy.

The 50.3-acre Wren Investors project site consists of six parcels developed with low-density residential uses, one parcel that is occupied by the Gilroy High School Future Farmers of America Club farm laboratory, vacant land (grassland) and two vacant Santa Clara Valley Water District (SCVWD) parcels through which run the Lions Creek channel and a paved community bike path. Future development would consist of 137 low-density single-family residential dwelling units, 20 medium density (duets) dwelling units, 102 townhome/apartment units, neighborhood commercial uses on a 0.4-acre parcel, and related infrastructure.

The Hewell project includes development of 28 single-family homes and 20 higher density residential units, and related infrastructure on a 5.4-acre site. Existing sources of emissions on

MEMORANDUM

the project site consist of one single-family residence. The remainder of the site is vacant grassland.

Scope of Assessment

This assessment provides an estimate of criteria air pollutant and greenhouse gas (GHG) emissions associated with the combined operations of future development of both projects. Project-related air and GHG emissions are estimated using California Emissions Estimator Model (CalEEMod) Version 2016.3.1 software. The CalEEMod platform is recommended by the California Air Resources Board (CARB) and accepted by the air district. The air district approach to CEQA analyses for construction air quality and GHG emissions impacts is to emphasize implementation of effective and comprehensive control measures rather than detailed quantification of emissions. Therefore, estimates of construction criteria air pollutant or construction GHG emissions are not included in this assessment.

Emissions Model

The CalEEMod software utilizes U.S. Environmental Protection Agency (USEPA) AP-42 emission factors, CARB vehicle emission models studies and studies commissioned by other California agencies such as the California Energy Commission and CalRecycle in its emissions calculations. Version 2016.3.1 utilizes 2014 Title 24 building energy efficiency standards. The model calculates indirect emissions from processes “downstream” of the project under evaluation such as GHG emissions from energy use, solid waste disposal, wastewater and water use. CalEEMod also estimates changes in carbon sequestration potential due to changes in vegetation.

Methodology

This assessment provides an estimate of operational criteria air pollutant and GHG emissions that would be generated by future development of the project sites with proposed land uses described in more detail below. Operational GHG emissions from existing development are also estimated. For modeling purposes, data inputs to the model take into account the type and size of proposed uses utilizing CalEEMod default land uses and size metrics provided by the applicants.

Assumptions

Unless otherwise noted, data inputs for the project model are based on the following primary assumptions:

1. Emissions are estimated for an operational date of 2024.
2. Existing operational emissions on the eight parcels with existing uses were estimated using the CalEEMod default land use subtype of single-family Housing. Use of the Gilroy High School Future Farmers of America Club farm Laboratory property is not a source of substantial emissions. For the purposes of this assessment use of this property is expected to generate emissions similar to a single-family use).
3. Operational emissions from future development are based on the following CalEEMod default land use subtypes:
 - a. Emissions generated by the proposed single family housing use are assumed to be generally similar to emissions that would be generated by the CalEEMod default land use subtype "Single Family Housing", which consists of all single-family detached homes on individual lots typical of a suburban subdivision.
 - b. Emissions generated by townhomes are assumed to be generally similar to emissions that would be generated by the CalEEMod default land use subtype "Condo/Townhouse", which are defined as ownership units that have at least one other owned unit within the same building structure.
 - c. Operational emissions generated by residential apartment uses are assumed to be generally similar to emissions that would be generated by the CalEEMod default residential land use subtype "Apartments, low-rise", which are apartments in rental buildings that have between one and three levels.
 - d. Operational emissions generated by anticipated commercial retail uses are assumed to be generally similar to emissions that would be generated by the CalEEMod default retail land use subtype "Strip Mall", which is considered specialty retail by the Institute of Traffic Engineers (ITE). These specialty retail uses consist of a variety of retail shop types specializing in goods and services, professional uses, and hard goods such as quality apparel, florists and small restaurants.

- e. Emissions from commercial use parking lots are assumed to be generally similar to emissions that would be generated by the CalEEMod default land use subtype “Parking Lot”, which is a single surface parking lot typically covered with asphalt.
 - f. Emissions from internal paved roadways and access routes on the commercial site are assumed to be generally similar to emissions that would be generated by the CalEEMod default land use subtype “Other Asphalt Surfaces”, which is described as an asphalt area not used as a parking lot.
- 4. The model’s default CO₂ intensity factor of 641 pounds/megawatt hour was reduced to 290 pounds/megawatt hour to reflect Pacific Gas & Electric energy CO₂ intensity projections for 2020, which is the current horizon year for Pacific Gas & Electric projections. The intensity factor has been falling, in significant part due to the increasing percentage of Pacific Gas & Electric’s energy portfolio obtained from renewable energy. Emissions intensity data is from Pacific Gas & Electric’s Greenhouse Gas Factors: Guidance for PG&E Customers, dated November 2015.
 - 5. Within the project site, Lions Creek runs through two parcels (5.7 acres), which are owned and managed by the Santa Clara Valley Water District. This portion of the project site is not a substantial source of existing or proposed emissions. Therefore, this acreage is not included in the emissions calculations for existing or future uses.
 - 6. The most common existing vegetation type on vacant areas of the project site is grassland (approximately 35 acres).

Operational Emissions Data Inputs

A modeled estimate of existing operational emissions is provided assuming eight single-family residences. The model results for this estimate are included as attachments to this memorandum. Estimates of operational criteria air pollutant and GHG emissions that would be generated by the land uses identified in Table 1 are derived using the model default land use categories and trip generation rates based on future development of a 50-acre site (does not include waster district parcels). Size metrics are provided by the applicant or are shown on project conceptual plans. The model default for building energy efficiencies (2014 Title 24) was adjusted to reflect a 28 percent increase in Title 24 building energy efficiencies that will be

achieved through compliance with 2016 Title 24 building energy efficiency standards (California Energy Commission 2016).

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CalEEMod also estimates a one-time only change in sequestration potential resulting from changes in land use such as replacing vegetation with impervious surfaces and planting new trees. The conversion of approximately 35 acres of fallow agricultural cropland (grasslands) to developed uses is included in the modeling. The model also calculates a one-time only change

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Total	93.81	2,842.65	4.27	0.03	3,052.56

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Modeled emissions associated with the changes in vegetation (loss of sequestration potential) and planting new trees (gain in sequestration potential) would indicate that lifetime emissions associated with the proposed project would be offset by 1,428.30 MT CO₂e. For ease of reporting this amount is averaged over thirty-years to yield an annual carbon sequestration potential of 47.61 MT CO₂e, which is deducted from the proposed project's estimated annual emissions.

GHG Emissions Attributable to the Proposed Project

The total unmitigated GHG emissions attributable to the proposed project (net emissions) are determined by comparing the existing emissions with proposed unmitigated operational emissions. The net unmitigated GHG emissions attributable to the proposed project are presented in [Table 4, Net Unmitigated GHG Emissions \(MT CO₂e per Year\)](#).

Table 4 Annual Net Unmitigated GHG Emissions (MT CO₂e per Year)¹

Operational Emissions	Carbon Sequestration Potential	Project Emissions	Existing Emissions	Estimated Net Emissions ²
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Source: CalEEMod Results, EMC Planning Group 2017

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1. Results may vary due to rounding.

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An additional model scenario was created to estimate the extent that GHG emissions would be reduced by increasing building energy efficiencies by five percent beyond 2016 Title 24 building energy efficiency standards and by reducing overall electrical energy demand by 50 percent through the use of an on-site nonrenewable energy source such as solar photo-voltaic (PV) panels. The modeled estimate of mitigated project CO₂e emissions with implementation of these measures is 2,876.97 MT CO₂e per year, which represents an overall reduction of 175.59 MT CO₂e when compared with the model results for operational emissions (3052.56-2,876.97). With

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Sources

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7. California Energy Commission. 2017. 2016 Building Energy Efficiency Standards FAQ. Accessed June 28, 2017. http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/2016_Building_Energy_Efficiency_Standards_FAQ.pdf.
8. MH Engineering Co. 2012. Density Exhibit, dated November 8, 2012.

Wren/Hewell USAs Future Development Mitigated AQ
Santa Clara County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	14.50	Acre	14.50	631,620.00	0
Parking Lot	9.00	1000sqft	0.21	9,000.00	0
Apartments Low Rise	20.00	Dwelling Unit	1.06	20,000.00	57
Condo/Townhouse	102.00	Dwelling Unit	9.93	102,000.00	292
Single Family Housing	185.00	Dwelling Unit	25.41	333,000.00	529
Strip Mall	8.00	1000sqft	0.18	8,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	58
Climate Zone	4			Operational Year	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	290	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 Intensity Factor adjusted per PG&E 2020 Projections

Land Use - Acreage of residential land uses inferred from information provided by MH Engineering 2012 and 2013

Land Use Change -

Sequestration -

Energy Mitigation - Adjusted to reflect energy savings from compliance with 2016 Title 24 Standards

Area Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblLandUse	LotAcreage	1.25	1.06
tblLandUse	LotAcreage	6.38	9.93
tblLandUse	LotAcreage	60.06	25.41
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblProjectCharacteristics	OperationalYear	2018	2024
tblSequestration	NumberOfNewTrees	0.00	2,200.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	5.0458	52.3327	24.1599	0.0401	18.2141	2.8796	21.0937	9.9699	2.6492	12.6191	0.0000	4,056.5318	4,056.5318	1.1987	0.0000	4,083.6145
2018	5.2224	59.5771	37.1264	0.1024	18.2141	2.6348	20.7920	9.9699	2.4240	12.3416	0.0000	10,371.3598	10,371.3598	1.9491	0.0000	10,395.2132
2019	4.6507	39.4156	34.6329	0.1011	4.4405	1.4375	5.8780	1.1991	1.3532	2.5523	0.0000	10,209.0236	10,209.0236	0.9206	0.0000	10,232.0380
2020	4.1406	35.7266	32.5237	0.0997	4.4405	1.2168	5.6573	1.1991	1.1449	2.3441	0.0000	10,035.7048	10,035.7048	0.8845	0.0000	10,057.8176
2021	3.7159	32.3755	30.8717	0.0981	4.4406	1.0111	5.4517	1.1992	0.9507	2.1499	0.0000	9,879.4980	9,879.4980	0.8585	0.0000	9,900.9607
2022	90.5466	29.7120	29.6097	0.0965	4.4407	0.8570	5.2976	1.1992	0.8063	2.0054	0.0000	9,721.8484	9,721.8484	0.8393	0.0000	9,742.8303
2023	90.5170	1.4339	3.6318	9.1200e-003	0.6983	0.0749	0.7731	0.1852	0.0746	0.2598	0.0000	894.4796	894.4796	0.0290	0.0000	895.2034
Total	203.8390	250.5734	192.5561	0.5471	54.8888	10.1116	64.9434	24.9216	9.4029	34.2721	0.0000	55,168.4459	55,168.4459	6.6796	0.0000	55,307.6777

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	254.6402	5.0924	339.5633	0.5960		44.6129	44.6129		44.6129	44.6129	4,791.2359	1,640.3772	6,431.6130	6.1027	0.3382	6,684.9675
Energy	0.2739	2.3405	0.9981	0.0149		0.1892	0.1892		0.1892	0.1892		2,987.4326	2,987.4326	0.0573	0.0548	3,005.1855
Mobile	3.6584	11.7646	38.3175	0.1425	13.7057	0.1051	13.8107	3.6581	0.0978	3.7559		14,392.9720	14,392.9720	0.4296		14,403.7116
Total	258.5724	19.1974	378.8788	0.7534	13.7057	44.9072	58.6129	3.6581	44.8999	48.5580	4,791.2359	19,020.7818	23,812.0177	6.5896	0.3930	24,093.8645

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	25.0645	3.4819	26.6780	0.0217		0.3983	0.3983		0.3983	0.3983	0.0000	4,118.1301	4,118.1301	0.1218	0.0747	4,143.4254
Energy	0.2052	1.7536	0.7477	0.0112		0.1418	0.1418		0.1418	0.1418		2,238.3661	2,238.3661	0.0429	0.0410	2,251.6676
Mobile	3.6584	11.7646	38.3175	0.1425	13.7057	0.1051	13.8107	3.6581	0.0978	3.7559		14,392.9720	14,392.9720	0.4296		14,403.7116
Total	28.9281	17.0001	65.7432	0.1754	13.7057	0.6451	14.3508	3.6581	0.6378	4.2959	0.0000	20,749.4682	20,749.4682	0.5943	0.1157	20,798.8046

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	88.81	11.45	82.65	76.73	0.00	98.56	75.52	0.00	98.58	91.15	100.00	-9.09	12.86	90.98	70.56	13.68

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.6584	11.7646	38.3175	0.1425	13.7057	0.1051	13.8107	3.6581	0.0978	3.7559		14,392.9720	14,392.9720	0.4296		14,403.7116

Unmitigated	3.6584	11.7646	38.3175	0.1425	13.7057	0.1051	13.8107	3.6581	0.0978	3.7559		14,392.97 20	14,392.972 0	0.4296		14,403.711 6
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4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	131.80	143.20	121.40	304,736	304,736
Condo/Townhouse	592.62	578.34	493.68	1,331,363	1,331,363
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Single Family Housing	1,761.20	1,833.35	1594.70	4,036,550	4,036,550
Strip Mall	354.56	336.32	163.44	499,974	499,974
Total	2,840.18	2,891.21	2,373.22	6,172,624	6,172,624

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Condo/Townhouse	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.614951	0.035734	0.181842	0.104158	0.013506	0.005015	0.012793	0.021727	0.002177	0.001514	0.005249	0.000632	0.000704

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Title 24 adjusted by 28 percent

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Category	lb/day										lb/day					
NaturalGas Mitigated	0.2052	1.7536	0.7477	0.0112		0.1418	0.1418		0.1418	0.1418		2,238.3661	2,238.3661	0.0429	0.0410	2,251.6676
NaturalGas Unmitigated	0.2739	2.3405	0.9981	0.0149		0.1892	0.1892		0.1892	0.1892		2,987.4326	2,987.4326	0.0573	0.0548	3,005.1855

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Condo/Townhouse	6388.65	0.0689	0.5888	0.2505	3.7600e-003		0.0476	0.0476		0.0476	0.0476		751.6057	751.6057	0.0144	0.0138	756.0721
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	18222.5	0.1965	1.6793	0.7146	0.0107		0.1358	0.1358		0.1358	0.1358		2,143.8283	2,143.8283	0.0411	0.0393	2,156.5680
Strip Mall	52.1644	5.6000e-004	5.1100e-003	4.3000e-003	3.0000e-005		3.9000e-004	3.9000e-004		3.9000e-004	3.9000e-004		6.1370	6.1370	1.2000e-004	1.1000e-004	6.1735
Apartments Low Rise	729.824	7.8700e-003	0.0673	0.0286	4.3000e-004		5.4400e-003	5.4400e-003		5.4400e-003	5.4400e-003		85.8617	85.8617	1.6500e-003	1.5700e-003	86.3719
Total		0.2739	2.3405	0.9981	0.0149		0.1892	0.1892		0.1892	0.1892		2,987.4327	2,987.4327	0.0573	0.0548	3,005.1855

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Condo/Townhouse	4.84669	0.0523	0.4467	0.1901	2.8500e-003		0.0361	0.0361		0.0361	0.0361		570.1994	570.1994	0.0109	0.0105	573.5878
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	13.568	0.1463	1.2504	0.5321	7.9800e-003		0.1011	0.1011		0.1011	0.1011		1,596.2329	1,596.2329	0.0306	0.0293	1,605.7185
Strip Mall	0.0375584	4.1000e-004	3.6800e-003	3.0900e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		4.4186	4.4186	8.0000e-005	8.0000e-005	4.4449

Apartments Low Rise	0.573879	6.1900e-003	0.0529	0.0225	3.4000e-004		4.2800e-003	4.2800e-003		4.2800e-003	4.2800e-003		67.5152	67.5152	1.2900e-003	1.2400e-003	67.9164
Total		0.2052	1.7536	0.7478	0.0112		0.1418	0.1418		0.1418	0.1418		2,238.3661	2,238.3661	0.0429	0.0410	2,251.6676

6.0 Area Detail

6.1 Mitigation Measures Area

- Use Low VOC Paint - Residential Interior
- Use Low VOC Paint - Residential Exterior
- Use Low VOC Paint - Non-Residential Interior
- Use Low VOC Paint - Non-Residential Exterior
- Use only Natural Gas Hearths
- Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	25.0645	3.4819	26.6780	0.0217		0.3983	0.3983		0.3983	0.3983	0.0000	4,118.1301	4,118.1301	0.1218	0.0747	4,143.4254
Unmitigated	254.6402	5.0924	339.5633	0.5960		44.6129	44.6129		44.6129	44.6129	4,791.2359	1,640.3772	6,431.6130	6.1027	0.3382	6,684.9675

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.8511					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	10.1351					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	241.8925	4.8007	314.2428	0.5947		44.4726	44.4726		44.4726	44.4726	4,791.2359	1,594.7647	6,386.0006	6.0589	0.3382	6,638.2607
Landscaping	0.7615	0.2917	25.3205	1.3400e-003		0.1403	0.1403		0.1403	0.1403		45.6125	45.6125	0.0438		46.7069
Total	254.6402	5.0924	339.5633	0.5960		44.6129	44.6129		44.6129	44.6129	4,791.2359	1,640.3772	6,431.6130	6.1027	0.3382	6,684.9675

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.8511					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	22.0786					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.3733	3.1901	1.3575	0.0204		0.2579	0.2579		0.2579	0.2579	0.0000	4,072.5177	4,072.5177	0.0781	0.0747	4,096.7186
Landscaping	0.7615	0.2917	25.3205	1.3400e-003		0.1403	0.1403		0.1403	0.1403		45.6125	45.6125	0.0438		46.7069
Total	25.0645	3.4819	26.6780	0.0217		0.3983	0.3983		0.3983	0.3983	0.0000	4,118.1301	4,118.1301	0.1218	0.0747	4,143.4254

Wren/Hewell USAs Future Development Mitigated AQ
Santa Clara County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	14.50	Acre	14.50	631,620.00	0
Parking Lot	9.00	1000sqft	0.21	9,000.00	0
Apartments Low Rise	20.00	Dwelling Unit	1.06	20,000.00	57
Condo/Townhouse	102.00	Dwelling Unit	9.93	102,000.00	292
Single Family Housing	185.00	Dwelling Unit	25.41	333,000.00	529
Strip Mall	8.00	1000sqft	0.18	8,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	58
Climate Zone	4			Operational Year	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	290	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 Intensity Factor adjusted per PG&E 2020 Projections

Land Use - Acreage of residential land uses inferred from information provided by MH Engineering 2012 and 2013

Land Use Change -

Sequestration -

Energy Mitigation - Adjusted to reflect energy savings from compliance with 2016 Title 24 Standards

Area Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblLandUse	LotAcreage	1.25	1.06
tblLandUse	LotAcreage	6.38	9.93
tblLandUse	LotAcreage	60.06	25.41
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblProjectCharacteristics	OperationalYear	2018	2024
tblSequestration	NumberOfNewTrees	0.00	2,200.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	5.0514	52.3454	24.1214	0.0400	18.2141	2.8796	21.0937	9.9699	2.6492	12.6191	0.0000	4,045.8080	4,045.8080	1.1984	0.0000	4,072.7352
2018	5.3704	59.5893	36.8661	0.0985	18.2141	2.6348	20.7920	9.9699	2.4240	12.3416	0.0000	9,973.9162	9,973.9162	1.9488	0.0000	9,998.0112
2019	4.7837	39.8891	34.3445	0.0972	4.4405	1.4394	5.8799	1.1991	1.3550	2.5541	0.0000	9,819.3046	9,819.3046	0.9295	0.0000	9,842.5425
2020	4.2632	36.1085	32.2152	0.0959	4.4405	1.2180	5.6585	1.1991	1.1461	2.3452	0.0000	9,653.7159	9,653.7159	0.8924	0.0000	9,676.0249
2021	3.8322	32.6813	30.5636	0.0945	4.4406	1.0121	5.4527	1.1992	0.9517	2.1509	0.0000	9,507.9356	9,507.9356	0.8661	0.0000	9,529.5882
2022	90.5641	29.9780	29.3000	0.0930	4.4407	0.8579	5.2985	1.1992	0.8071	2.0063	0.0000	9,360.5367	9,360.5367	0.8465	0.0000	9,381.7000
2023	90.5343	1.4628	3.4783	8.6200e-003	0.6983	0.0749	0.7731	0.1852	0.0746	0.2598	0.0000	844.7006	844.7006	0.0280	0.0000	845.4009
Total	204.3991	252.0543	190.8891	0.5277	54.8888	10.1166	64.9485	24.9216	9.4077	34.2769	0.0000	53,205.9176	53,205.9176	6.7097	0.0000	53,346.0027

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	254.6402	5.0924	339.5633	0.5960		44.6129	44.6129		44.6129	44.6129	4,791.2359	1,640.3772	6,431.6130	6.1027	0.3382	6,684.9675
Energy	0.2739	2.3405	0.9981	0.0149		0.1892	0.1892		0.1892	0.1892		2,987.4326	2,987.4326	0.0573	0.0548	3,005.1855
Mobile	3.1334	12.3802	37.8754	0.1329	13.7057	0.1055	13.8111	3.6581	0.0982	3.7563		13,426.7352	13,426.7352	0.4343		13,437.5928
Total	258.0475	19.8131	378.4368	0.7438	13.7057	44.9076	58.6133	3.6581	44.9003	48.5584	4,791.2359	18,054.5450	22,845.7809	6.5943	0.3930	23,127.7458

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	25.0645	3.4819	26.6780	0.0217		0.3983	0.3983		0.3983	0.3983	0.0000	4,118.1301	4,118.1301	0.1218	0.0747	4,143.4254
Energy	0.2052	1.7536	0.7477	0.0112		0.1418	0.1418		0.1418	0.1418		2,238.3661	2,238.3661	0.0429	0.0410	2,251.6676
Mobile	3.1334	12.3802	37.8754	0.1329	13.7057	0.1055	13.8111	3.6581	0.0982	3.7563		13,426.7352	13,426.7352	0.4343		13,437.5928
Total	28.4031	17.6157	65.3011	0.1658	13.7057	0.6455	14.3512	3.6581	0.6382	4.2963	0.0000	19,783.2315	19,783.2315	0.5990	0.1157	19,832.6859

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	88.99	11.09	82.74	77.71	0.00	98.56	75.52	0.00	98.58	91.15	100.00	-9.57	13.41	90.92	70.56	14.25

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Mitigated	3.1334	12.3802	37.8754	0.1329	13.7057	0.1055	13.8111	3.6581	0.0982	3.7563		13,426.7352	13,426.7352	0.4343		13,437.5928
Unmitigated	3.1334	12.3802	37.8754	0.1329	13.7057	0.1055	13.8111	3.6581	0.0982	3.7563		13,426.7352	13,426.7352	0.4343		13,437.5928

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	131.80	143.20	121.40	304,736	304,736
Condo/Townhouse	592.62	578.34	493.68	1,331,363	1,331,363
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Single Family Housing	1,761.20	1,833.35	1594.70	4,036,550	4,036,550
Strip Mall	354.56	336.32	163.44	499,974	499,974
Total	2,840.18	2,891.21	2,373.22	6,172,624	6,172,624

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Condo/Townhouse	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.614951	0.035734	0.181842	0.104158	0.013506	0.005015	0.012793	0.021727	0.002177	0.001514	0.005249	0.000632	0.000704

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Title 24 Adjusted per CEC

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.2052	1.7536	0.7477	0.0112		0.1418	0.1418		0.1418	0.1418		2,238.3661	2,238.3661	0.0429	0.0410	2,251.6676
NaturalGas Unmitigated	0.2739	2.3405	0.9981	0.0149		0.1892	0.1892		0.1892	0.1892		2,987.4326	2,987.4326	0.0573	0.0548	3,005.1855

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Condo/Townhouse	6388.65	0.0689	0.5888	0.2505	3.7600e-003		0.0476	0.0476		0.0476	0.0476		751.6057	751.6057	0.0144	0.0138	756.0721
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	18222.5	0.1965	1.6793	0.7146	0.0107		0.1358	0.1358		0.1358	0.1358		2,143.8283	2,143.8283	0.0411	0.0393	2,156.5680
Strip Mall	52.1644	5.6000e-004	5.1100e-003	4.3000e-003	3.0000e-005		3.9000e-004	3.9000e-004		3.9000e-004	3.9000e-004		6.1370	6.1370	1.2000e-004	1.1000e-004	6.1735
Apartments Low Rise	729.824	7.8700e-003	0.0673	0.0286	4.3000e-004		5.4400e-003	5.4400e-003		5.4400e-003	5.4400e-003		85.8617	85.8617	1.6500e-003	1.5700e-003	86.3719
Total		0.2739	2.3405	0.9981	0.0149		0.1892	0.1892		0.1892	0.1892		2,987.4327	2,987.4327	0.0573	0.0548	3,005.1855

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Condo/Townhouse	4.84669	0.0523	0.4467	0.1901	2.8500e-003		0.0361	0.0361		0.0361	0.0361		570.1994	570.1994	0.0109	0.0105	573.5878
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	13.568	0.1463	1.2504	0.5321	7.9800e-003		0.1011	0.1011		0.1011	0.1011		1,596.2329	1,596.2329	0.0306	0.0293	1,605.7185

Strip Mall	0.0375584	4.1000e-004	3.6800e-003	3.0900e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		4.4186	4.4186	8.0000e-005	8.0000e-005	4.4449
Apartments Low Rise	0.573879	6.1900e-003	0.0529	0.0225	3.4000e-004		4.2800e-003	4.2800e-003		4.2800e-003	4.2800e-003		67.5152	67.5152	1.2900e-003	1.2400e-003	67.9164
Total		0.2052	1.7536	0.7478	0.0112		0.1418	0.1418		0.1418	0.1418		2,238.3661	2,238.3661	0.0429	0.0410	2,251.6676

6.0 Area Detail

6.1 Mitigation Measures Area

- Use Low VOC Paint - Residential Interior
- Use Low VOC Paint - Residential Exterior
- Use Low VOC Paint - Non-Residential Interior
- Use Low VOC Paint - Non-Residential Exterior
- Use only Natural Gas Hearths
- Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	25.0645	3.4819	26.6780	0.0217		0.3983	0.3983		0.3983	0.3983	0.0000	4,118.1301	4,118.1301	0.1218	0.0747	4,143.4254
Unmitigated	254.6402	5.0924	339.5633	0.5960		44.6129	44.6129		44.6129	44.6129	4,791.2359	1,640.3772	6,431.6130	6.1027	0.3382	6,684.9675

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.8511					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	10.1351					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	241.8925	4.8007	314.2428	0.5947		44.4726	44.4726		44.4726	44.4726	4,791.2359	1,594.7647	6,386.0006	6.0589	0.3382	6,638.2607
Landscaping	0.7615	0.2917	25.3205	1.3400e-003		0.1403	0.1403		0.1403	0.1403		45.6125	45.6125	0.0438		46.7069

Total	254.6402	5.0924	339.5633	0.5960		44.6129	44.6129		44.6129	44.6129	4,791.2359	1,640.3772	6,431.6130	6.1027	0.3382	6,684.9675
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Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.8511					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	22.0786					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.3733	3.1901	1.3575	0.0204		0.2579	0.2579		0.2579	0.2579	0.0000	4,072.5177	4,072.5177	0.0781	0.0747	4,096.7186
Landscaping	0.7615	0.2917	25.3205	1.3400e-003		0.1403	0.1403		0.1403	0.1403		45.6125	45.6125	0.0438		46.7069
Total	25.0645	3.4819	26.6780	0.0217		0.3983	0.3983		0.3983	0.3983	0.0000	4,118.1301	4,118.1301	0.1218	0.0747	4,143.4254

Wren/Hewell USA Amendments Existing Conditions

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	8.00	Dwelling Unit	2.60	14,400.00	23

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	58
Climate Zone	4			Operational Year	2018
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1154	1.7300e-003	0.1284	1.4000e-004		0.0102	0.0102		0.0102	0.0102	1.0169	0.3467	1.3636	2.0200e-003	6.0000e-005	1.4314
Energy	1.5500e-003	0.0133	5.6400e-003	8.0000e-005		1.0700e-003	1.0700e-003		1.0700e-003	1.0700e-003	0.0000	35.4986	35.4986	1.2100e-003	4.7000e-004	35.6688
Mobile	0.0249	0.0998	0.2917	7.9000e-004	0.0649	9.5000e-004	0.0659	0.0174	8.9000e-004	0.0183	0.0000	72.0528	72.0528	2.9100e-003	0.0000	72.1255
Waste						0.0000	0.0000		0.0000	0.0000	1.9609	0.0000	1.9609	0.1159	0.0000	4.8580
Water						0.0000	0.0000		0.0000	0.0000	0.1654	1.1551	1.3204	0.0170	4.1000e-004	1.8691
Total	0.1418	0.1147	0.4257	1.0100e-003	0.0649	0.0122	0.0772	0.0174	0.0122	0.0296	3.1431	109.0532	112.1963	0.1391	9.4000e-004	115.9528

4.0 Operational Detail - Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Unmitigated	0.0249	0.0998	0.2917	7.9000e-004	0.0649	9.5000e-004	0.0659	0.0174	8.9000e-004	0.0183	0.0000	72.0528	72.0528	2.9100e-003	0.0000	72.1255

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	76.16	79.28	68.96	174,554	174,554
Total	76.16	79.28	68.96	174,554	174,554

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.596719	0.040200	0.188056	0.111125	0.016796	0.004948	0.012194	0.019466	0.002007	0.001626	0.005410	0.000612	0.000841

5.0 Energy Detail

Historical Energy Use: N

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	20.1501	20.1501	9.1000e-004	1.9000e-004	20.2290
NaturalGas Unmitigated	1.5500e-003	0.0133	5.6400e-003	8.0000e-005		1.0700e-003	1.0700e-003		1.0700e-003	1.0700e-003	0.0000	15.3485	15.3485	2.9000e-004	2.8000e-004	15.4397

6.0 Area Detail

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Unmitigated	0.1154	1.7300e-003	0.1284	1.4000e-004		0.0102	0.0102		0.0102	0.0102	1.0169	0.3467	1.3636	2.0200e-003	6.0000e-005	1.4314

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Unmitigated	1.3204	0.0170	4.1000e-004	1.8691

8.0 Waste Detail

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Unmitigated	1.9609	0.1159	0.0000	4.8580

Wren/Hewell USA Amendments Future Development Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	20.00	Dwelling Unit	1.06	20,000.00	57
Condo/Townhouse	102.00	Dwelling Unit	9.93	102,000.00	292
Single Family Housing	185.00	Dwelling Unit	25.41	333,000.00	529
Strip Mall	8.00	1000sqft	0.18	8,000.00	0
Parking Lot	9.00	1000sqft	0.21	9,000.00	0
Other Asphalt Surfaces	14.50	Acre	14.50	631,620.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	58
Climate Zone	4			Operational Year	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 Intensity Factor adjusted per PG&E 2020 Projections

Land Use - Acreage of residential land uses inferred from information provided by MH Engineering 2012 and 2013

Land Use Change -

Sequestration -

Energy Mitigation - Adjusted to reflect energy savings from compliance with 2016 Title 24 Standards

Table Name	Column Name	Default Value	New Value
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tblLandUse	LotAcreage	1.25	1.06
tblLandUse	LotAcreage	6.38	9.93
tblLandUse	LotAcreage	60.06	25.41
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblProjectCharacteristics	OperationalYear	2018	2024
tblSequestration	NumberOfNewTrees	0.00	2,200.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational 2016 Title 24 Compliant

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.6279	0.0566	4.2520	4.1600e-003		0.2967	0.2967		0.2967	0.2967	29.0775	11.7825	40.8600	0.0569	1.7100e-003	42.7928
Energy	0.0375	0.3200	0.1365	2.0400e-003		0.0259	0.0259		0.0259	0.0259	0.0000	673.7257	673.7257	0.0374	0.0131	678.5548
Mobile	0.5480	2.1016	6.3144	0.0233	2.2951	0.0182	2.3134	0.6143	0.0170	0.6313	0.0000	2,136.5144	2,136.5144	0.0668	0.0000	2,138.1845
Waste						0.0000	0.0000		0.0000	0.0000	58.1975	0.0000	58.1975	3.4394	0.0000	144.1819
Water						0.0000	0.0000		0.0000	0.0000	6.5338	20.6317	27.1655	0.6732	0.0163	48.8435
Total	4.2133	2.4783	10.7029	0.0295	2.2951	0.3408	2.6359	0.6143	0.3395	0.9538	93.8088	2,842.6543	2,936.4631	4.2737	0.0311	3,052.5574

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	1,557.6000
Vegetation Land Change	-129.3000

Total	1,428.3000
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4.0 Operational Detail - Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Unmitigated	0.5480	2.1016	6.3144	0.0233	2.2951	0.0182	2.3134	0.6143	0.0170	0.6313	0.0000	2,136.5144	2,136.5144	0.0668	0.0000	2,138.1845

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	131.80	143.20	121.40	304,736	304,736
Condo/Townhouse	592.62	578.34	493.68	1,331,363	1,331,363
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Single Family Housing	1,761.20	1,833.35	1594.70	4,036,550	4,036,550
Strip Mall	354.56	336.32	163.44	499,974	499,974
Total	2,840.18	2,891.21	2,373.22	6,172,624	6,172,624

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Condo/Townhouse	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.614951	0.035734	0.181842	0.104158	0.013506	0.005015	0.012793	0.021727	0.002177	0.001514	0.005249	0.000632	0.000704

5.0 Energy Detail

Historical Energy Use: N

Compliant with Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Compliant						0.0000	0.0000		0.0000	0.0000	0.0000	303.1391	303.1391	0.0303	6.2700e-003	305.7660
NaturalGas Compliant	0.0375	0.3200	0.1365	2.0400e-003		0.0259	0.0259		0.0259	0.0259	0.0000	370.5866	370.5866	7.1000e-003	6.7900e-003	372.7888

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	4.95231e+006	0.0267	0.2282	0.0971	1.4600e-003		0.0185	0.0185		0.0185	0.0185	0.0000	264.2743	264.2743	5.0700e-003	4.8500e-003	265.8447
Strip Mall	13708.8	7.0000e-005	6.7000e-004	5.6000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.7316	0.7316	1.0000e-005	1.0000e-005	0.7359
Apartments Low Rise	209466	1.1300e-003	9.6500e-003	4.1100e-003	6.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004	0.0000	11.1779	11.1779	2.1000e-004	2.0000e-004	11.2443
Condo/Townhouse	1.76904e+006	9.5400e-003	0.0815	0.0347	5.2000e-004		6.5900e-003	6.5900e-003		6.5900e-003	6.5900e-003	0.0000	94.4029	94.4029	1.8100e-003	1.7300e-003	94.9639
Total		0.0374	0.3200	0.1365	2.0400e-003		0.0259	0.0259		0.0259	0.0259	0.0000	370.5866	370.5866	7.1000e-003	6.7900e-003	372.7888

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	90784	11.9419	1.1900e-003	2.5000e-004	12.0454

Condo/Townhouse	542026	71.2991	7.1300e-003	1.4800e-003	71.9169
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	7920	1.0418	1.0000e-004	2.0000e-005	1.0508
Single Family Housing	1.58265e+006	208.1848	0.0208	4.3100e-003	209.9888
Strip Mall	81126.4	10.6715	1.0700e-003	2.2000e-004	10.7640
Total		303.1391	0.0303	6.2800e-003	305.7660

6.0 Area Detail

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Unmitigated	3.6279	0.0566	4.2520	4.1600e-003		0.2967	0.2967		0.2967	0.2967	29.0775	11.7825	40.8600	0.0569	1.7100e-003	42.7928

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.3378					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.8497					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.3719	0.0304	1.9732	4.0400e-003		0.2841	0.2841		0.2841	0.2841	29.0775	8.0584	37.1359	0.0534	1.7100e-003	38.9794
Landscaping	0.0685	0.0263	2.2788	1.2000e-004		0.0126	0.0126		0.0126	0.0126	0.0000	3.7241	3.7241	3.5700e-003	0.0000	3.8135
Total	3.6279	0.0566	4.2520	4.1600e-003		0.2967	0.2967		0.2967	0.2967	29.0775	11.7825	40.8600	0.0569	1.7100e-003	42.7928

7.0 Water Detail

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Unmitigated	27.1655	0.6732	0.0163	48.8435

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	1.30308 / 0.821507	1.7191	0.0426	1.0300e-003	3.0907
Condo/Townhouse	6.64571 / 4.18969	8.7675	0.2172	5.2500e-003	15.7627
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	12.0535 / 7.59894	15.9019	0.3940	9.5200e-003	28.5893
Strip Mall	0.59258 / 0.363194	0.7770	0.0194	4.7000e-004	1.4007
Total		27.1655	0.6732	0.0163	48.8435

8.0 Waste Detail

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Unmitigated	58.1975	3.4394	0.0000	144.1819

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
--	----------------	-----------	-----	-----	------

Land Use	tons	MT/yr			
Apartments Low Rise	9.2	1.8675	0.1104	0.0000	4.6267
Condo/Townhouse	46.92	9.5243	0.5629	0.0000	23.5961
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	222.18	45.1005	2.6654	0.0000	111.7347
Strip Mall	8.4	1.7051	0.1008	0.0000	4.2244
Total		58.1975	3.4394	0.0000	144.1819

APPENDIX C

*WREN INVESTORS/HEWELL PROPERTY URBAN SERVICE AREA
AMENDMENT TRAFFIC IMPACT ANALYSIS (PREPARED BY HEXAGON
TRANSPORTATION CONSULTANTS, DATED DECEMBER 14, 2017)*



HEXAGON TRANSPORTATION CONSULTANTS, INC.



Wren Investors/Hewell Property Urban Service Area Amendment

Traffic Impact Analysis

Prepared for:

EMC Planning Group, Inc.

December 14, 2017



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Executive Summary

This report presents the results of the Traffic Impact Analysis conducted for the annexation and pre-zoning of the proposed Wren Investors/Hewell Property Development in unincorporated Santa Clara County, just outside the City of Gilroy city limits. The project proposes to amend the City's Urban Service Area (USA) to include approximately 47 acres of property, generally located south of Vickery Lane between Kern and Wren Avenues, and north of the existing residential units located north of Mantelli Drive (Wren Investors site), plus an additional 4.16 acres of mainly vacant land located at the northeast corner of the Kern Avenue and Vickery Avenue intersection (Hewell Property site). This traffic analysis evaluates the preliminary development plan which includes 137 low-density residential lots, 20 medium-density residential lots, 102 high-density townhome/apartments, and 0.40 acres of neighborhood commercial within the Wren Investors site, and 48 single-family residential units within the Hewell Property site, both of them consistent with the existing General Plan land-use designation on the site (Neighborhood District).

Scope of Study

The traffic impact analysis documents the potential traffic impacts to the surrounding transportation network associated with the proposed project. The purpose of the traffic analysis is to satisfy the requirements of the City of Gilroy, the Congestion Management Program (CMP) of the Santa Clara Valley Transportation Authority (VTA), Caltrans, and the California Environmental Quality Act (CEQA).

The study includes the analysis of 25 intersections. The potential impacts of the project on intersections were evaluated in accordance with City of Gilroy and Caltrans level of service standards and impact criteria.

Study Intersections

1. Monterey Road and Masten Avenue/Fitzgerald Avenue (signalized) ^{SCC}
2. Monterey Road and Buena Vista Avenue (unsignalized) ^{CofG}
3. Monterey Road and Day Road (unsignalized) ^{CofG}
4. Monterey Road and Cohansey Avenue (unsignalized) ^{CofG}
5. Monterey Road and Farrell Avenue (signalized) ^{CofG}
6. Monterey Road and Ronan Avenue (unsignalized) ^{CofG}
7. Monterey Road and Leavesley Road (SR 152)/Welburn Avenue (signalized) ^{CofG, CMP, CT}
8. Church Street and Farrell Avenue (unsignalized) ^{CofG}
9. Church Street and Mantelli Drive (unsignalized) ^{CofG}
10. Wren Avenue and Cohansey Avenue (unsignalized) ^{CofG}
11. Wren Avenue and Vickery Avenue (unsignalized) ^{CofG}
12. Wren Avenue and Farrell Avenue (unsignalized) ^{CofG}

13. Wren Avenue and Tatum Avenue (unsignalized) ^{CofG}
14. Wren Avenue and Ronan Avenue (unsignalized) ^{CofG}
15. Wren Avenue and Mantelli Drive (unsignalized) ^{CofG}
16. Wren Avenue and Welburn Avenue (unsignalized) ^{CofG}
17. Wren Avenue and First Street (signalized) ^{CofG, CT}
18. Kern Avenue and Vickery Avenue (unsignalized) ^{CofG}
19. Kern Avenue and Tatum Avenue (unsignalized) ^{CofG}
20. Kern Avenue and St. Clar Avenue/Ronan Avenue (unsignalized) ^{CofG}
21. Kern Avenue and Mantelli Drive (unsignalized) ^{CofG}
22. US 101 Southbound ramps and Masten Avenue (unsignalized) ^{SCC, CT}
23. US 101 Northbound ramps and Masten Avenue (unsignalized) ^{SCC, CT}
24. US 101 Southbound ramps and Leavesley Road (SR 152) (signalized) ^{CofG, CT}
25. US 101 Northbound ramps and Leavesley Road (SR 152) (signalized) ^{CofG, CT}

^{SCC} denotes Santa Clara County intersections

^{CofG} denotes City of Gilroy intersections

^{CT} denotes Caltrans intersections

Study Time Periods

Traffic conditions at the study intersections were analyzed for the weekday AM and PM peak hours of traffic. The weekday AM peak hour of traffic generally falls within the 7:00 to 9:00 AM period and the weekday PM peak hour is typically in the 4:00 to 6:00 PM period. It is during these times that the most congested traffic conditions occur on an average day.

Study Scenarios

Scenario 1: *Existing Conditions.* Existing conditions were represented by existing peak-hour traffic volumes on the existing roadway network.

Scenario 2: *Existing Plus Project Conditions.* Existing plus Project conditions represent existing peak-hour traffic volumes on the existing roadway network with the addition of traffic generated by the proposed project if the project was open and operating today.

Scenario 3: *Background Conditions.* Background traffic volumes were estimated by adding to existing peak-hour volumes the projected trips from approved but not yet constructed developments in the City of Gilroy.

Scenario 4: *Background Plus Project Conditions.* 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 potential project impacts.

Scenario 5: *Cumulative Conditions.* Cumulative conditions represent future traffic volumes on the future transportation network that would result from traffic growth projected to occur due to proposed but-not-yet-approved (pending) development projects.

Project Trip Generation

The magnitude of traffic generated by the proposed project was estimated by applying to the size of the project the appropriate trip generation rates, as published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 10th Edition, 2017. The trip generation estimates for the proposed

project are based on ITE's trip generation rates for single-family residential units (ITE land use code #210) and shopping center (ITE land use code #826). Additionally, a 15% trip reduction was applied to the project trip generation estimates for internalization between the retail and the residential uses, as prescribed by VTA guidelines, and a 20% PM peak-hour pass-by reduction was applied to the retail portion of the project.

On the basis of the ITE trip generation rates, and after applying the applicable trip reductions, it is estimated that the proposed project would generate 3,105 net new daily trips, with 234 trips (61 inbound and 173 outbound) occurring during the AM peak-hour and 321 trips (199 inbound and 122 outbound) occurring during the PM peak-hour.

Background Plus Project Conditions Analysis

The results of the intersection level of service analysis under background plus project conditions are discussed below and summarized in Table ES 1. The analysis results are presented for all study intersections based on City of Gilroy level of service standard and impact criteria. Caltrans intersections also are evaluated based on Caltrans level of service standards and impact criteria.

City of Gilroy/Santa Clara County Intersections

Signalized Intersections

The results of the level of service analysis of the signalized study intersections indicate that the following study intersection is projected to operate at unacceptable levels of service during both peak hours under background plus project conditions:

1. Monterey Road and Masten Avenue/Fitzgerald Avenue (LOS E – AM and PM peak hours)

However, the addition of project traffic at the above intersection is not sufficient to cause the average delay to increase by more than 1.0 second. This typically happens when project traffic volumes are low and/or are added to non-critical movements of the intersection. Therefore, based on City of Gilroy intersection impact criteria, the project would not cause a significant level or service impact at this location.

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

CMP Intersection

The results of the level of service analysis for the CMP intersection under background plus project conditions show that, measured against the CMP level of service standards, the CMP study intersection of Monterey Road and Leavesley Road/Welburn Avenue (#7) is projected to operate at an acceptable LOS C during the AM and PM peak hours.

Unsignalized Intersections

The results of the level of service analysis show that the addition of project traffic to four of the unsignalized study intersections projected to operate with overall average intersection delays corresponding to an unacceptable level would cause the intersections' average delay to increase beyond the City's delay increase threshold during at least one of the peak hours under background plus project conditions:

3. Monterey Road and Day Road (**Impact:** AM and PM peak hours)
16. Wren Avenue and Welburn Avenue (**Impact:** PM peak-hour)
22. US 101 Southbound Ramps and Masten Avenue (**Impact:** PM peak-hour)

23. US 101 Northbound Ramps and Masten Avenue (**Impact:** AM peak-hour)

Based on City of Gilroy unsignalized intersection level of service impact criteria, this is considered a project impact.

Additionally, the unsignalized intersection analysis results indicate that the following four unsignalized study intersections are projected to operate with average delays corresponding to LOS F on its stop-controlled approach with the highest delay during at least one of the peak hours analyzed and the traffic volume during the same peak hour would be high enough to satisfy the peak-hour volume warrant:

- 2. Monterey Road and Buena Vista Avenue (**Impact:** AM and PM peak hours)
- 3. Monterey Road and Day Road (**Impact:** AM and PM peak hours)
- 22. US 101 SB Ramps and Masten Avenue (**Impact:** PM peak-hour)
- 23. US 101 NB Ramps and Masten Avenue (**Impact:** AM and PM peak hours)

Based on the unsignalized intersection level of service impact criteria, intersections where both the average delay on the stop-controlled approach with the highest delay operates at LOS E or F and the addition of project traffic causes the traffic volumes at the intersection to satisfy the peak-hour volume traffic signal warrant, are considered to be impacted by the project.

Caltrans Intersections

The results of the intersection level of service analysis for Caltrans intersections show that two of the Caltrans study intersections are projected to operate at unacceptable levels under background plus project conditions during one of the peak hours analyzed, and the addition of project traffic to would cause the intersection average delay to increase:

- 22. US 101 Southbound Ramps and Masten Avenue (**Impact:** PM peak-hour)
- 23. US 101 Northbound Ramps and Masten Avenue (**Impact:** AM peak-hour)

This constitutes a significant project impact based on Caltrans intersection level of service impact criteria.

Freeway Segment Analysis

According to CMP Traffic Impact Analysis Guidelines, a freeway level of service analysis is required if the number of project trips added to any freeway segment equals or exceeds one percent of the capacity of the segment. The key freeway segments in the study area were analyzed to determine if the project traffic on each segment would exceed this threshold. A review of the project trip assignment indicates that the number of project trips on the freeway falls below the one-percent threshold. Thus, the project would not cause a significant increase in traffic on the freeway segments in the study area, and a freeway level of service analysis is not required.

Intersection Operations Analysis

The operations analysis results are summarized in Tables ES 2.

The existing maximum queue length for all of the study intersection movements is estimated to be able to accommodate within the available queue storage capacity for each of the movements during the peak hours, with the exception of the westbound left-turn movement at the intersection of Monterey Road and Masten Avenue/Fitzgerald Avenue.

The maximum queue length for the westbound left-turn movement at the *Monterey Road and Masten Avenue/Fitzgerald Avenue* intersection is estimated to be 22 vehicles (or 550 feet) during the PM peak hour under existing conditions, exceeds the existing storage capacity of approximately 340 feet for this movement. The addition of approved (background) traffic to this movement would cause the projected

queue length to increase by 2 vehicles (to 24 vehicles, or 600 feet) during the PM peak hour. The addition of project traffic to this turn movement would cause the projected vehicle queue to increase by 3 vehicles (from 24 to 27 vehicles, or 600 to 675 feet) during the PM peak-hour under background plus project conditions. Contribution to a vehicle queue in a turn-movement with inadequate queue storage capacity is considered a project impact, according to the City of Gilroy definition of significant traffic operations impacts.

Parking Analysis

The proposed project must adhere to the City of Gilroy parking requirements (found in the City of Gilroy Zoning Ordinance, Section 31, Off-street parking requirements) and the Americans with Disabilities Act (ADA) requirements in order to satisfy City of Gilroy standards.

Emergency Access Evaluation

Wren Investors Site

Based on the review of the Preliminary Master Plan, it was determined that with the preliminary internal roadway layout and dimensions, every proposed single-family residential unit within the project development would be accessible from at least three different access points, making emergency vehicle access and circulation within the project site adequate. Emergency access to the multi-family units must be verified to ensure that the widths and turn radii of the access aisles comply with City requirements. The final design of all access roadways will have to be approved by the City of Gilroy.

Hewell Property Site

Based on the review of the Conceptual Development Plan, every residential unit within the site would be accessible from at least two different access points, making emergency vehicle access within the project site adequate. However, the design of all new roadways and alleys providing direct access to the proposed residential units must adhere to City of Gilroy design guidelines and standards and should provide adequate turn-radii for emergency vehicles and large trucks to maneuver through the site. With the appropriate roadway widths and turn-radii, on-site circulation for emergency vehicles would be adequate. The final design of all access roadways will have to be approved by the City of Gilroy.

Recommended Mitigation Measures under Background Plus Project Conditions

Described below are the recommended mitigation measures necessary to maintain the level of service standard and intersection operations under background plus project conditions.

All mitigation measures listed below are planned in the City's Traffic Circulation Master Plan (TCMP) and are included in the City's Traffic Impact Fee (TIF) Program. Thus, the developer will be required to pay the applicable TIF fee as a fair-share contribution toward improvements at this intersection. With implementation of the mitigation measures, the project impacts would be less-than-significant.

2. Monterey Road and Buena Vista Avenue (City of Gilroy Intersection)

- Impact:** The projected level of service on the highest-delay approach at this unsignalized intersection is projected to be LOS F during the AM and PM peak hours under background plus project conditions and the traffic volume levels at the intersection would be high enough to satisfy the peak-hour volume traffic signal warrant during both the AM and PM peak hours (City of Gilroy Impact).
- Mitigation:** The project impact to this intersection could be mitigated with the installation of a traffic signal, which would include protected left-turn movements on the southbound approach. Implementation of the above improvements would improve the intersection level of

service to acceptable LOS A during the AM and PM peak hours under background plus project conditions.

With payment of the applicable TIF fee as a fair-share contribution toward improvements at this intersection, this impact would be less-than-significant.

3. Monterey Road and Day Road (City of Gilroy Intersection)

Impact: This unsignalized intersection is projected to operate at unacceptable LOS D during the AM peak hour under background conditions and the addition of project traffic would cause the intersection level of service to deteriorate to unacceptable LOS E and D during the AM and PM peak hours, respectively (City of Gilroy Impact). Additionally, the projected level of service on the highest-delay approach would be LOS F during the AM and PM peak hours under background plus project conditions and the traffic volume levels at the intersection would be high enough to satisfy the peak-hour volume traffic signal warrant during both the AM and PM peak hours (City of Gilroy Impact).

Mitigation: The project impact to this intersection could be mitigated with the installation of a traffic signal, which would include protected left-turn movements on the northbound approach. Implementation of the above improvements would improve the intersection level of service to acceptable LOS B during the AM and PM peak hours under background plus project conditions.

With payment of the applicable TIF fee as a fair-share contribution toward improvements at this intersection, this impact would be less-than-significant.

16. Wren Avenue and Welburn Avenue (City of Gilroy Intersection)

Impact: This unsignalized intersection is projected to operate at unacceptable LOS F during the PM peak hour under background conditions and the addition of project traffic would cause the overall intersection delay to increase by more than 1.0 second (City of Gilroy Impact).

Mitigation: The project impact to this intersection could be mitigated with the installation of a traffic signal that would include protected left-turn signal phasing on the northbound/southbound approaches and split phasing on the eastbound/westbound approaches. Implementation of the above improvements would improve the intersection level of service to LOS C during the AM and PM peak hours under background plus project conditions.

With payment of the applicable TIF fee as a fair-share contribution toward improvements at this intersection, this impact would be less-than-significant.

22. US 101 SB Ramps and Masten Avenue (Caltrans Intersection)

Impact: This unsignalized intersection is projected to operate at unacceptable LOS E during the PM peak hour under background conditions and the addition of project traffic would cause the overall intersection delay to increase by more than 1.0 second (City of Gilroy and Caltrans impact). Additionally, the projected level of service on the highest-delay approach would be LOS F during the PM peak hour under background plus project conditions and the traffic volume levels at the intersection would be high enough to satisfy the peak-hour volume traffic signal warrant (City of Gilroy Impact).

Mitigation: The project impact to this intersection could be mitigated with the installation of a traffic signal that would include split signal phasing on the southbound approach and protected

phasing on the westbound approach. Additionally, a receiving lane in the westbound direction also is needed as an exclusive lane for the southbound right-turn movement volumes. Implementation of the above improvements would improve the intersection level of service to acceptable LOS B during the AM and PM peak hours under background plus project conditions.

With payment of the applicable TIF fee as a fair-share contribution toward improvements at this intersection, this impact would be less-than-significant.

23. US 101 NB Ramps and Masten Avenue (Caltrans Intersection)

Impact: This unsignalized intersection is projected to operate at unacceptable LOS F during the AM peak hour under background conditions and the addition of project traffic would cause the overall intersection delay to increase by more than 1.0 second (City of Gilroy and Caltrans impact). Additionally, the projected level of service on the highest-delay approach would be LOS F during the AM and PM peak hours under background plus project conditions and the traffic volume levels at the intersection would be high enough to satisfy the peak-hour volume traffic signal warrant (City of Gilroy Impact).

Mitigation: The project impact to this intersection could be mitigated with the installation of a traffic signal that would include split signal phasing on the northbound approach and protected phasing on the eastbound approach. Implementation of the above improvements would improve the intersection level of service to acceptable LOS C or better under background plus project conditions.

In addition to installation of a traffic signal, providing adequate queue storage capacity for the relatively high projected eastbound left-turn movement volumes at this intersection also would be required. In the case providing adequate queue storage capacity for the eastbound left-turn movement is not feasible, a northbound loop on-ramp may be necessary to serve the eastbound on Masten Avenue to northbound US 101 traffic volumes. It should be noted that a loop on-ramp is one of the improvements included in the City's TCMP for this location. The level of analysis to determine the necessary interchange lane configuration would be completed in the interchange's Project Study Report (PSR).

With payment of the applicable TIF fee as a fair-share contribution toward improvements at this intersection, this impact would be less-than-significant.

1. Monterey Road and Masten Avenue/Fitzgerald Avenue – Westbound Left-Turn

Impact: The addition of project traffic to the westbound left-turn movement at this intersection would cause the projected 95th percentile vehicle queue to increase by three vehicles (from 24 to 27 vehicles, or 600 to 675 feet) from background to background plus project conditions. This exceeds the existing storage capacity of approximately 340 feet (or 13 vehicles). Based on City of Gilroy definition of significant traffic operations impacts, this is considered a project impact.

Mitigation: The project impact to the westbound left-turn movement of the Monterey Road/Masten Avenue/Fitzgerald Avenue intersection could be mitigated by providing a second westbound left-turn lane.

With payment of the applicable TIF fee as a fair-share contribution toward improvements at this intersection, this impact would be less-than-significant.

Cumulative Plus Project Conditions Analyses

The results of the intersection level of service analysis under cumulative plus project conditions are discussed below and summarized in Table ES 1.

City of Gilroy/Santa Clara County Intersections

Signalized Intersections

The results of the level of service analysis for the signalized study intersections indicate that the following study intersection is projected to operate at an unacceptable level of service during both peak hours under cumulative plus project conditions:

1. Monterey Road and Masten Avenue/Fitzgerald Avenue (**Impact:** PM peak-hour)

The level of service calculations show that the addition of project traffic at the above intersections would cause the intersection average delay to increase by more than one second during the PM peak-hour. This constitutes a significant cumulative project impact, based on City of Gilroy signalized intersection level of service impact criteria.

CMP Intersection

The results of the level of service analysis for the CMP intersection under cumulative plus project conditions show that, measured against the CMP level of service standards, the CMP study intersection of Monterey Road and Leavesley Road/Welburn Avenue (#7) is projected to operate at an acceptable LOS C during the AM and PM peak hours.

Unsignalized Intersections

The results of the level of service analysis show that the addition of project traffic to four of the unsignalized study intersections projected to operate with overall average intersection delays corresponding to an unacceptable level would cause the intersections' average delay to increase beyond the City's delay increase threshold during at least one of the peak hours under cumulative plus project conditions:

3. Monterey Road and Day Road (**Impact:** AM and PM peak hours)
16. Wren Avenue and Welburn Avenue (**Impact:** AM and PM peak hours)
22. US 101 Southbound Ramps and Masten Avenue (**Impact:** PM peak-hour)
23. US 101 Northbound Ramps and Masten Avenue (**Impact:** AM peak-hour)

Based on City of Gilroy unsignalized intersection level of service impact criteria, this is considered a cumulative project impact.

Additionally, the unsignalized intersection analysis results indicate that the following four unsignalized study intersections are projected to operate with average delays corresponding to LOS F on its stop-controlled approach with the highest delay during at least one of the peak hours analyzed and the traffic volume during the same peak hour would be high enough to satisfy the peak-hour volume warrant:

2. Monterey Road and Buena Vista Avenue (**Impact:** AM and PM peak hours)
3. Monterey Road and Day Road (**Impact:** AM and PM peak hours)
22. US 101 SB Ramps and Masten Avenue (**Impact:** PM peak-hour)
23. US 101 NB Ramps and Masten Avenue (**Impact:** AM and PM peak hours)

Based on the unsignalized intersection level of service impact criteria, intersections where both the average delay on the stop-controlled approach with the highest delay operates at LOS E or F and the

addition of project traffic causes the traffic volumes at the intersection to satisfy the peak-hour volume traffic signal warrant, are considered to be impacted by the project.

Caltrans Intersections

The results of the intersection level of service analysis for Caltrans intersections show that two of the Caltrans study intersections are projected to operate at unacceptable levels under cumulative plus project conditions during one of the peak hours analyzed, and the addition of project traffic would cause the intersection average delay to increase:

- 22. US 101 Southbound Ramps and Masten Avenue (**Impact:** PM peak-hour)
- 23. US 101 Northbound Ramps and Masten Avenue (**Impact:** AM peak-hour)

This constitutes a significant project impact based on Caltrans intersection level of service impact criteria.

Recommended Mitigation Measures under Cumulative Plus Project Conditions

Described below are the recommended mitigation measures necessary to maintain the level of service standard and intersection operations under cumulative plus project conditions.

All mitigation measures listed below are planned in the City's TCMP and are included in the City's TIF Program. Thus, the developer will be required to pay the applicable TIF fee as a fair-share contribution toward improvements at this intersection. With implementation of the mitigation measures, the project impacts would be less-than-significant.

1. US 101 NB Ramps and Masten Avenue (Caltrans Intersection)

Impact: This signalized intersection is projected to operate at unacceptable LOS E and F during the AM and PM peak hours, respectively, under cumulative conditions and the addition of project traffic would cause the intersection average delay to increase by more than 1.0 second (City of Gilroy Impact).

Mitigation: The minimum required improvements to mitigate the project impact at this intersection include adding a separate eastbound left-turn lane, a second westbound left-turn lane, and updating the signal phasing to protected left-turns in the eastbound/westbound direction. Implementation of the above improvements would improve the intersection level of service to better than cumulative (no project) conditions, satisfactorily mitigating the project impact. However, the intersection is projected to continue to be deficient (LOS D) during the PM peak-hour.

With payment of the applicable TIF fee as a fair-share contribution toward improvements at this intersection, this impact would be less-than-significant.

2. Monterey Road and Buena Vista Avenue (City of Gilroy Intersection)

Impact: The projected level of service on the highest-delay approach at this unsignalized intersection is projected to be LOS F during the AM and PM peak hours under cumulative plus project conditions and the traffic volume levels at the intersection would be high enough to satisfy the peak-hour volume traffic signal warrant during both the AM and PM peak hours (City of Gilroy Impact).

Mitigation: The improvements necessary to mitigate the project impact at this intersection are the same as described in the background plus project conditions section. Implementation of the above improvements would improve the intersection level of service to acceptable LOS A during the AM and PM peak hours under cumulative plus project conditions.

With payment of the applicable TIF fee as a fair-share contribution toward improvements at this intersection, this impact would be less-than-significant.

3. Monterey Road and Day Road (City of Gilroy Intersection)

Impact: This unsignalized intersection is projected to operate at unacceptable LOS E during the AM and PM peak hours under cumulative conditions and the addition of project traffic would cause the overall intersection delay to increase by more than 1.0 second (City of Gilroy Impact). Additionally, the projected level of service on the highest-delay approach would be LOS F during the AM and PM peak hours under cumulative plus project conditions and the traffic volume levels at the intersection would be high enough to satisfy the peak-hour volume traffic signal warrant during both the AM and PM peak hours (City of Gilroy Impact).

Mitigation: The improvements necessary to mitigate the project impact at this intersection are the same as described in the background plus project conditions section. Implementation of the above improvements would improve the intersection level of service to acceptable LOS B during the AM and PM peak hours under cumulative plus project conditions.

With payment of the applicable TIF fee as a fair-share contribution toward improvements at this intersection, this impact would be less-than-significant.

16. Wren Avenue and Welburn Avenue (City of Gilroy Intersection)

Impact: This unsignalized intersection is projected to operate at unacceptable LOS D and F during the AM and PM peak hours, respectively, under cumulative conditions and the addition of project traffic would cause the overall intersection delay to increase beyond the City's delay increase threshold (City of Gilroy Impact).

Mitigation: The project impact to this intersection could be mitigated with the addition of separate left-turn lanes on both the eastbound and westbound approaches, and installation of a traffic signal that would include protected left-turn signal phasing on all approaches of the intersection. Implementation of the above improvements would improve the intersection level of service to LOS C during the AM and PM peak hours under cumulative plus project conditions.

With payment of the applicable TIF fee as a fair-share contribution toward improvements at this intersection, this impact would be less-than-significant.

22. US 101 SB Ramps and Masten Avenue (Caltrans Intersection)

Impact: This unsignalized intersection is projected to operate at unacceptable LOS F during the PM peak hour under cumulative conditions and the addition of project traffic would cause the overall intersection delay to increase by more than 1.0 second (City of Gilroy and Caltrans impact). Additionally, the projected level of service on the highest-delay approach would be LOS F during the PM peak hour under cumulative plus project conditions and the traffic volume levels at the intersection would be high enough to satisfy the peak-hour volume traffic signal warrant (City of Gilroy Impact).

Mitigation: The improvements necessary to mitigate the project impact at this intersection are the same as described in the background plus project conditions section. Implementation of the above improvements would improve the intersection level of service to acceptable LOS B during the AM and PM peak hours under cumulative plus project conditions.

With payment of the applicable TIF fee as a fair-share contribution toward improvements at this intersection, this impact would be less-than-significant.

23. US 101 NB Ramps and Masten Avenue (Caltrans Intersection)

Impact: This unsignalized intersection is projected to operate at unacceptable LOS F during the AM peak hour under cumulative conditions and the addition of project traffic would cause the overall intersection delay to increase by more than 1.0 second (City of Gilroy and Caltrans impact). Additionally, the projected level of service on the highest-delay approach would be LOS F during the AM and PM peak hours under cumulative plus project conditions and the traffic volume levels at the intersection would be high enough to satisfy the peak-hour volume traffic signal warrant (City of Gilroy Impact).

Mitigation: The improvements necessary to mitigate the project impact at this intersection are the same as described in the background plus project conditions section. Implementation of the above improvements would improve the intersection level of service to acceptable LOS C or better under cumulative plus project conditions.

With payment of the applicable TIF fee as a fair-share contribution toward improvements at this intersection, this impact would be less-than-significant.

Other Transportation Issues

Freeway Ramp Evaluation

A review of metered freeway ramps providing access to and from US 101 and the project site was performed to identify the effect of the addition of project traffic on the queues at metered study freeway on-ramps. Uncontrolled freeway on-ramps are typically not evaluated since these ramps do not experience measurable queue lengths. It should be noted that the evaluation of freeway ramps is not required based on the City's transportation impact analysis guidelines. Nor are there adopted methodologies and impact criteria for the analysis of freeway ramps.

US 101 Northbound On-Ramp at Masten Avenue

The northbound on-ramp at Masten Avenue consists of a diagonal ramp and includes two mixed-flow lanes and one high occupancy vehicle (HOV) lane. Although a ramp meter is installed, field observations revealed that the ramp meter is continuously green during the AM peak-hour, allowing the ramp to function as an uncontrolled ramp. No measurable vehicular queues were observed at this ramp. Therefore, it can be concluded that the addition of the project traffic to this ramp during the peak hours would not have an effect on existing queue lengths.

US 101 Southbound On-Ramp at Leavesley Road

The southbound on-ramp at Leavesley Road consists of a diagonal ramp with two mixed-flow lanes with ramp meter. Field observations revealed that this ramp meter is operational during the PM peak-hour only. Therefore, during the AM peak-hour, when the proposed project would add the most traffic to this on-ramp, the vehicular queues on this ramp are negligible and the project traffic during the AM peak-hour would not have an effect on the existing queue length.

Since the ramp meter at the Leavesley Road southbound on-ramp is operational during the PM peak-hour, and although the project traffic added to this ramp would be minimal during the PM peak-hour, an evaluation of the queue length on this ramp during the PM peak-hour was completed. The existing queue lengths at the ramp were measured in the field during the PM peak-hour.

The maximum observed queue length on the on-ramp during the PM peak-hour was a total of 88 vehicles, or 44 vehicles per lane. The maximum queue length was observed to extend nearly back to its intersection with Leavesley Road, although this only occurred once during the hour-long observation.

The proposed project is projected to add 9 trips to the US 101 southbound on-ramp at Leavesley Road during the PM peak-hour, which represents less than a 1% increase in volume from existing conditions, and equates to potentially one vehicle trip added to the on-ramp approximately every 6.5 minutes. The project could potentially add one or two vehicles to the maximum queue if vehicles were to arrive at just the right moment when the queue is at its maximum. Thus, it can be concluded that the addition of PM project trips to this metered on-ramp would have very little effect on the existing vehicle queues at the ramp.

Bicycle Circulation

Various bicycle facilities exist in the vicinity of the project site (existing bike lanes are available along segments of Cohansey Avenue, Wren Avenue, Farrell Avenue, Church Street, Welburn Avenue, and Mantelli Drive). In addition, 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 study area, some of which would benefit the project.

Project's Effect on Bicycle Facilities

The proposed project would 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 immediate vicinity of the project site. However, along segments with missing bicycle facilities, project-related bicycle traffic would need to share the roadway with auto traffic. The implementation of the above planned bicycle facilities would enhance the existing facilities and provide a continuous bicycle network to serve the project area. Since the above planned bicycle facilities are not fully funded, it is uncertain when these facilities would be open.

Recommended Bicycle Facility Improvements

The following recommendations are made to promote non-auto modes of transportation in the City and to accommodate bicycle travel near the project site:

Install Bicycle Parking Facilities. It is recommended that the proposed project provide adequate bicycle parking supply, based on VTA's recommended bicycle-parking rates, to serve the multi-family and retail components of the project.

Contribute to Planned Bicycle Facilities in the Project Area. It is recommended that the proposed project contribute to the completion of planned bicycle facilities that would serve the project site directly, in particular those along Kern, Cohansey, and Wren Avenues. The contribution should include striped bike facilities, to the extent practical, along Kern Avenue, and extending the existing bike lane along Cohansey Avenue from the Harvest Park site to Kern Avenue. Additionally, it is recommended that the missing bike lanes along Wren Avenue, approximately 1,000 feet between Farrell Avenue and Vickery Avenue, be installed to provide a continuous bike lane along Wren Avenue.

Ultimately, the contribution, if required, should be determined by the City of Gilroy and it should be based on the project's contribution to the total projected growth in the study area.

Pedestrian Circulation

Pedestrian facilities in the project area consist primarily of sidewalks along residential streets in the study area. Although most developed areas in the vicinity of the project site have sidewalks along both

sides of the street, some streets within the project area have sidewalks missing along one or both sides of the street, including segments of Wren Avenue, Kern Avenue, Tatum Avenue, Vickery Avenue, and Farrell Avenue. This results in a discontinuous pedestrian facility network in the project area.

Project's Effect on Pedestrian Facilities

It can be expected that new pedestrian traffic would be generated by the proposed project. Possible pedestrian destinations near the project sites include Antonio Del Buono Elementary School (located adjacent to and east of the Wren Investors site), Las Animas Park (located between one quarter mile to less than one mile south of the project sites along Mantelli Drive), and the bus stops along Monterey Road (located just over half a mile east of the project sites). Rod Kelley Elementary School also is located half a mile to one mile south of the project site (along Kern Avenue), a distance which might be considered too far for some to walk to school. Pedestrians accessing the above pedestrian destinations would mainly utilize Kern, Wren, Cohansey, Vickery, and Farrell Avenues. However, with the missing sidewalks along segments of these roadways, there is currently not a continuous pedestrian connection between the Hewell Property and Wren Investors sites, or between the project sites and other pedestrian facilities/destinations.

The lack of connectivity between the project site and other pedestrian destinations potentially could discourage pedestrian activity or force pedestrians to walk along undeveloped roadway shoulders and/or within the street.

Although it is not feasible for the proposed project to install all missing sidewalks in the vicinity of the project sites, providing sidewalks along both sides of all new roadways within the project sites and along the project's frontage on Kern, Vickery, and Wren Avenues, would greatly improve pedestrian connectivity and circulation in the study area. The new sidewalks would connect to other existing and planned sidewalks along Cohansey Avenue and Wren Avenue, providing a continuous pedestrian connection between the project sites and Wren Avenue, including access to the Antonio Del Buono Elementary School. However, the lack of a continuous pedestrian facility along Kern Avenue would continue, affecting pedestrian connectivity between the project sites and pedestrian destinations along Kern Avenue.

Recommended Pedestrian Circulation Improvements

Installation of Sidewalks. It is recommended that with the development of the project area, sidewalks along both sides of all new streets on the project site and along existing project frontage streets with missing sidewalks be built. This would provide a continuous sidewalk connection from every proposed residential unit within the project site to existing and planned pedestrian facilities within the study area.

Installation of School Crosswalks on All Legs of Farrell Avenue/Wren Avenue Intersection. The project, in coordination with the City of Gilroy, should consider installing high visibility school crosswalks on all legs of the intersection of Farrell Avenue and Wren Avenue.

Development of a Safe Route to Schools Program. It is recommended that the project developer work with the City of Gilroy to develop a safe route to schools program from the project site to the anticipated school sites serving the project.

Transit Service

Although the project site is not directly served by a bus route, bus stops serving the project site are located along Wren Avenue (at Ramona Way) and along Monterey Road (at Cohansey Avenue, Farrell Avenue, and Ronan Avenue).

In addition, the Gilroy Caltrain Station (Transit Center) is located in Downtown Gilroy, approximately 3 miles south of the project site, and the San Martin Caltrain Station is located approximately 4.5 miles north 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 new project development residents could utilize public transportation. Applying an estimated three percent (3%) transit mode share, which is probably the highest that could be expected for the project, equates to approximately 7 to 10 new transit riders during the peak hours. The estimated number of new transit riders for the proposed project could be served by the existing bus line currently serving the project area. Therefore, the additional transit demand generated by the project would not justify additional transit services in the study area, based on the project demand alone. However, as the area surrounding the project site develops, the demand for public transportation could increase.

Recommended Transit Service Improvements

Expansion of Service. With the development of the project area, VTA should consider expanding Bus Route 19 service area further north to directly serve the project area, or add a new route that would serve the project sites directly. Additionally, with the expansion of the service area, new bus stops could be located along Wren Avenue, Cohansey Avenue, and/or Kern Avenue.

Site Access

Wren Investors Site

Every proposed single-family residential unit within the project development would be accessible from at least three different access points, making vehicular access to/from the project site adequate.

Hewell Property Site

Every residential unit within the site would be accessible from at least two different access points. Therefore, vehicular access to/from the project site should be adequate.

On-Site Circulation

Wren Investors Site

Various new access roadways would provide direct access to the residential units and commercial area within the site. All new internal access roadways are shown to be 60 feet wide, with the exception of the cul-de-sacs, which are shown to be 52 feet wide. No dimensions on the multi-family drive aisles are shown.

The City of Gilroy requires 60 feet of right-of-way (ROW) for local streets and 52 feet of ROW for cul-de-sacs. Thus, the proposed roadway widths satisfy the City of Gilroy street design standards. However, although not specified on the preliminary site plan, design of the multi-family units' access aisles also should adhere to City of Gilroy design guidelines.

Three cul-de-sacs are located on the northern portion of the project site. All other streets within the site would be through streets. With the preliminary internal roadway layout and dimensions, every proposed single-family residential unit within the project development is accessible from at least three different access points, making emergency vehicle access and circulation within the project site adequate. Emergency access to the multi-family units should be verified to ensure that the widths and turn radii of the access aisles comply with City requirements. The final design will have to be approved by the City of Gilroy.

Hewell Property Site

In addition to extending Cohansey Avenue from its terminus point at the Harvest Park site/eastern Hewell Property site boundary to Kern Avenue, three other access roadways/residential streets also would be constructed within the project site. Lanes 1 and 2 are shown to be 36 feet wide (face of curb to face of curb (FC to FC)) while Alley D is shown to be 20 feet wide. Additionally, the Cohansey Avenue extension through the site is shown to be 54-feet wide and would be consistent with the segment of Cohansey Avenue east of the project site. Both Kern and Vickery Avenues, adjacent to the project site, are shown to be 40 feet wide.

According to City of Gilroy street design guidelines, local public streets must have a 38-foot FC to FC width in order to provide two 12-foot wide travel lanes and two 7-foot wide parking lanes (one on each side of the street). Based on these recommendations, the proposed FC to FC width for Lanes 1 and 2 do not satisfy the street design guidelines prescribed by the City of Gilroy. However, the City may allow exceptions, and ultimately, the final design will have to be approved by the City of Gilroy.

Design of the 20-foot alley providing access to the units located on the north side of the site should adhere to City of Gilroy design guidelines and standards in order to provide adequate turn-radii for emergency vehicles and large trucks, such as garbage trucks, to maneuver through the site. As with the design of the local streets, the final design of the access alley will have to be approved by the City of Gilroy.

Neighborhood School Traffic Issues

Based on field observations conducted in the project area on November and December 2017, it was observed that Wren and Farrell Avenues, in the vicinity of Antonio Del Buono Elementary School, experience considerable traffic activity associated with morning school drop-off and afternoon school pick-up activity. The proposed project is projected to add traffic to these segments of Wren and Farrell Avenues, potentially exacerbating the observed AM peak hour existing conditions.

Project's Effect on Neighborhood School Traffic Issues

The existing two-way traffic volume on Wren Avenue, north of Farrell Avenue, is 418 vehicles during the AM peak hour and 174 vehicles during the PM peak hour. The existing traffic activity on this segment of Wren Avenue during the AM peak-hour is predominately school-related traffic. The proposed project is projected to add approximately 31 AM peak-hour trips and 44 PM peak-hour trips to the same segment of Wren Avenue. This equates to an increase in traffic associated with the project of approximately 7 percent during the AM peak hour and 25 percent during the PM peak hour. The added traffic will be residential-related traffic, predominantly commute in nature. However, due to the various roadways and access points providing access to the project site, project traffic would have the opportunity to use alternative routes to and from the project site, in particular during the school's peak hours. Nevertheless, the addition of project traffic to this segment of Wren Avenue with existing pedestrian deficiencies and congestion problems would cause the observed existing conditions during the AM peak-hour to worsen and would exacerbate the undesirable condition associated with pedestrians crossing Wren Avenue along this segment. The effect of project traffic to this segment of Wren Avenue during the PM peak-hour would be minimal.

Additionally, the conflict between project traffic and existing traffic will be further exacerbated because the project traffic would be predominately commute in nature whereas the existing traffic is predominately school-related, each with different trip purposes. Commute traffic is focused more on traveling through the neighborhood to commute routes and employment destinations with as little delay as possible. School-related traffic is more locally focused with shorter trips where access to the school and obtaining convenient parking for student loading is the highest priority. The addition of project traffic

to existing traffic on Wren Avenue and the conflict between traffic with different trip purposes has the potential to degrade traffic operations in the corridor.

Possible Improvements

With the development of the proposed project, the west side of Wren Avenue would be developed and sidewalks would be provided. Therefore, with the proposed improvements along Wren Avenue planned as part of the project, in addition to possible changes to student loading procedures by the school, traffic conditions during the school peak hours along this segment of Wren Avenue potentially could improve.

Other possible improvements that could be implemented to alleviate traffic conditions in the vicinity of Antonio Del Buono Elementary School include:

- With the development of the proposed project, allow parking or loading zones on the west side of Wren Avenue, along the entire project frontage, to facilitate student loading during school start/end times.
- Design Wren Avenue along the project frontage to accommodate parking, bike lanes, and the necessary vehicular travel lanes.
- Add high visibility school crosswalks at the intersection of Wren Avenue and Farrell Avenue.
- Consider changes to the site plan so homes are not fronting directly onto Wren Avenue or Farrell Avenue, just west of Wren Avenue, as this area is likely to experience school traffic congestion during school start/end times.
- Design the proposed commercial site located on the southwest corner of the Wren Avenue/Farrell Avenue intersection to discourage school-related traffic from parking in the commercial parking lot.
- Encourage the school to develop and enforce a drop-off/pick-up plan in order to minimize mid-block crossing and vehicle/pedestrian conflicts as well as illegal turns adjacent to the school grounds.

Recommendations to Alleviate Neighborhood School Traffic Issues

Contribute to Possible Improvements. The project applicant should work with the City of Gilroy to address the project's contribution to the existing traffic issues and deficiencies and contribute towards the implementation of a feasible improvement.

Table ES 1
Intersection Level of Service Summary

Study Int. Number	Intersection	Jurisdiction ¹	Intersection Control	LOS Standard	TIF Int. ²	Peak Hour	Count Date	Existing			Existing Plus Project			Background			Background Plus Project				Cumulative No Project			Cumulative Plus Project			
								Avg. Delay	LOS	Warrant Met? ³	Avg. Delay	LOS	Warrant Met? ³	Avg. Delay	LOS	Warrant Met? ³	Avg. Delay	LOS	Delay Change ⁴	Warrant Met? ³	Avg. Delay	LOS	Warrant Met? ³	Avg. Delay	LOS	Delay Change ⁴	Warrant Met? ³
1	Monterey Road and Masten Avenue/Fitzgerald Avenue	SCC	Signal	C	Yes	AM PM	1/17/17 1/17/17	30.9 43.3	C D	--	30.9 43.6	C D	--	59.1 78.4	E+ E-	--	59.4 79.0	E+ E-	+0.3 +0.6	--	63.0 86.7	E F	--	63.4 88.5	E F	+0.4 +1.8	--
2	Monterey Road and Buena Vista Avenue	CofG	One-Way Stop (Average Delay)	C	Yes	AM PM	5/16/17 5/16/17	5.0 2.1	A+ A+	--	6.4 2.6	A+ A+	--	8.1 3.6	A- A-	--	10.9 5.0	B+ A	+2.8 +1.4	--	13.5 8.3	B- A-	--	17.4 11.7	C+ B+	+3.9 +3.4	--
			One-Way Stop (Worst Approach)	D		AM PM		69.0 41.4	F E	Yes Yes	93.2 54.5	F F	Yes Yes	124.6 80.1	F F	Yes Yes	176.0 116.7	F F	+51.4 +36.6	Yes Yes	234.2 218.5	F F	Yes Yes	312.2 313.9	F F	+78.0 +95.4	Yes Yes
3	Monterey Road and Day Road	CofG	One-Way Stop (Average Delay)	C	Yes	AM PM	10/17/17 10/17/17	20.6 11.7	C B+	--	25.5 16.9	D+ C+	--	31.3 23.4	D C-	--	37.4 31.5	E+ D	+6.1 +8.1	--	48.2 42.8	E- E	--	55.9 55.0	F F	+7.7 +12.2	--
			One-Way Stop (Worst Approach)	D		AM PM		141.7 152.2	F F	Yes Yes	184.9 231.2	F F	Yes Yes	239.2 355.9	F F	Yes Yes	299.1 497.0	F F	+59.9 +141.1	Yes Yes	409.0 755.9	F F	Yes Yes	491.5 997.5	F F	+82.5 +241.6	Yes Yes
4	Monterey Road and Cohansey Avenue	CofG	One-Way Stop, Signal ⁶ (Average Delay)	C	Yes	AM PM	10/17/17 10/17/17	0.3 0.2	A+ A+	--	0.3 0.2	A+ A+	--	13.7 9.7	B A	--	17.7 13.4	B B	+4.0 +3.7	--	13.8 9.6	B A	--	18.0 14.6	B- B	+4.2 +5.0	--
			One-Way Stop (Worst Approach)	D		AM PM		25.2 21.5	D+ C	No No	27.9 24.1	D+ C-	No No														
5	Monterey Road and Farrell Avenue	CofG	Signal	C	No	AM PM	1/17/17 1/17/17	16.0 9.7	B A	--	16.6 11.4	B B+	--	13.8 7.7	B A	--	14.5 9.4	B A	+0.7 +1.7	--	13.8 7.5	B A	--	14.5 9.0	B A	+0.7 +1.5	--
6	Monterey Road and Ronan Avenue	CofG	One-Way Stop (Average Delay)	C	No	AM PM	10/17/17 10/17/17	1.9 0.8	A+ A+	--	2.4 1.2	A+ A+	--	1.9 0.8	A+ A+	--	2.6 1.2	A+ A+	+0.7 +0.4	--	2.1 0.8	A+ A+	--	3.0 1.4	A+ A+	+0.9 +0.6	--
			One-Way Stop (Worst Approach)	D		AM PM		17.4 15.8	C+ C	Yes No	20.1 19.3	C C	Yes No	20.3 18.8	C C	Yes No	24.0 24.3	C-	+3.7 +5.5	Yes Yes	25.6 24.0	D+ C-	Yes No	32.3 34.0	D- D	+6.7 +10.0	Yes No
7	Monterey Road and Leavesley Road/Welburn Avenue*	Caltrans	Signal	C	No	AM PM	1/17/17 1/17/17	27.1 29.1	C C	--	27.5 29.5	C C	--	28.2 30.8	C C	--	28.7 31.3	C C	+0.5 +0.5	--	29.8 33.9	C C-	--	30.4 34.5	C C-	+0.6 +0.6	--
8	Church Street and Farrell Avenue	CofG	All-Way Stop	C	Yes	AM PM	5/16/17 5/16/17	15.8 13.4	C B	No	23.6 19.0	C C	No	11.3 9.9	B A	No	12.3 10.7	B B	+1.0 +0.8	No	12.0 10.5	B B	No	13.2 11.5	B B	+1.2 +1.0	No
9	Church Street and Mantelli Drive/Lilly Ave	CofG	All-Way Stop	C	Yes	AM PM	5/18/17 5/18/17	15.8 16.5	C C	Yes Yes	16.0 16.8	C C	Yes Yes	18.0 20.1	C C	Yes Yes	18.2 20.5	C C	+0.2 +0.4	Yes Yes	18.6 21.3	C C	Yes Yes	18.7 21.7	C C	+0.1 +0.4	Yes Yes
10	Wren Avenue and Cohansey Avenue	CofG	All-Way Stop	C	Yes	AM PM	10/17/17 10/17/17	7.2 7.0	A A	No No	7.1 7.1	A A	No No	8.4 9.3	A A	No No	8.3 8.9	A A	-0.1 -0.4	No	8.4 9.3	A A	No No	8.3 8.9	A A	-0.1 -0.4	No
11	Wren Avenue and Vickery Avenue	CofG	All-Way Stop	C	No	AM PM	10/17/17 10/17/17	7.1 7.2	A A	No No	7.2 7.4	A A	No No	8.2 7.8	A A	No No	8.2 7.8	A A	+0.0 +0.0	No	8.2 7.8	A A	No No	8.2 7.8	A A	+0.0 +0.0	No
12	Wren Avenue and Farrell Avenue	CofG	All-Way Stop	C	Yes	AM PM	5/16/17 5/16/17	10.5 12.8	B B	No No	11.6 14.5	B B	No No	9.8 10.5	A B	No No	10.4 11.3	B B	+0.6 +0.8	No	10.0 11.3	A B	No No	10.6 12.2	B B	+0.6 +0.9	No
13	Wren Avenue and Tatum Avenue	CofG	One-Way Stop (Average Delay)	C	No	AM PM	10/17/17 10/17/17	1.2 0.7	A+ A+	--	1.9 1.3	A+ A+	--	1.2 0.7	A+ A+	--	1.9 1.3	A+ A+	+0.7 +0.6	--	1.1 0.7	A+ A+	--	1.9 1.2	A+ A+	+0.8 +0.5	--
			One-Way Stop (Worst Approach)	D		AM PM		12.3 12.0	B B	No No	13.5 13.5	B- B-	No No	12.3 11.9	B B	No No	13.5 13.3	B B	+1.2 +1.4	No	12.7 12.4	B B	No No	14.1 14.1	B- B	+1.4 +1.7	No
14	Wren Avenue and Ronan Avenue	CofG	Two-Way Stop (Average Delay)	C	No	AM PM	10/17/17 10/17/17	1.5 1.1	A+ A+	--	2.4 2.4	A+ A+	--	1.5 1.1	A+ A+	--	2.4 2.4	A+ A+	+0.9 +1.3	--	1.5 1.1	A+ A+	--	2.4 2.4	A+ A+	+0.9 +1.3	--
			Two-Way Stop (Worst Approach)	D		AM PM		14.3 14.1	B- B-	No No	16.4 17.1	C+ C+	No No	14.4 14.2	B- B-	No No	16.6 17.2	C+ C+	+2.2 +3.0	No	15.2 15.2	C+ C+	No No	17.7 18.8	C+ C	+2.5 +3.6	No
15	Wren Avenue and Mantelli Drive	CofG	All-Way Stop	C	Yes	AM PM	5/16/17 5/16/17	17.7 17.6	C C	Yes Yes	18.7 18.9	C C	Yes Yes	19.5 20.6	C C	Yes Yes	20.7 22.6	C C	+1.2 +2.0	Yes Yes	21.5 22.6	C C	Yes Yes	23.1 24.9	C C	+1.6 +2.3	Yes Yes
16	Wren Avenue and Welburn Avenue	CofG	All-Way Stop	C	Yes	AM PM	5/16/17 5/16/17	20.0 27.6	C D	Yes Yes	20.8 29.5	C D	Yes Yes	29.3 54.0	D F	Yes Yes	31.1 57.5	D F	+1.8 +3.5	Yes Yes	33.3 65.6	D F	Yes Yes	35.4 69.3	E F	+2.1 +3.7	Yes Yes
17	Wren Avenue and First Street	Caltrans	Signal	C	Yes	AM PM	5/16/17 5/16/17	27.9 31.3	C C	--	28.3 31.4	C C	--	28.0 31.8	C C	--	28.3 32.0	C C	+0.3 +0.2	--	29.1 34.5	C C-	--	29.3 34.7	C C-	+0.2 +0.2	--
18	Kern Avenue and Vickery Avenue	CofG	Uncontrolled, AWSC ⁷	C	No	AM PM	10/17/17 10/17/17	7.7 6.9	A A	No No	7.0 6.6	A A	No No	7.9 7.4	A B	No No	7.2 8.6	A A	-0.7 +1.2	No	7.9 7.4	A B	No No	7.2 8.6	A A	-0.7 +1.2	No
19	Kern Avenue and Tatum Avenue	CofG	Two-Way Stop (Average Delay)	C	No	AM PM	10/17/17 10/17/17	4.3 5.6	A A	--	4.2 4.9	A A	--	2.9 2.6	A+ A+	--	3.0 2.5	A+ A+	+0.1 -0.1	--	2.9 2.6	A+ A+	--	3.0 2.5	A+ A+	+0.1 -0.1	--
			Two-Way Stop (Worst Approach)	D		AM PM		9.3 9.1	A- A-	No No	9.4 9.1	A- A-	No No	9.9 9.8	A- A-	No No	10.0 9.9	A- A-	+0.1 +0.1	No	9.9 9.8	A- A-	No No	10.0 9.9	A- A-	+0.1 +0.1	No
20	Kern Avenue and St. Clair Avenue/Ronan Avenue	CofG	One-Way Stop (Average Delay)	C	No	AM PM	10/17/17 10/17/17	1.2 2.1	A+ A+	--	1.4 1.9	A+ A+	--	0.8 1.0	A+ A+	--	1.0 1.0	A+ A+	+0.2 +0.0	--	0.8 1.0	A+ A+	--	1.0 1.0	A+ A+	+0.2 +0.0	--
			One-Way Stop (Worst Approach)	D		AM PM		8.8 8.5	A- A-	No No	9.6 9.3	A- A-	No No	9.1 9.0	A- A-	No No	10.2 10.2	B+ B+	+1.1 +1.2	No	9.1 9.0	A- A-	No No	10.2 10.2	B+ B+	+1.1 +1.2	No

Table ES 1 (Continued)
Intersection Level of Service Summary

Study Int. Number	Intersection	Jurisdiction ¹	Intersection Control	LOS Standard	TIF Int. ²	Peak Hour	Count Date	Existing			Existing Plus Project			Background			Background Plus Project				Cumulative No Project			Cumulative Plus Project			
								Avg. Delay	LOS	Warrant Met? ³	Avg. Delay	LOS	Warrant Met? ³	Avg. Delay	LOS	Warrant Met? ³	Avg. Delay	LOS	Delay Change ⁴	Warrant Met? ³	Avg. Delay	LOS	Warrant Met? ³	Avg. Delay	LOS	Delay Change ⁴	Warrant Met? ³
21	Kern Avenue and Mantelli Drive	CofG	All-Way Stop	C	Yes	AM	5/16/17	12.1	B	No	12.6	B	No	13.1	B	No	13.7	B	+0.6	No	13.9	B	No	14.6	B	+0.7	No
22	US 101 SB Ramps and Masten Avenue	Caltrans	Two-Way Stop	C	Yes	AM	5/16/17	10.6	B	No	11.1	B	No	11.3	B	No	11.9	B	+0.6	No	12.1	B	No	12.8	B	+0.7	No
			(Average Delay)			PM	5/16/17	4.6	A	--	4.7	A	--	6.7	A	--	7.0	A	+0.3	--	7.1	A	--	7.5	A	+0.4	--
			Two-Way Stop (Worst Approach)	D		AM		11.6	B+	--	13.6	B-	--	49.7	E-	--	62.9	F	+13.2	--	62.1	F	--	76.2	F	+14.1	--
						PM		14.8	B-	Yes	15.3	C+	Yes	20.0	C	Yes	21.2	C	+1.2	Yes	21.2	C	Yes	22.6	C-	+1.4	Yes
								18.7	C	Yes	22.1	C-	Yes	84.6	F	Yes	106.9 ⁵	F	+22.3	Yes	105.7 ⁵	F	Yes	129.4 ⁵	F	+23.7	Yes
23	US 101 NB Ramps and Masten Avenue	Caltrans	Two-Way Stop	C	Yes	AM	5/16/17	14.0	B-	--	18.2	C+	--	66.3	F	--	84.0	F	+17.7	--	82.8	F	--	104.7 ⁵	F	+21.9	--
			(Average Delay)			PM	5/16/17	6.8	A-	--	7.2	A-	--	16.6	C+	--	19.7	C	+3.1	--	19.9	C	--	23.9	C-	+4.0	--
			Two-Way Stop (Worst Approach)	D		AM		71.2	F	Yes	105.8 ⁵	F	Yes	572.6 ⁵	F	Yes	766.6 ⁵	F	+194.0	Yes	754.0 ⁵	F	Yes	1002.5 ⁵	F	+248.5	Yes
						PM		17.6	C+	No	19.5	C	No	82.0	F	Yes	107.1 ⁵	F	+25.1	Yes	108.7 ⁵	F	Yes	141.7 ⁵	F	+33.0	Yes
24	US 101 SB Ramps and Leavesley Road	Caltrans	Signal	C	No	AM	5/23/17	16.8	B	--	16.7	B	--	17.3	B	--	17.3	B	+0.0	--	17.8	B	--	17.7	B	-0.1	--
						PM	5/23/17	27.6	C	--	27.5	C	--	28.6	C	--	28.7	C	+0.1	--	31.3	C	--	31.5	C	+0.2	--
25	US 101 NB Ramps/San Ysidro Avenue and Leavesley Road	Caltrans	Signal	C	No	AM	5/23/17	26.6	C	--	26.6	C	--	26.9	C	--	27.0	C	+0.1	--	27.2	C	--	27.2	C	+0.0	--
						PM	5/23/17	28.3	C	--	28.5	C	--	29.4	C	--	29.5	C	+0.1	--	30.0	C	--	30.2	C	+0.2	--

Notes:
¹ SCC = Santa Clara County; CofG = City of Gilroy
² TIF Int. = City of Gilroy Traffic Impact Fee intersection.
³ 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.
⁴ Change in delay, expressed in seconds, for background plus project conditions is measured relative to background conditions.
⁵ Change in delay, expressed in seconds, for cumulative plus project conditions is measured relative to cumulative no project conditions.
⁶ The HCM methodology for intersection analysis does not accurately calculate actual intersection operating conditions once the calculated intersection delay exceeds 100+ seconds. Once an intersection is calculated to operate with delays exceeding 100 seconds, any additional traffic to the intersection will increase the intersection delay exponentially, resulting in unrealistic excessive delays that most likely would never be experienced at an actual intersection. However, for the purpose of quantifying the projected increase in delay due to the proposed project, all calculated delays are reported, including those exceeding 100 seconds.
⁷ One-way stop-controlled intersection under existing conditions. Assumed to be signalized under background conditions.
⁸ Uncontrolled intersection under existing conditions. Assumed to be all-way stop-controlled with the project.
 * = CMP intersection
 Entries denoted in **bold** indicate conditions that exceed the City's current level of service standard.
 [Light Blue Box] - Denotes significant impact based on City of Gilroy criteria.
 [Light Orange Box] - Denotes significant impact based on Caltrans criteria.

Table ES 2
Intersection Vehicle Queue Analysis Summary

Measurement	Monterey/ Masten		Monterey/ Cohansey ³		Monterey/ Farrell			Monterey/ Leavesley		Wren/ Farrell	US 101 NB On-Ramps/ Masten		US 101 NB Off-Ramps/ Leavesley
	WBL AM	WBL PM	EB AM	EB PM	EB AM	EB PM	NBL PM	SBL AM	SBL PM	WBL PM	EBL AM	EBL PM	NBL PM
Existing Conditions													
Cycle/Delay ¹ (sec)	95	145			75	80	80	80	92	16.2	9.4	8.1	105
Lanes	1	1	1	1	2	2	1	1	1	1	1	1	2
Volume (vph)	133	387			589	236	58	217	254	371	538	349	370
Volume (vphpl)	133	387	0	0	295	118	58	217	254	371	538	349	185
Avg. Queue (veh./ln.)	4	16			6	3	1	5	6	2	1	1	5
Avg. Queue ² (ft./ln)	88	390	0	0	153	66	32	121	162	42	35	20	135
95th % Queue (veh./ln.)	7	22			10	6	3	9	11	4	4	2	9
95th % Queue (ft./ln)	175	550	0	0	250	150	75	225	275	100	100	50	225
Storage (ft./ln.)	340	340			700	700	325	450	450	250	150	150	350
Adequate (Y/N)	YES	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Existing Plus Project Conditions													
Cycle/Delay ¹ (sec)	95	145			75	80	80	80	92	20.3	9.7	8.2	105
Lanes	1	1			2	2	1	1	1	1	1	1	2
Volume (vph)	151	447			679	299	92	238	269	405	590	386	384
Volume (vphpl)	151	447			340	150	92	238	269	405	590	386	192
Avg. Queue (veh./ln.)	4	18			7	3	2	5	7	2	2	1	6
Avg. Queue ² (ft./ln)	100	450			177	83	51	132	172	57	40	22	140
95th % Queue (veh./ln.)	8	25			12	7	5	9	11	5	4	3	10
95th % Queue (ft./ln)	200	625			300	175	125	225	275	125	100	75	250
Storage (ft./ln.)	340	340			700	700	325	450	450	250	150	150	350
Adequate (Y/N)	YES	NO			YES	YES	YES	YES	YES	YES	YES	YES	YES
Background Conditions													
Cycle/Delay ¹ (sec)	95	145	60	60	75	80	80	80	92	12.8	11.7	9.1	105
Lanes	1	1	1	1	2	2	1	1	1	1	1	1	2
Volume (vph)	146	431	349	158	325	138	59	247	275	253	832	625	476
Volume (vphpl)	146	431	349	158	163	69	59	247	275	253	832	625	238
Avg. Queue (veh./ln.)	4	17	6	3	3	2	1	5	7	1	3	2	7
Avg. Queue ² (ft./ln)	96	434	145	66	85	38	33	137	176	22	68	39	174
95th % Queue (veh./ln.)	7	24	10	6	7	4	3	10	12	3	6	4	12
95th % Queue (ft./ln)	175	600	250	150	175	100	75	250	300	75	150	100	300
Storage (ft./ln.)	340	340	Future	Future	700	700	325	450	450	250	150	150	350
Adequate (Y/N)	YES	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Background Plus Project Conditions													
Cycle/Delay ¹ (sec)	95	145	60	60	75	80	80	80	92	14.3	12.4	9.3	105
Lanes	1	1	1	1	2	2	1	1	1	1	1	1	2
Volume (vph)	164	491	397	192	367	167	88	268	290	276	884	662	490
Volume (vphpl)	164	491	397	192	184	84	88	268	290	276	884	662	245
Avg. Queue (veh./ln.)	4	20	7	3	4	2	2	6	7	1	3	2	7
Avg. Queue ² (ft./ln)	108	494	165	80	96	46	49	149	185	27	76	43	179
95th % Queue (veh./ln.)	8	27	11	6	7	4	4	10	12	3	6	4	12
95th % Queue (ft./ln)	200	675	275	150	175	100	100	250	300	75	150	100	300
Storage (ft./ln.)	340	340	Future	Future	700	700	325	450	450	250	150	150	350
Adequate (Y/N)	YES	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

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.
³ Eastbound approach assumed to be completed under background and background plus project conditions.
 NB = Northbound, SB = Southbound, EB = Eastbound, WB = Westbound, R = Right, T = Through, L = Left.

1. Introduction

This report presents the results of the Traffic Impact Analysis conducted for the annexation and pre-zoning of the proposed Wren Investors/Hewell Property Development in unincorporated Santa Clara County, just outside the City of Gilroy city limits. The project proposes to amend the City's Urban Service Area (USA) to include approximately 47 acres of property, generally located south of Vickery Lane between Kern and Wren Avenues, and north of the existing residential units located north of Mantelli Drive (Wren Investors site), plus an additional 4.16 acres of mainly vacant land located at the northeast corner of the Kern Avenue and Vickery Avenue intersection (Hewell Property site). This traffic analysis evaluates the preliminary development plan which includes 137 low-density residential lots, 20 medium-density residential lots, 102 high-density townhome/apartments, and 0.40 acres of neighborhood commercial within the Wren Investors site, and 48 single-family residential units within the Hewell Property site, both of them consistent with the existing General Plan land-use designation on the site (Neighborhood District).

The traffic impact analysis documents the impacts to the surrounding transportation system associated with the increase in traffic due to the proposed project. The project study area and study intersections are shown on Figure 1. The conceptual site plan for the Wren Investors and Hewell Property projects are shown on Figures 2 and 3, respectively.

Scope of Study

The traffic impact analysis documents the potential traffic impacts to the surrounding transportation network associated with the proposed USA amendment and development of the above two sites. The projects were not analyzed separately, but as a single project. For ease of reference, the proposed development will be referred to as the proposed project and/or proposed Wren/Hewell project throughout this report.

The purpose of the traffic analysis is to satisfy the requirements of the City of Gilroy, the Congestion Management Program (CMP) of the Santa Clara Valley Transportation Authority (VTA), Caltrans, and the California Environmental Quality Act (CEQA). The traffic analysis consists of an evaluation of levels of service at key study intersections. A freeway level of service analysis was not completed since it is not anticipated that the proposed project would add sufficient traffic to US 101 to trigger a project impact. However, per CMP guidelines, an analysis to document the determination that a freeway level of service analysis is not required is included within the following sections.

The study includes the analysis of 25 intersections. The potential impacts of the project on intersections were evaluated in accordance with City of Gilroy and Caltrans level of service standards and impact criteria. The study facilities are identified below and shown on Figure 1.

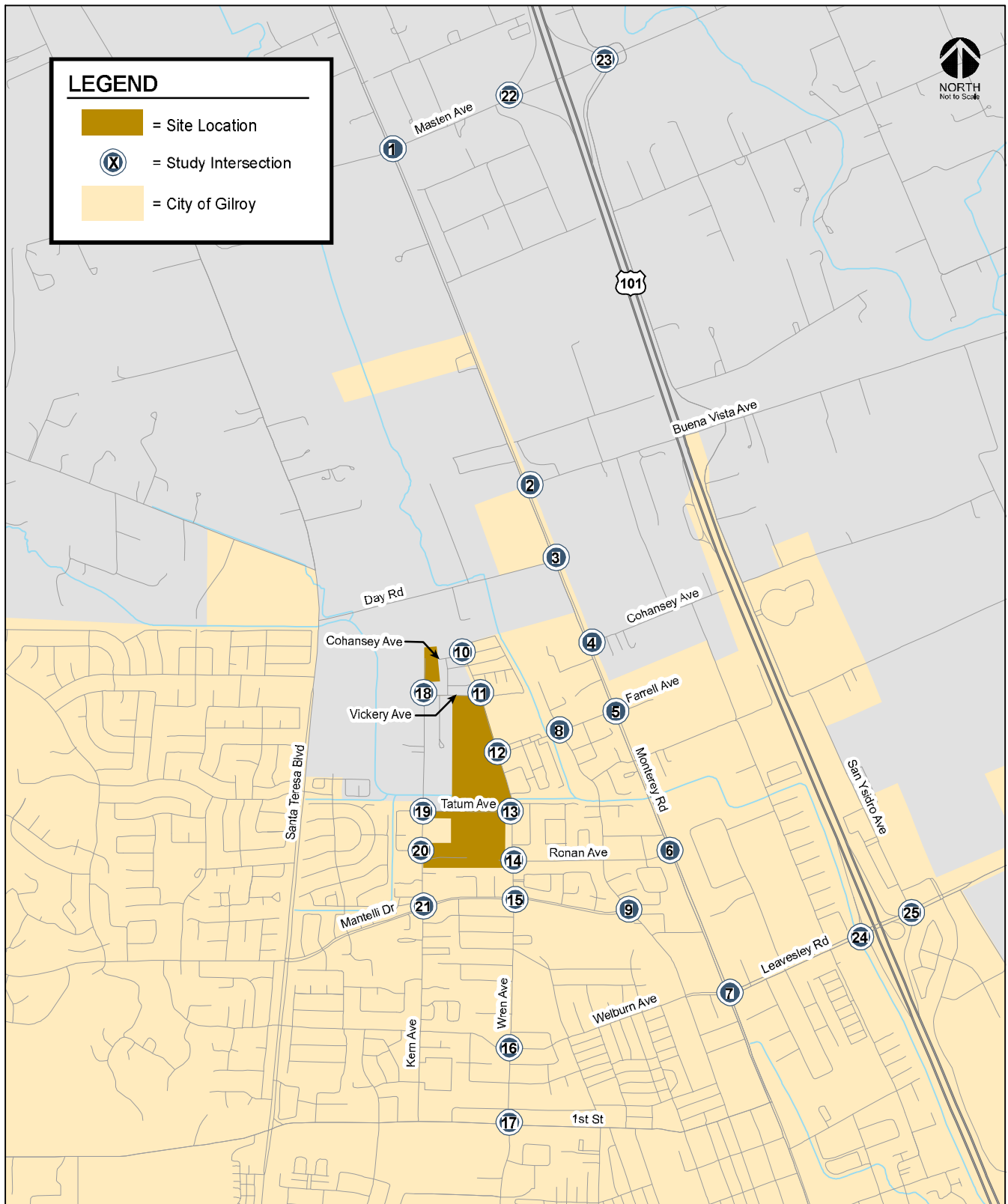
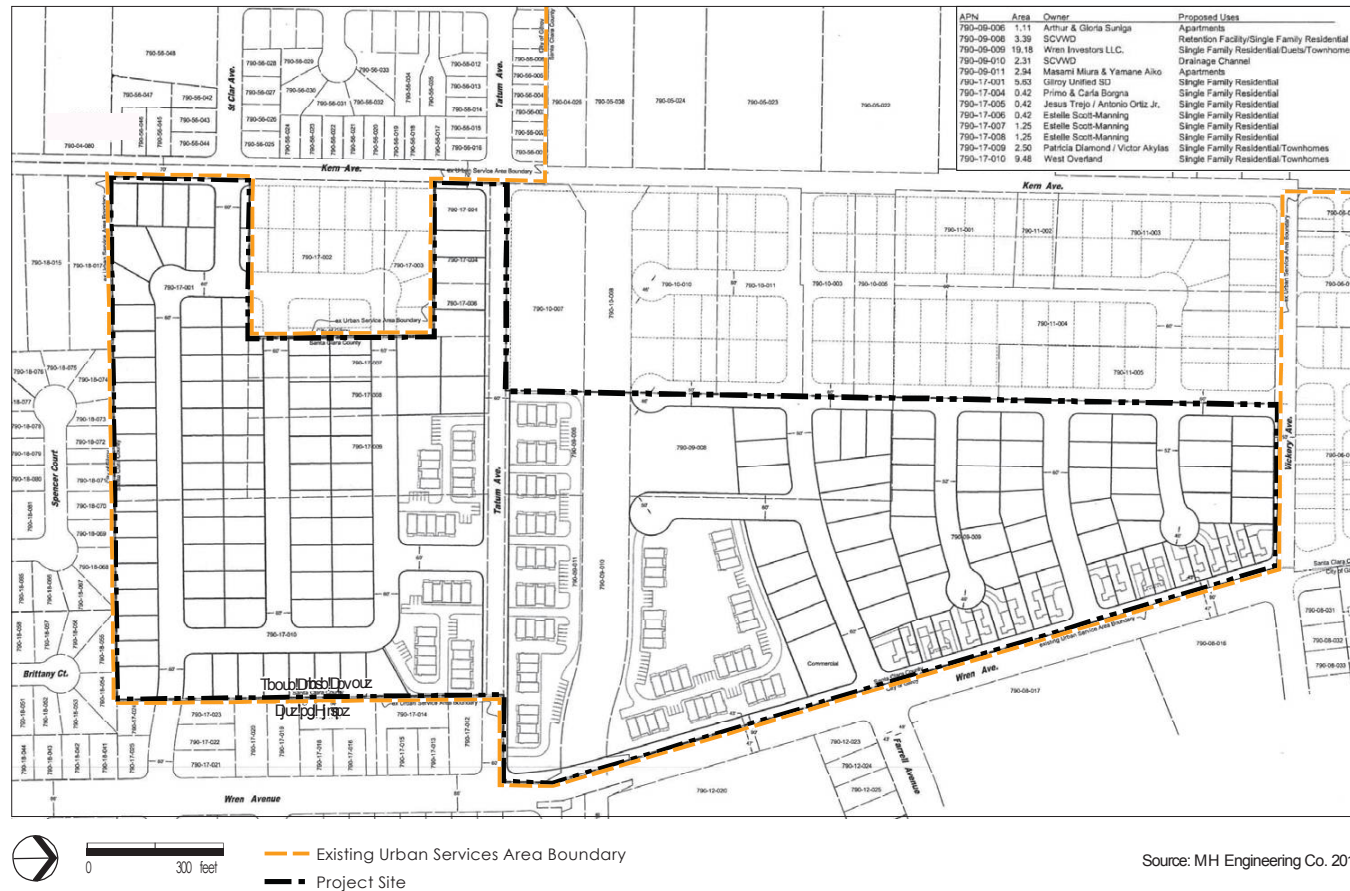


Figure 1
Site Location and Study Intersections



Source: MH Engineering Co. 2012

Figure 5
Preliminary Master Plan

Wren Investors USA Amendment EIR

Figure 2
Conceptual Site Plan – Wren Investors Property

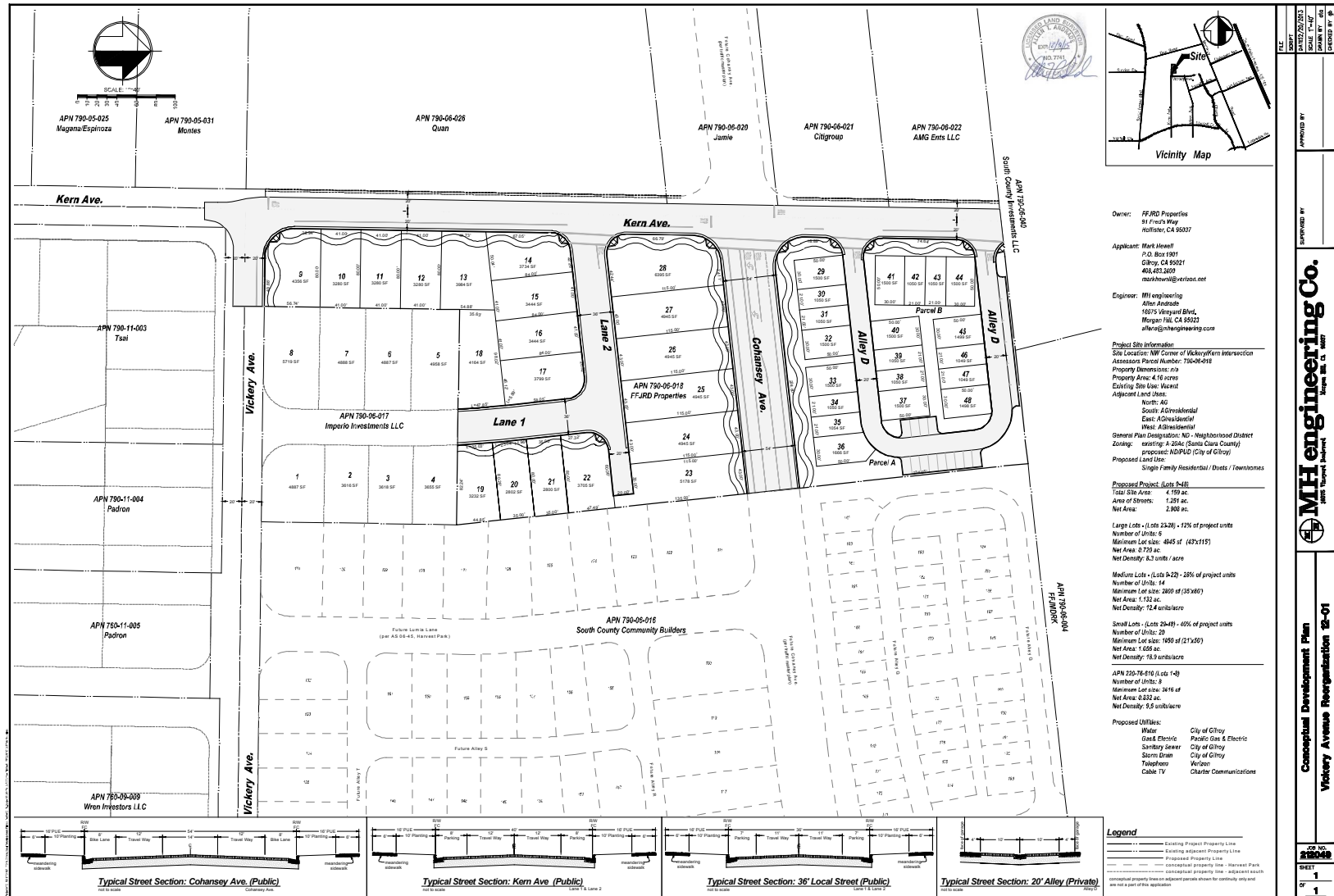


Figure 3
Conceptual Site Plan – Hewell Property

Study Intersections

The study includes the evaluation of traffic conditions at 6 signalized intersections and 19 unsignalized intersections. All but three of the study intersections are located within the City of Gilroy (denoted on the list below with a CofG superscript). The three study intersections outside the City of Gilroy limits are located within unincorporated Santa Clara County (denoted with a SCC superscript). Additionally, six of the study intersections are under the jurisdiction of Caltrans and one study intersection is a CMP designated intersection (denoted with a CT and CMP superscript, respectively). The following key intersections were evaluated:

1. Monterey Road and Masten Avenue/Fitzgerald Avenue (signalized) ^{SCC}
2. Monterey Road and Buena Vista Avenue (unsignalized) ^{CofG}
3. Monterey Road and Day Road (unsignalized) ^{CofG}
4. Monterey Road and Cohansey Avenue (unsignalized) ^{CofG}
5. Monterey Road and Farrell Avenue (signalized) ^{CofG}
6. Monterey Road and Ronan Avenue (unsignalized) ^{CofG}
7. Monterey Road and Leavesley Road (SR 152)/Welburn Avenue (signalized) ^{CofG , CMP, CT}
8. Church Street and Farrell Avenue (unsignalized) ^{CofG}
9. Church Street and Mantelli Drive (unsignalized) ^{CofG}
10. Wren Avenue and Cohansey Avenue (unsignalized) ^{CofG}
11. Wren Avenue and Vickery Avenue (unsignalized) ^{CofG}
12. Wren Avenue and Farrell Avenue (unsignalized) ^{CofG}
13. Wren Avenue and Tatum Avenue (unsignalized) ^{CofG}
14. Wren Avenue and Ronan Avenue (unsignalized) ^{CofG}
15. Wren Avenue and Mantelli Drive (unsignalized) ^{CofG}
16. Wren Avenue and Welburn Avenue (unsignalized) ^{CofG}
17. Wren Avenue and First Street (signalized) ^{CofG, CT}
18. Kern Avenue and Vickery Avenue (unsignalized) ^{CofG}
19. Kern Avenue and Tatum Avenue (unsignalized) ^{CofG}
20. Kern Avenue and St. Clar Avenue/Ronan Avenue (unsignalized) ^{CofG}
21. Kern Avenue and Mantelli Drive (unsignalized) ^{CofG}
22. US 101 Southbound ramps and Masten Avenue (unsignalized) ^{SCC, CT}
23. US 101 Northbound ramps and Masten Avenue (unsignalized) ^{SCC, CT}
24. US 101 Southbound ramps and Leavesley Road (SR 152) (signalized) ^{CofG , CT}
25. US 101 Northbound ramps and Leavesley Road (SR 152) (signalized) ^{CofG , CT}

Study Time Periods

Traffic conditions at the study intersections were analyzed for the weekday AM and PM peak hours of traffic. The weekday AM peak hour of traffic generally falls within the 7:00 to 9:00 AM period and the weekday PM peak hour is typically in the 4:00 to 6:00 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 conditions were represented by existing peak-hour traffic volumes on the existing roadway network. Existing intersection traffic volumes were obtained from recently conducted traffic studies in the area and new traffic counts conducted in November 2017.

- Scenario 2: *Existing Plus Project Conditions.*** Existing plus Project conditions represent existing peak-hour traffic volumes on the existing roadway network with the addition of traffic generated by the proposed project if the project was open and operating today. Existing plus project conditions were evaluated relative to existing conditions in order to determine potential project deficiencies on the existing transportation network attributable to the project only.
- Scenario 3: *Background Conditions.*** Background traffic conditions represent future traffic volumes on the existing 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 project impacts.
- 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 potential project impacts.
- Scenario 5: *Cumulative Conditions.*** Cumulative conditions represent future traffic volumes on the future transportation network that would result from traffic growth projected to occur due to proposed but-not-yet-approved (pending) development projects. Traffic volumes from proposed but-not-yet-approved developments were added to background conditions peak-hour volumes to obtain volumes for cumulative without project conditions. Cumulative conditions were evaluated for two scenarios: (1) without the proposed project and (2) with project-generated traffic. The change between these two scenarios illustrates the relative impact the proposed project could have on cumulative conditions.

Methodology

This section presents the methods used to determine the traffic conditions for each scenario described above. It includes descriptions of the data requirements, the analysis methodologies, and the applicable level of service standards.

Data Requirements

The data required for the analysis were obtained from new traffic counts, previous traffic studies, the City of Gilroy, and field observations. The following data were collected from these sources:

- existing traffic volumes
- existing lane configurations
- signal timing and phasing (signalized intersections)
- approved and pending developments information (size, use, and location)

Analysis Methodologies and Level of Service Standards

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

The various analysis methods and level of service standards are described below.

Intersection Analyses

In summary, the study includes an analysis of a total of twenty-five intersections. Twenty-two of the study intersections are located within the City of Gilroy and three of them are located within unincorporated Santa Clara County. In addition, six of the study intersections are under the jurisdiction of Caltrans and one of them is a CMP designated intersection.

All intersections located within the City of Gilroy are subject to the City of Gilroy Level of Service standards and impact criteria. The County of Santa Clara does not have adopted intersection level of service standards nor significant impact criteria. Per direction from Santa Clara County Roads and Airports staff on previous traffic analyses projects, the Santa Clara County intersections were evaluated based on City of Gilroy standards and impact thresholds. Because the study intersections are either located in the City of Gilroy or its sphere of influence, all study intersections were evaluated based on the City of Gilroy level of service standards and impact criteria.

An evaluation of intersections under the jurisdiction of Caltrans, based Caltrans' intersection level of service standards and impact thresholds, also is included in this report.

City of Gilroy and Santa Clara County Signalized Intersections

The City of Gilroy uses the Santa Clara County CMP level of service analysis procedure, TRAFFIX, for evaluation of signalized intersections. TRAFFIX is based on the *2000 Highway Capacity Manual* (2000 HCM) methodology for signalized intersections. 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 1.

The City of Gilroy level of service standard for most signalized intersections located west of US 101 is LOS C 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. Three of the study intersections are located within the LOS D area:

23. US 101 Northbound ramps and Masten Avenue
24. US 101 Southbound ramps and Leavesley Road (SR 152)
25. US 101 Northbound Ramps and Leavesley Road (SR 152)

Therefore, the above intersections have a level of service standard of LOS D, based on City of Gilroy level of service standards. The rest of the study intersections are located within the LOS C area and therefore have a LOS C standard.

CMP Intersections

The study intersection of *Monterey Road and Leavesley Road/Welburn Avenue* is also designated as a CMP intersection by VTA. Since TRAFFIX is the designated level of service analysis procedure for both the CMP and the City of Gilroy, the CMP study intersection is not analyzed separately, but rather is among the City of Gilroy signalized intersections analyzed using TRAFFIX. The only difference between the Gilroy and CMP analyses is that project impacts are determined on the basis of different level of service standards – the CMP level of service standard for signalized intersections is LOS E or better.

Table 1
Signalized Intersection Level of Service Definitions Based on Control 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 delay.	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

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

City of Gilroy and Santa Clara County 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 entire intersection (intersection average level of service) and for the stop-controlled approach with the highest delay (worst approach level of service) and (2) an assessment is made of the need for signalization of the intersection based on traffic volume levels.

The procedure used to determine the level of service for unsignalized intersections is TRAFFIX and the *2000 Highway Capacity Manual* methodology for unsignalized intersection analysis. This method is applicable for both two-way and all-way stop-controlled intersections. For the analysis of stop-controlled intersections, the *2000 HCM* methodology evaluates intersection operations on the basis of average control delay time for all vehicles on the stop-controlled approaches.

For the purpose of reporting level of service for stop-controlled intersections, two levels of service are reported. The first is the “overall intersection average” delay and corresponding level of service, which is a measure of the average delay incurred by all motorists at the intersection, including those on the approaches that are not subject to stop control. The second level of service reported is 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. The correlation between average control delay and level of service for unsignalized intersections is shown in Table 2.

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 *2014 California Manual on Uniform Traffic Control Devices for Streets and Highways*, Part 4, Highway Traffic Signals. 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. Other traffic signal warrants are available; however, they cannot be checked under future conditions (background, project, and cumulative) because they rely on data for which forecasts are not available (such as accidents, pedestrian volume, and four- or eight-hour vehicle volumes).

The City of Gilroy level of service standard for unsignalized intersections has two parts:

- The first part indicates that all 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, and LOS D or better for those intersections located within the LOS D area.
- The second part indicates that a one-way/two-way stop controlled intersection is considered to exceed the City's standard if the stop-controlled approach with the highest delay operates at LOS E or F and the peak-hour traffic volume level at the intersection is high enough to satisfy the peak-hour volume signal warrant.

One of the unsignalized study intersections is located within the LOS D area:

23. US 101 Northbound Ramps and Masten Avenue

The above intersection was evaluated based on an overall intersection level of service standard of D and a level of service standard of E for the stop-controlled approach with the highest delay. The remaining unsignalized study intersections are located within the LOS C area and, therefore, have an overall intersection level of service standard of C and a level of service standard of D for the stop-controlled approach with the highest delay.

State (Caltrans) Intersections

Intersections under the State (Caltrans) jurisdiction also were evaluated based on the HCM methodology for signalized and unsignalized intersections, as recommended in the *Caltrans Guide for the Preparation of Traffic Impact Studies*, December 2002. Since Caltrans does not have an adopted level of service analysis procedure, the study Caltrans intersections were evaluated based on the Santa Clara County CMP procedures, TRAFFIX. The Caltrans study intersections were evaluated based on the average delay for the intersection and applying the Caltrans level of service standards and impact thresholds.

The Caltrans level of service standard for intersections is LOS C or better. However, Caltrans acknowledges that a LOS C standard may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. If an existing Caltrans facility is operating at less than the appropriate target level of service, the existing level of service should be maintained.

For the purposed of this study, and for consistency with previous traffic studies, all study Caltrans intersections were evaluated based on a LOS C standard.

Table 2
Unsignalized Intersection Level of Service Definitions 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, (Washington, D.C., 2000).

Freeway Segment Analysis

An analysis of freeway levels of service was not conducted since the project would not add enough traffic to the freeway segments near the site to warrant a freeway analysis.

According to CMP Traffic Impact Analysis Guidelines, a freeway level of service analysis is required if the number of project trips added to any freeway segment equals or exceeds one percent of the capacity of the segment. The key freeway segments in the study area were evaluated to determine if the project traffic on each segment would exceed this threshold. US 101 has three mixed flow lanes in each direction in the vicinity of the project site. The CMP specifies that a mixed-flow lane 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 with less than six lanes. Thus, the three lanes on US 101 near the project site have a capacity of 6,900 vph. Using the CMP's one-percent threshold, a freeway level of service analysis for US 101 would be needed if the project adds 69 or more peak-hour trips to the freeway segments near the site. A review of the project trip assignment indicates that the greatest number of project trips in any direction on the subject freeway segments would be no more than 60 trips (US 101 freeway segments north of Masten Avenue) during both the AM and PM peak hours. Since the number of project trips on the freeway segments are less than the one-percent threshold, the project would not cause a significant increase in traffic on the freeway segments in the study area, and a freeway level of service analysis is not required. The freeway capacity analysis is summarized on Table 3.

Table 3
Freeway Segment Capacity Evaluation

Freeway Segment	Direction	Peak Hour	# of Lanes ¹	Capacity ² (vph)	1% of Capacity	Existing LOS ¹	Project Trips Added	LOS Analysis Required?
US 101 from Bloomfield Avenue (SR 25) to Monterey Road	NB	AM	2	4,400	44	C	4	No
	NB	PM	2	4,400	44	C	14	No
US 101 from Monterey Road to Pacheco Pass Highway	NB	AM	3	6,900	69	C	4	No
	NB	PM	3	6,900	69	B	14	No
US 101 from Pacheco Pass Highway to Leavesley Road	NB	AM	3	6,900	69	C	4	No
	NB	PM	3	6,900	69	C	14	No
US 101 from Leavesley Road to Masten Avenue	NB	AM	3	6,900	69	C	0	No
	NB	PM	3	6,900	69	B	0	No
US 101 from Masten Avenue to San Martin Avenue	NB	AM	3	6,900	69	C	52	No
	NB	PM	3	6,900	69	B	37	No
US 101 from San Martin Avenue to Tennant Avenue	NB	AM	3	6,900	69	F	52	No
	NB	PM	3	6,900	69	B	37	No
US 101 from Tennant Avenue to East Dunne Avenue	NB	AM	3	6,900	69	F	52	No
	NB	PM	3	6,900	69	C	37	No
US 101 from East Dunne Avenue to Cochrane Road	NB	AM	3	6,900	69	E	52	No
	NB	PM	3	6,900	69	C	37	No
US 101 from Cochrane Road to East Dunne Avenue	SB	AM	3	6,900	69	B	18	No
	SB	PM	3	6,900	69	E	60	No
US 101 from East Dunne Avenue to Tennant Avenue	SB	AM	3	6,900	69	B	18	No
	SB	PM	3	6,900	69	E	60	No
US 101 from Tennant Avenue to San Martin Avenue	SB	AM	3	6,900	69	B	18	No
	SB	PM	3	6,900	69	E	60	No
US 101 from San Martin Avenue to Masten Avenue	SB	AM	3	6,900	69	B	18	No
	SB	PM	3	6,900	69	D	60	No
US 101 from Masten Avenue to Leavesley Road	SB	AM	3	6,900	69	B	0	No
	SB	PM	3	6,900	69	D	0	No
US 101 from Leavesley Road to Pacheco Pass Highway	SB	AM	3	6,900	69	B	12	No
	SB	PM	3	6,900	69	C	9	No
US 101 from Pacheco Pass Highway to Monterey Road	SB	AM	3	6,900	69	A	12	No
	SB	PM	3	6,900	69	E	9	No
US 101 from Monterey Road to Bloomfield Avenue (SR 25)	SB	AM	2	4,400	44	B	12	No
	SB	PM	2	4,400	44	F	9	No

¹ Information obtained from the Santa Clara Valley Transportation Authority Congestion Management Program Monitoring Study, 2016.
² Based on a capacity of 2,300 vehicles per hour per lane (vphpl) for freeway sections with six or more lanes, and 2,200 vphpl for freeway sections with four lanes.
Bold indicates unacceptable LOS.

Intersection Operations

The analysis of project intersection levels of service was supplemented with an analysis of intersection operations for selected locations. 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.

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:

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

$$n!$$

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; 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.

Report Organization

The remainder of this report is divided into seven chapters. Chapter 2 describes existing conditions in terms of the existing roadway network, transit service, and existing bicycle and pedestrian facilities. Chapter 3 describes the method used to estimate project traffic and the resulting traffic conditions expected under existing plus project conditions. Chapter 4 presents the intersection levels of service under background conditions with the addition of traffic from approved development projects in the city. Chapter 5 presents traffic conditions, potential project impacts, and recommended mitigation measures under background plus project conditions. Chapter 6 presents the traffic conditions in the study area under cumulative conditions with the addition of traffic from development projects that are not yet approved. Chapter 7 contains an evaluation of other transportation-related issues than may not be considered environmental issues, and may not be evaluated in the environmental assessment, but have been included in the traffic study to meet the requirements of the local jurisdiction. Chapter 8 presents the summary and conclusions of the traffic study.

2. Existing Conditions

This chapter describes the existing conditions for all of the major transportation facilities in the vicinity of the site, including the roadway network, transit service, and bicycle and pedestrian facilities. Also included are the existing levels of service of the key intersections in the study area.

Existing Roadway Network

Regional access to the project site is provided via US 101. Local access to the project site is provided by a variety of roadways, as described below.

US 101 is a six-lane freeway north of the Monterey Road interchange 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. Access to the project site to and from US 101 is provided via full-access interchanges at Masten Avenue and Leavesley Road.

Monterey Road is a four-lane north-south roadway in the vicinity of the project site. It begins at its interchange with US 101 in the southern part of Gilroy and extends northward to San Jose. Monterey Road currently provides access to the project site via Farrell Avenue, and will provide access via the planned Cohansey Avenue extension.

Church Street is a two-lane north-south roadway that begins in the southern part of Gilroy at Luchessa Avenue and extends northward just beyond Farrell Avenue where it currently terminates at Sturia Way.

Wren Avenue is a two- to four-lane, north-south roadway that begins in the southern part of Gilroy at Uvas Park Drive and extends northward to north of Cohansey Avenue, where it currently terminates. Wren Avenue provides direct access to the project site.

Kern Avenue is a two-lane, north-south roadway. It begins at its intersection with First Street/Hecker Pass Highway (SR 152) and extends northward to north of Vickery Avenue where it currently terminates. Kern Avenue would provide direct access to the project site.

Masten Avenue/Fitzgerald Avenue is a two-lane, east-west roadway that begins at Center Avenue as Masten Avenue and extends westward to Monterey Street where it changes designation to Fitzgerald Avenue and continues to Santa Teresa Boulevard. Masten Avenue provides direct access to US 101 via a full interchange.

Cohansey Avenue is a two-lane, east-west undivided roadway that extends from Monterey Road eastward terminating west of US 101. East of US 101, Cohansey Avenue continues eastward from No Name Uno for approximately 2,000 feet, providing access to residences and undeveloped parcels. Cohansey Avenue is currently being extended from Monterey Road to the eastern Hewell Property site boundary as part of the Harvest Park Phase I and II projects. Additionally, with the development of the proposed project, Cohansey Avenue would be extended through the Hewell Property site to Kern Avenue, providing direct access to the project site. The Cohansey Avenue extension would provide an alternative access route to the project site and surrounding land uses (both existing and future) to/from the north.

Vickery Avenue is a two-lane, east-west roadway that extends from Kern Avenue to east of Wren Avenue. Vickery Avenue would provide direct access to the project site.

Farrell Avenue is a two-lane east-west roadway that extends between Wren Avenue and Monterey Road. Farrell Avenue currently provides the main access route to the project site and surrounding land uses to/from the north. Farrell Avenue is proposed to be extended into the Wren Investors site and provide direct access to the northern portion of the site.

Mantelli Drive is an east-west roadway that begins east of Church Street and extends westward into the west foothills of Gilroy. Mantelli Drive is a four-lane facility between Church Street and Santa Teresa Boulevard.

Welburn Avenue/Leavesley Road is a two-lane east-west roadway that begins at Monterey Road as a transition from Leavesley Road and extends westward beyond Santa Teresa Boulevard, where it terminates at Mantelli Drive. Leavesley Road provides direct access to US 101 via a full interchange.

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.

Within the project study area, Class II bikeways are available on the following roadways:

- Wren Avenue, between Farrell Avenue and Uvas Creek Trail and north of Vickery Avenue,
- Cohansey Avenue, between Hummingbird Lane and Nightingale Drive,
- Farrell Avenue, between Wren Avenue and Church Street
- Church Street, between Welburn Avenue and Farrell Avenue,
- Welburn Avenue, between Wren Avenue and Santa Teresa Boulevard, and
- Mantelli Drive, along the entire length of the street

Lions Creek Trail provides a Class I bicycle/pedestrian trail which runs east/west parallel to (north of) Tatum Avenue from Kern Avenue to west of Church Street, then northward to the intersection of Church Street/Farrell Avenue.

The existing bicycle facilities in the study area are presented on Figure 4.

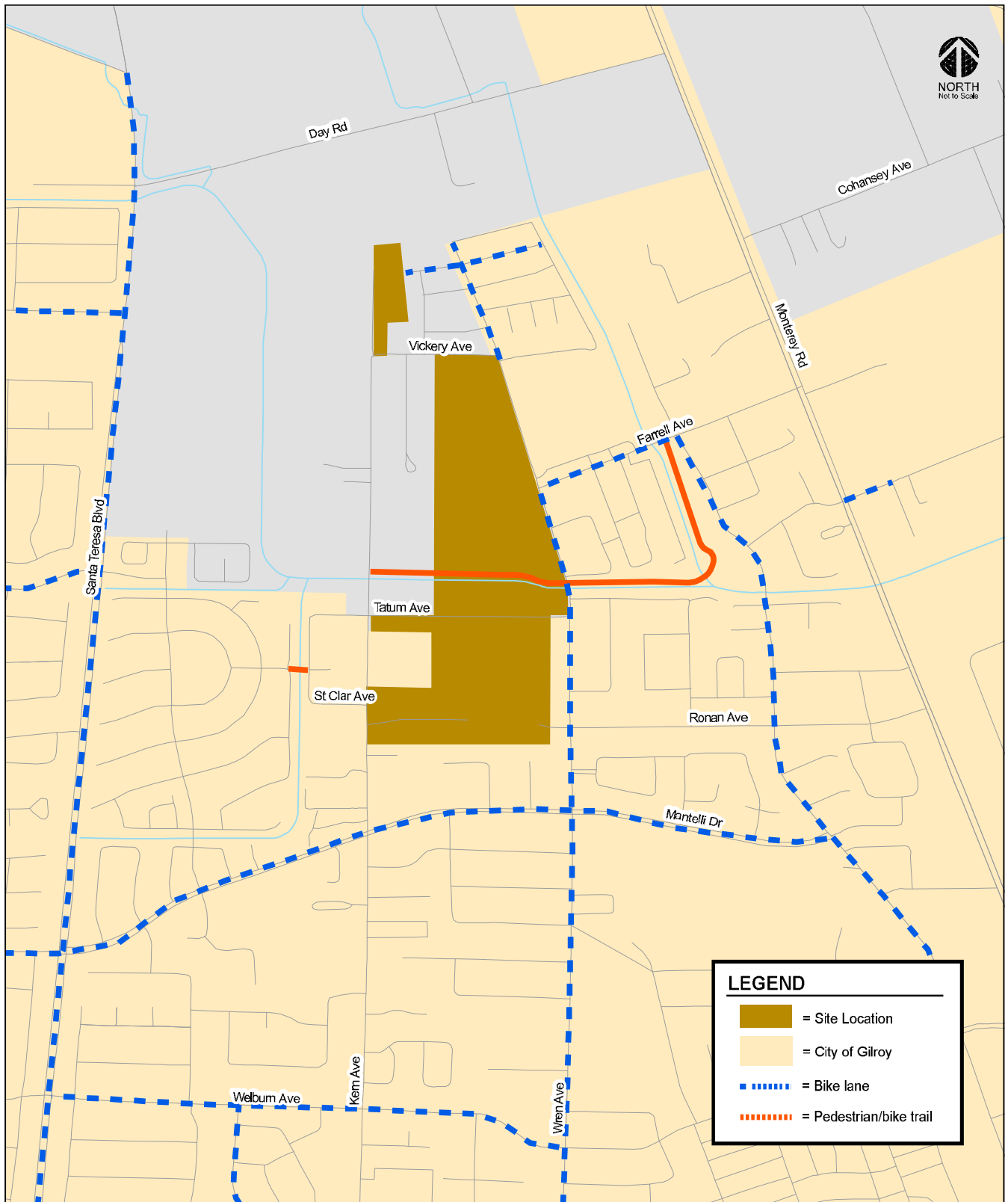


Figure 4
Existing Bicycle Facilities

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 study area. These are listed below.

The following bicycle paths and bicycle/pedestrian trails (Class I bikeways) are planned:

- Monterey Road Trail – a countywide route proposed to extend south from Morgan Hill to Buena Vista Avenue in Gilroy.
- Day Road Trail – along Day Road west of Santa Teresa Boulevard, then eastward across to Buena Vista Avenue and ending at New Avenue.
- Lions Creek Trail – along the Santa Clara Valley Water District channel, Lions Creek Trail would extend from west of Christopher High School to Day Road (East), parallel to (east of) Santa Teresa Boulevard and (north of) Tatum Avenue, to Church Street.
- Ronan Channel/Llagas Creek Trail – along the Ronan Channel linking residential areas in the northwest area of the City with commercial and industrial areas to the east and southeast.
- Las Animas Trail – along Las Animas Avenue, this trail would extend east from Monterey Road to Murray Avenue.
- North Santa Teresa Trail – located northwest of the project site, this trail will link the Lions Creek Trail to the regional Santa Teresa trail north of Fitzgerald Avenue;
- Creek Trail – from Fitzgerald Avenue to Cohansey Avenue between Santa Teresa Boulevard and Monterey Road

Bike lanes (Class II bikeways) are planned for:

- Farrell Avenue, between Wren Avenue and Monterey Road
- Cohansey Avenue
- Wren Avenue, between Farrell Avenue and Vickery Avenue
- Monterey Road, between Farrell Avenue and Leavesley Road

Bicycle routes are planned for:

- Welburn Avenue, between Wren Avenue and Monterey Road.

Existing Pedestrian Facilities

Pedestrian facilities in the project area consist primarily of sidewalks along residential streets in the study area. Most developed areas in the vicinity of the project site currently have sidewalks along both sides of the street. However, some of the streets within the project area have sidewalks missing along one or both sides of the street, in particular streets along undeveloped areas. In the immediate vicinity of the project area, sidewalks are missing along the following streets:

- Wren Avenue, between Tatum Avenue and Vickery Avenue, there are no sidewalks on the west side of the street
- Kern Avenue, north of Tatum Avenue, unimproved roadway with no sidewalks or paved shoulders, and between Creekside Court and Tatum Avenue, missing sidewalks on the east side of the street
- Tatum Avenue, unimproved roadway with no sidewalks or paved shoulders
- Vickery Avenue, missing sidewalks along the south side of the street and along a short segment on the north side of the street
- Farrell Avenue, between Church Street and Monterey Road, missing sidewalks along the north side of the street
- Monterey Road, north of Welburn Avenue on the east side of the street and north of Farrell Avenue on the west side of the street, there are only short segments of sidewalks at bus stops locations

Currently, main access to the project sites (both vehicular and pedestrian) is provided via Kern and Wren Avenues. Pedestrians accessing nearby schools (Antonio Del Buono and Rod Kelley Elementary schools) and other pedestrian facilities/destinations (such as pedestrian trails, existing transit facilities, commercial areas, and others) would utilize both Kern and Wren Avenues. However, with the missing sidewalks along segments of both Kern and Wren Avenues in the vicinity of the project site, there is currently not a continuous pedestrian connection between the Hewell Property and Wren Investors sites, or between the project sites and other pedestrian facilities/destinations.

Other pedestrian facilities in the project area include crosswalks and pedestrian push buttons along at least two of the legs at all study intersections. The existing pedestrian facilities in the study area are shown on Figure 5.

Existing Transit Service

Existing transit service in Gilroy is provided primarily by Santa Clara County VTA buses. The transit services that currently operate within the study area are described below and shown on Figure 6.

Santa Clara County VTA Bus Service

Although no existing bus routes currently serve the project site directly, several bus routes serve the project's general area.

- *Community Bus Route 19* provides service between the Gilroy Transit Center and First Street/Kern Avenue via Wren Avenue, Mantelli Drive, and Kern Avenue with approximately 40 to 50-minute headways during commute hours. The nearest bus stop served by Route 19 is located along Wren Avenue, south of Mantelli Drive.
- *Route 68* provides service between the Gilroy Transit Center and the San Jose Diridon Transit Center via Monterey Road with approximately 15 to 20-minute headways during commute hours. The nearest bus stops served by Route 68 buses are located near the intersections of Monterey Road with Cohansey Avenue, Farrell Avenue, and Ronan Avenue.

The project area is served by express bus Routes 121 and 168. *Route 121* provides northbound service during the morning commute period and southbound service during the evening commute period between the Gilroy Transit Center and the Lockheed Martin Transit Center via Monterey Road with approximately 15- to 30-minute headways. *Route 168* provides northbound service during the morning commute period and southbound service during the evening commute period between the Gilroy Transit Center and the San Jose Diridon Transit Center via Monterey Road with approximately 15- to 30-minute headways. Both of these express bus routes have scheduled stops at the Gilroy Transit Center and the San Martin Caltrain Station.

Caltrain

Caltrain provides commuter rail service between Gilroy and San Francisco. The Gilroy Caltrain Station (Transit Center) is located in Downtown Gilroy, approximately 3 miles south of the project site, and the San Martin Caltrain Station is located approximately 4.5 miles north of the project site.

Existing Intersection Lane Configurations

The existing lane configurations at the study intersections were determined by observations in the field and are shown on Figure 7.

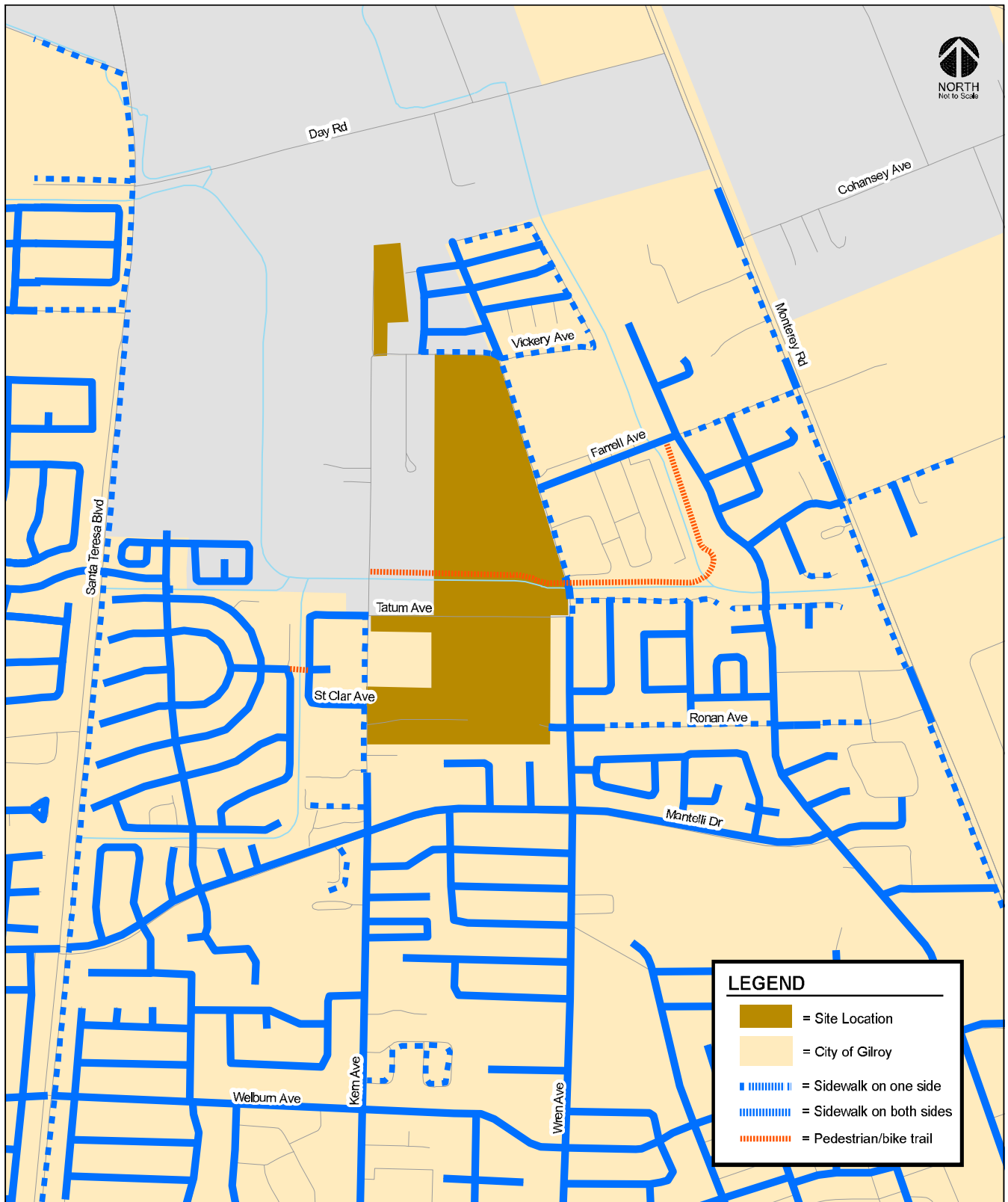


Figure 5
Existing Pedestrian Facilities

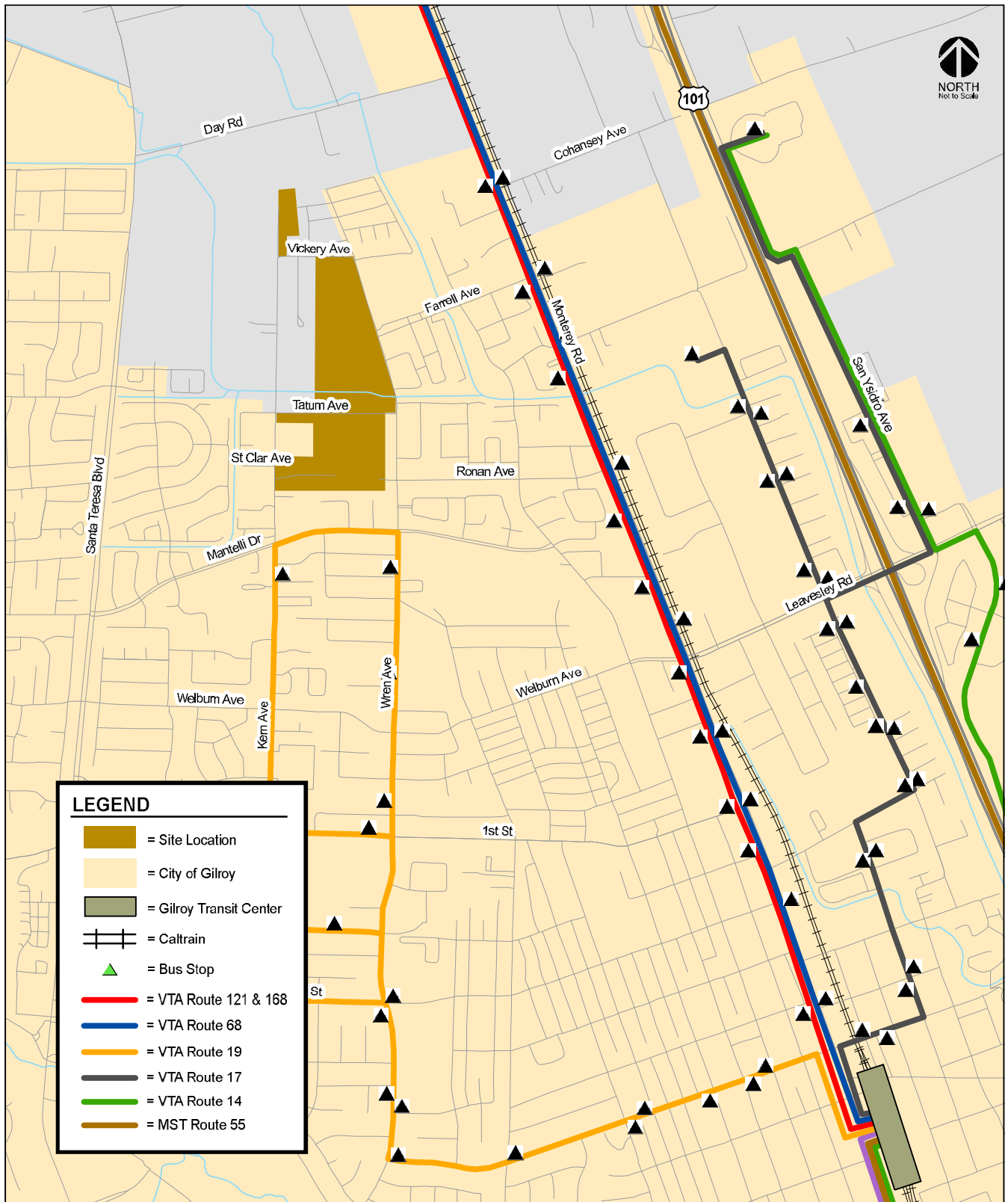


Figure 6
Existing Transit Facilities

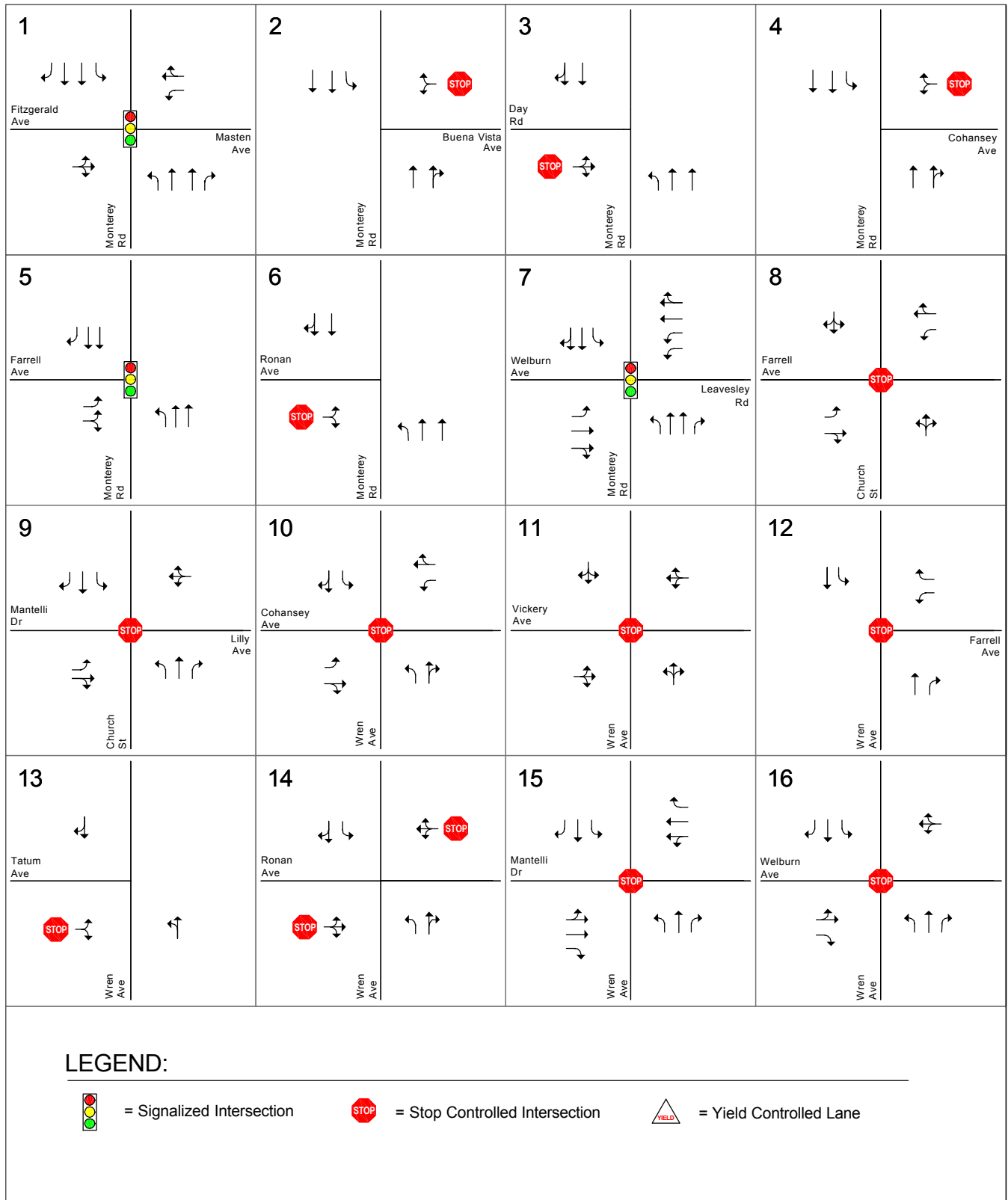


Figure 7
Existing Lane Configurations

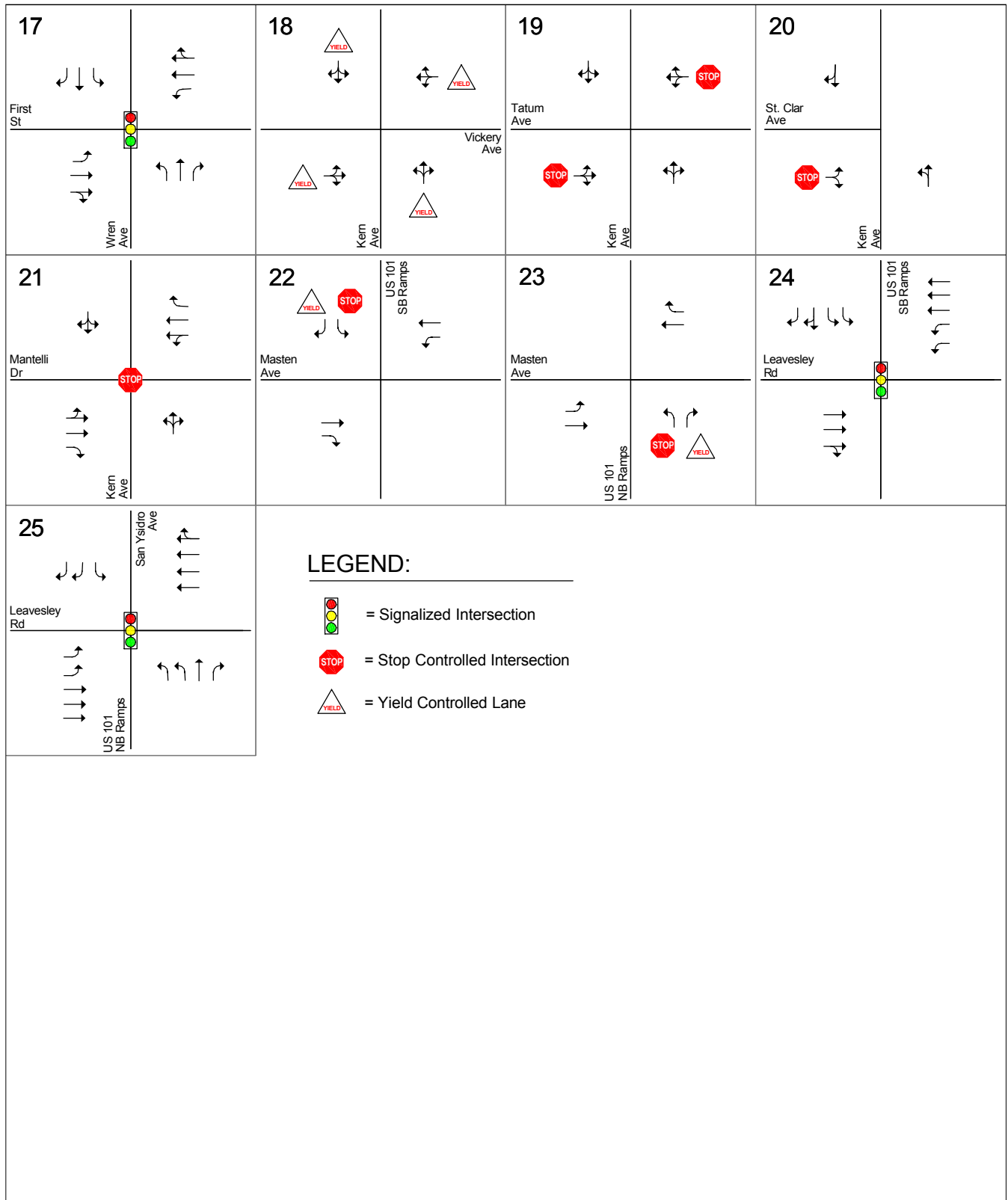


Figure 7 (Continued)
Existing Lane Configurations

Existing Traffic Volumes

Existing weekday AM and PM peak-hour traffic volumes were obtained from recently conducted traffic studies in the area and new peak-hour turning movement counts conducted in October 2017. The existing peak-hour intersection volumes are shown on Figure 8. The traffic count data are included in Appendix A. Peak-hour intersection turning movement volumes for all intersections and study scenarios are tabulated in Appendix B.

Existing Intersection Levels of Service

The results of the intersection level of service analysis under existing conditions are discussed below and summarized in Table 4. The analysis results are presented for all study intersections based on City of Gilroy level of service standard and impact criteria. Caltrans intersections also were evaluated based on Caltrans level of service standards and impact criteria.

The level of service calculation sheets are included in Appendix C.

City of Gilroy/Santa Clara County Intersections

Signalized Intersections

The results of the level of service analysis of the signalized study intersections under existing conditions indicate that the study intersection of Monterey Road and Masten Avenue/Fitzgerald Avenue (#1) currently operates at an unacceptable LOS D during the PM peak-hour.

The remaining signalized study intersections currently operate at acceptable levels of service during the AM and PM peak hours.

CMP Intersection

The results of the level of service analysis for the CMP intersection under existing conditions show that, measured against the CMP level of service standards, the CMP study intersection of Monterey Road and Leavesley Road/Welburn Avenue (#7) currently operates at an acceptable LOS C during the AM and PM peak hours.

Unsignalized Intersections

The results of the level of service analysis of the unsignalized intersections under existing conditions indicate that the unsignalized study intersection of Wren Avenue and Welburn Avenue (#16) currently operates with overall average intersection delays corresponding to an unacceptable LOS D during the PM peak-hour.

The unsignalized intersection analysis results also indicate that the following study intersection currently operates with average delays corresponding to LOS E or F on its stop-controlled approach with the highest delay and the traffic volume is high enough to satisfy the peak-hour volume warrant during the same peak-hour:

2. Monterey Road and Buena Vista Avenue (LOS F/signal warrant met – AM peak-hour, LOS E/signal warrant met – PM peak-hour)
3. Monterey Road and Day Road (LOS F/signal warrant met – AM and PM peak hours)
23. US 101 NB Ramps and Masten Avenue (LOS F/signal warrant met – AM peak-hour)

Based on the City of Gilroy level of service standards, unsignalized intersections are considered deficient when both the average delay on the stop-controlled approach with the highest delay operates

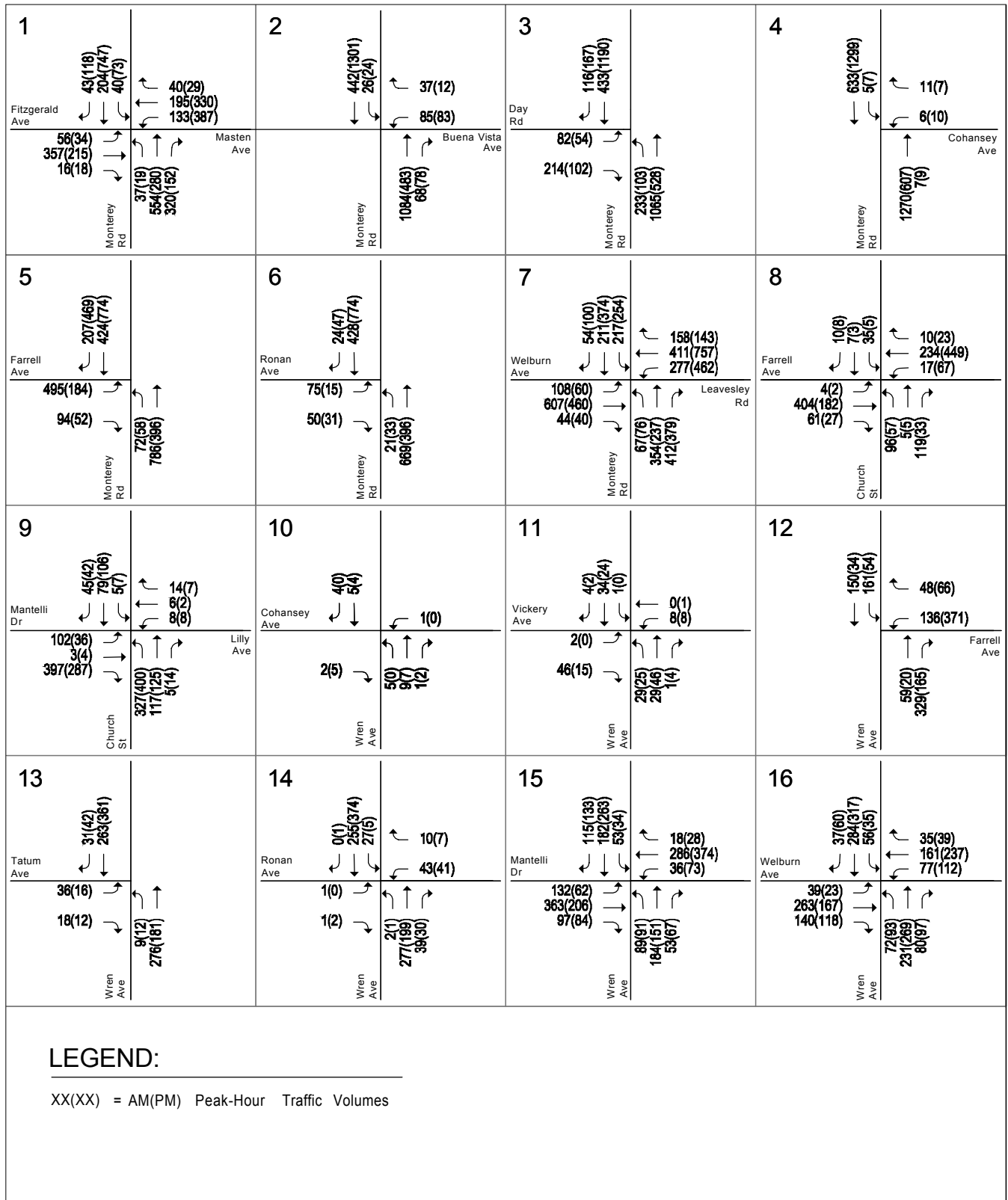


Figure 8
Existing Traffic Volumes

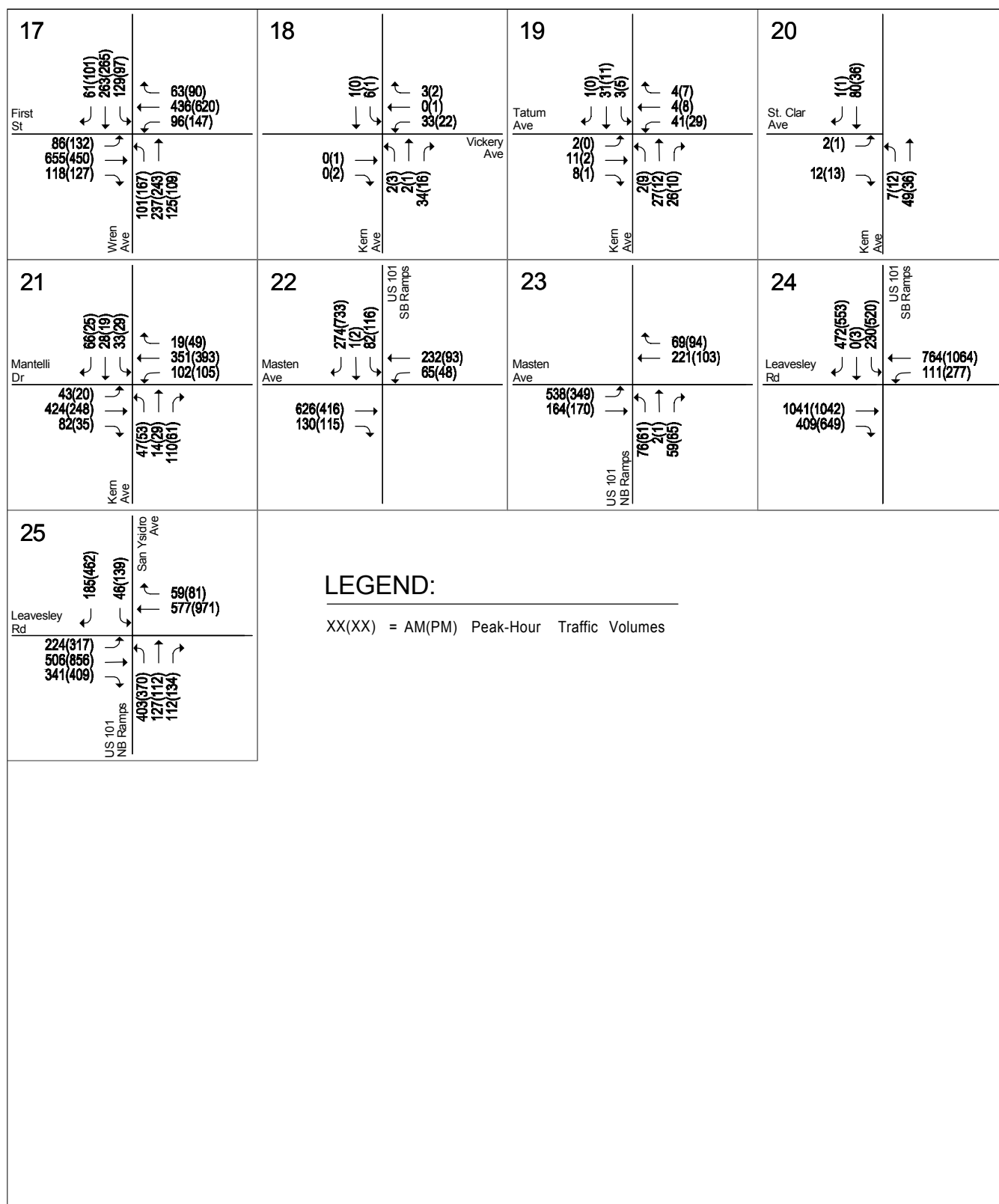


Figure 8 (Continued)
Existing Traffic Volumes

Table 4
Existing Intersection Level of Service Results

Study Int. Number	Intersection	Jurisdiction ¹	Intersection Control	LOS Standard	TIF Int. ²	Peak Hour	Count Date	Avg. Delay	LOS	Warrant Met? ³
1	Monterey Road and Masten Avenue/Fitzgerald Avenue	SCC	Signal	C	Yes	AM 1/17/17 PM 1/17/17		30.9 43.3	C D	-- --
2	Monterey Road and Buena Vista Avenue	CofG	One-Way Stop (Average Delay)	C	Yes	AM 5/16/17 PM 5/16/17		5.0 2.1	A A+	-- --
			One-Way Stop (Worst Approach)	D		AM PM		69.0 41.4	F E	Yes Yes
3	Monterey Road and Day Road	CofG	One-Way Stop (Average Delay)	C	Yes	AM 10/17/17 PM 10/17/17		20.6 11.7	C B+	-- --
			One-Way Stop (Worst Approach)	D		AM PM		141.7 ⁴ 152.2 ⁴	F F	Yes Yes
4	Monterey Road and Cohansey Avenue	CofG	One-Way Stop (Average Delay)	C	Yes	AM 10/17/17 PM 10/17/17		0.3 0.2	A+ A+	-- --
			One-Way Stop (Worst Approach)	D		AM PM		25.2 21.5	D+ C	No No
5	Monterey Road and Farrell Avenue	CofG	Signal	C	No	AM 1/17/17 PM 1/17/17		16.0 9.7	B A	-- --
6	Monterey Road and Ronan Avenue	CofG	One-Way Stop (Average Delay)	C	No	AM 10/17/17 PM 10/17/17		1.9 0.8	A+ A+	-- --
			One-Way Stop (Worst Approach)	D		AM PM		17.4 15.8	C+ C+	Yes No
7	Monterey Road and Leavesley Road/Welburn Avenue*	Caltrans	Signal	C	No	AM 1/17/17 PM 1/17/17		27.1 29.1	C C	-- --
8	Church Street and Farrell Avenue	CofG	All-Way Stop	C	Yes	AM 5/16/17 PM 5/16/17		15.8 13.4	C B	No No
9	Church Street and Mantelli Drive/Lilly Ave	CofG	All-Way Stop	C	Yes	AM 5/18/17 PM 5/18/17		15.8 16.5	C C	Yes Yes
10	Wren Avenue and Cohansey Avenue	CofG	All-Way Stop	C	Yes	AM 10/17/17 PM 10/17/17		7.2 7.0	A A	No No
11	Wren Avenue and Vickery Avenue	CofG	All-Way Stop	C	No	AM 10/17/17 PM 10/17/17		7.1 7.2	A A	No No
12	Wren Avenue and Farrell Avenue	CofG	All-Way Stop	C	Yes	AM 5/16/17 PM 5/16/17		10.5 12.8	B B	No No
13	Wren Avenue and Tatum Avenue	CofG	Two-Way Stop (Average Delay)	C	No	AM 10/17/17 PM 10/17/17		1.2 0.7	A+ A+	-- --
			Two-Way Stop (Worst Approach)	D		AM PM		12.3 12.0	B B	No No
14	Wren Avenue and Ronan Avenue	CofG	Two-Way Stop (Average Delay)	C	No	AM 10/17/17 PM 10/17/17		1.5 1.1	A+ A+	-- --
			Two-Way Stop (Worst Approach)	D		AM PM		14.3 14.1	B- B-	No No
15	Wren Avenue and Mantelli Drive	CofG	All-Way Stop	C	Yes	AM 5/16/17 PM 5/16/17		17.7 17.6	C C	Yes Yes
16	Wren Avenue and Welburn Avenue	CofG	All-Way Stop	C	Yes	AM 5/16/17 PM 5/16/17		20.0 27.6	C D	Yes Yes
17	Wren Avenue and First Street	Caltrans	Signal	C	Yes	AM 5/16/17 PM 5/16/17		27.9 31.3	C C	-- --
18	Kern Avenue and Vickery Avenue	CofG	Uncontrolled	C	No	AM 10/17/17 PM 10/17/17		7.7 6.9	A A	No No
19	Kern Avenue and Tatum Avenue	CofG	Two-Way Stop (Average Delay)	C	No	AM 10/17/17 PM 10/17/17		4.3 5.6	A A	-- --
			Two-Way Stop (Worst Approach)	D		AM PM		9.3 9.1	A- A-	No No
20	Kern Avenue and St. Clar Avenue/Ronan Avenue	CofG	One-Way Stop (Average Delay)	C	No	AM 10/17/17 PM 10/17/17		1.2 2.1	A+ A+	-- --
			One-Way Stop (Worst Approach)	D		AM PM		8.8 8.5	A- A-	No No
21	Kern Avenue and Mantelli Drive	CofG	All-Way Stop	C	Yes	AM 5/16/17 PM 5/16/17		12.1 10.6	B B	No No

Table 4 (Continued)
Existing Intersection Level of Service Results

Study Int. Number	Intersection	Jurisdiction ¹	Intersection Control	LOS Standard	TIF Int. ²	Peak Hour	Count Date	Avg. Delay	LOS	Warrant Met? ³
22	US 101 SB Ramps and Masten Avenue	Caltrans	Two-Way Stop (Average Delay)	C	Yes	AM	5/16/17	4.6	A	--
						PM	5/16/17	11.6	B+	--
			Two-Way Stop (Worst Approach)	D		AM		14.8	B-	Yes
23	US 101 NB Ramps and Masten Avenue	Caltrans	Two-Way Stop (Average Delay)	C	Yes	AM	5/16/17	14.0	B-	--
						PM	5/16/17	6.8	A-	--
			Two-Way Stop (Worst Approach)	D		AM		71.2	F	Yes
24	US 101 SB Ramps and Leavesley Road	Caltrans	Signal	C	No	AM	5/23/17	16.8	B	--
						PM	5/23/17	27.6	C	--
25	US 101 NB Ramps/San Ysidro Avenue and Leavesley Road	Caltrans	Signal	C	No	AM	5/23/17	26.6	C	--
						PM	5/23/17	28.3	C	--
<p>Notes:</p> <p>¹ SCC = Santa Clara County; CofG = City of Gilroy</p> <p>² TIF Int. = City of Gilroy Traffic Impact Fee Intersection.</p> <p>³ 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.</p> <p>⁴ The HCM methodology for intersection analysis does not accurately calculate actual intersection operating conditions once the calculated intersection delay exceeds 100+ seconds. Once an intersection is calculated to operate with delays exceeding 100 seconds, any additional traffic to the intersection will increase the intersection delay exponentially, resulting in unrealistic excessive delays that most likely would never be experienced at an actual intersection. However, for the purpose of quantifying the projected increase in delay due to the proposed project, all calculated delays are reported, including those exceeding 100 seconds.</p> <p>* = CMP intersection</p> <p>Entries denoted in bold indicate conditions that exceed the City's current level of service standard.</p>										

at an unacceptable level of service and the intersection traffic volumes satisfy the peak-hour volume traffic signal warrant during the same peak-hour.

The remaining unsignalized study intersections do not have traffic volume and level of service conditions that exceed the City of Gilroy level of service standards.

The peak-hour signal warrant sheets are contained in Appendix D.

Caltrans Intersections

The results of the intersection level of service analysis for the Caltrans intersections under existing conditions show that all of the Caltrans study intersections currently operate at an acceptable LOS C or better during the AM and PM peak hours.

Existing Freeway Levels of Service

As discussed in Chapter 1 of this report, a freeway level of service analysis was not conducted since the number of project trips added to the freeway segments near the site does not equal or exceed one percent of the capacity of those segments. Based on CMP Traffic Impact Analysis Guidelines, a freeway level of service analysis is not required.

3.

Existing Plus Project Conditions

This chapter describes existing traffic conditions with the addition of the traffic that would be generated by the proposed project if the project was complete and operating today. Existing plus project conditions were evaluated relative to existing conditions in order to determine potential project deficiencies on the existing transportation network attributable to the project only. Existing plus project conditions are presented per CEQA requirements to disclose the project's effect on existing conditions.

Included within this chapter is the description of the procedure of estimating project-generated traffic and the resulting traffic conditions under existing plus project conditions.

Transportation Network under Existing Plus Project Conditions

It is assumed in this analysis that the transportation network under existing plus project conditions would be the same as the existing transportation network, with the exception of the following project improvements:

Cohansey Avenue – the proposed project would construct the segment of Cohansey Avenue from the Harvest Park Phase I western site boundary to Kern Avenue. Cohansey Avenue would connect the project site to Wren Avenue under existing plus project conditions.

Kern Avenue – the proposed project would develop Kern Avenue, along the Hewell Property western site boundary, and the east side of the street (project's frontage) to conform to City of Gilroy standards and the adjacent developed segment of Kern Avenue.

Vickery Avenue – the proposed project would develop Vickery Avenue, along the Hewell Property southern site boundary, and the north side of the street (project's frontage) to conform to City of Gilroy standards and the rest of Vickery Avenue. The remaining segment of Vickery Avenue is planned to be improved by others.

Kern Avenue and Vickery Avenue Intersection – this intersection is currently an undeveloped/uncontrolled intersection (mainly a two-legged intersection without any posted traffic control signs/pavement legend). With implementation of the proposed project both Kern and Vickery Avenues would be improved along the Hewell Property frontage, consequently improving the intersection. It was assumed in the analysis that the intersection of Kern Avenue/Vickery Avenue would operate as an all-way stop controlled intersection with implementation of the proposed project.

Farrell Avenue – Farrell Avenue would be extended westward into the project site, providing direct access to the northern portion of the Wren Investors site and forming a four-legged intersection with Wren Avenue. This intersection is assumed to continue to be all-way stop controlled.

St. Clar Avenue/Ronan Avenue – St. Clar Avenue would be extended eastward into the project site, forming a four-legged intersection at Kern Avenue, and connect to Ronan Avenue, just west of Wren Avenue. This new roadway extension would provide direct access to the southern portion of the Wren Investors site and provide an alternate connection between Wren and Kern Avenues.

Project Description

The project proposes to amend the City's Urban Service Area (USA) to include a total of approximately 51.2 acres of property within two sites (Wren Investors and Hewell Properties). The Wren Investors Property site (approximately 47 acres) is generally located south of Vickery Lane between Kern and Wren Avenues, and north of the existing residential units located north of Mantelli Drive. The Hewell Property site (approximately 4.16 acres) is located at the northeast corner of the Kern Avenue and Vickery Avenue intersection. Both sites are currently mainly vacant.

The preliminary development plans for the project sites include 137 low-density residential lots, 20 medium-density residential lots, 102 high-density townhome/apartments, and 0.40 acres of neighborhood commercial within the Wren Investors site; and 48 single-family residential units within the Hewell Property site. The proposed development is consistent with the existing General Plan land-use designation on the sites (Neighborhood District). Direct access to the project sites would be provided via Cohansey Avenue, Kern Avenue, Vickery Avenue, Wren Avenue, Farrell Avenue, Tatum Avenue, and St. Clar/Ronan Avenue.

The projects were not analyzed separately, but as a single project. For ease of reference, the proposed development will be referred to as the proposed project and/or proposed Wren/Hewell project throughout this report.

Project Trip Estimates

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

Trip Generation

The magnitude of traffic generated by the proposed project was estimated by applying to the size of the project the appropriate trip generation rates, as published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 10th Edition, 2017. The trip generation estimates for the proposed project are based on ITE's trip generation rates for single-family residential units (ITE land use code #210) and shopping center (ITE land use code #820). Although the proposed project consists of a combination of single-family and townhome/apartment units, the City of Gilroy implements the use of ITE trip generation rates for single-family units for the evaluation of all residential projects within the City.

A 15-percent (%) trip reduction was applied to the project trip generation estimates for internalization between the retail and the residential uses, as prescribed by VTA guidelines. According to VTA

guidelines, the percent reduction must be based on the smaller trip generator, in this case the retail component, and the resulting number of trips also must be reduced from the larger trip generator, or the residential component of the project. The internalization reduction was applied to the proposed residential units located within Wren Investors site only, since this is the site where the retail component of the proposed project also would be located. In addition, a 20% PM peak-hour pass-by reduction was applied to the retail portion of the project. The pass-by reduction was derived based on information contained in the ITE *Trip Generation Handbook*, Third Edition, regarding pass-by trip percentages obtained from surveys conducted at retail sites in California, as well as pass-by reductions typically used for projects in Santa Clara County. Pass-by-trips are trips that would already be on the adjacent roadways (and are therefore already counted in the existing traffic) but would turn into the site while passing by. Justification for applying the pass-by-trip reduction is founded on the observation that such retail traffic is not actually generated by the retail development, but is already part of the ambient traffic levels. Pass-by-trips are therefore excluded from the traffic projections to yield net new project trips generated by the project. However, at intersections providing direct access to the retail sites, all project-generated traffic is included, including pass-by trips.

On the basis of the ITE trip generation rates, and after applying the above trip reductions, it is estimated that the proposed project would generate 3,105 net new daily trips, with 234 trips (61 inbound and 173 outbound) occurring during the AM peak-hour and 321 trips (199 inbound and 122 outbound) occurring during the PM peak-hour. The project trip generation estimates are presented in Table 5.

Trip Distribution

The trip distribution pattern for project-generated traffic was estimated based on information from previous traffic studies, on traffic patterns in the study area, and on the locations of complementary land uses. The project trip distribution pattern is shown graphically on Figure 9.

Trip Assignment

The peak-hour trips generated by the proposed development were assigned to the roadway system in accordance with the trip distribution patterns discussed above. The project trip assignment is presented graphically on Figure 10. A tabular summary of project traffic at each study intersection is contained in Appendix B.

Existing Plus Project Traffic Volumes

Project trips, as presented in the above project trip assignment, were added to existing traffic volumes to obtain existing plus project traffic volumes. The existing plus project traffic volumes are shown on Figure 11.

Table 5
Project Trip Generation Estimates

Proposed Land Uses	ITE Land Use	Size	Daily Trip Rate	Daily Trips	Pk-Hr Rate	AM Peak Hour						Pk-Hr Rate	PM Peak Hour					
						Splits		Trips					Splits		Trips			
						In	Out	In	Out	Total	In		Out	In	Out	Total		
<u>Wren Investors</u>																		
Retail	# 820 - Shopping Center	8,000 s.f.	37.75	302	0.94	62%	38%	5	3	8	3.81	48%	52%	14	16	30		
15% housing-retail reduction ¹				-45				-1	0	-1				-2	-2	-4		
20% PM pass-by reduction ²				-5										-2	-3	-5		
Net Retail Project Trips				252				4	3	7				10	11	21		
Single-Family Homes ³																		
# 210 - Single Family Detached	259 d.u.	9.44	2,445	0.74	25%	75%	48	144	192	0.99	63%	37%	161	95	256			
15% housing-retail reduction ¹				-45				0	-1	-1				-2	-2	-4		
Net Residential Project Trips				2,400				48	143	191				159	93	252		
Net Wren Investors Project Trips (Residential + Retail)				2,652				52	146	198				169	104	273		
<u>Hewell Property</u>																		
Single-Family Homes	# 210 - Single Family Detached	48 d.u.	9.44	453	0.74	25%	75%	9	27	36	0.99	63%	37%	30	18	48		
<u>Wren Investors + Hewell Property</u>																		
Total Net Project Trips				3,105				61	173	234				199	122	321		
Source of proposed trip generation rates: ITE <i>Trip Generation Manual</i> , 10th Edition 2017. Trip generation estimates are based on average trip generation rates for residential and retail land uses. Source of pass-by rates: ITE <i>Trip Generation Handbook</i> , 2nd Edition 2004. s.f. = square feet; d.u. = dwelling units ¹ A reduction of 15% was applied to the retail and residential land uses for internalization between the two uses. Reduction was based on the smaller trip generator, as prescribed by VTA Guidelines. ² A pass-by trip reduction is typically applied during the PM peak-hour to retail development within Santa Clara County. The 20% reduction is based on ITE surveys conducted at retail sites in California, contained in their <i>Trip Generation Handbook</i> , and is consistent with pass-by reductions typically used for projects in Santa Clara County. ³ Although the proposed project consists of single-family and townhome/apartments residential units, as a conservative approach, the City of Gilroy utilizes ITE trip generation rates for single-family units for the evaluation of all residential projects.																		

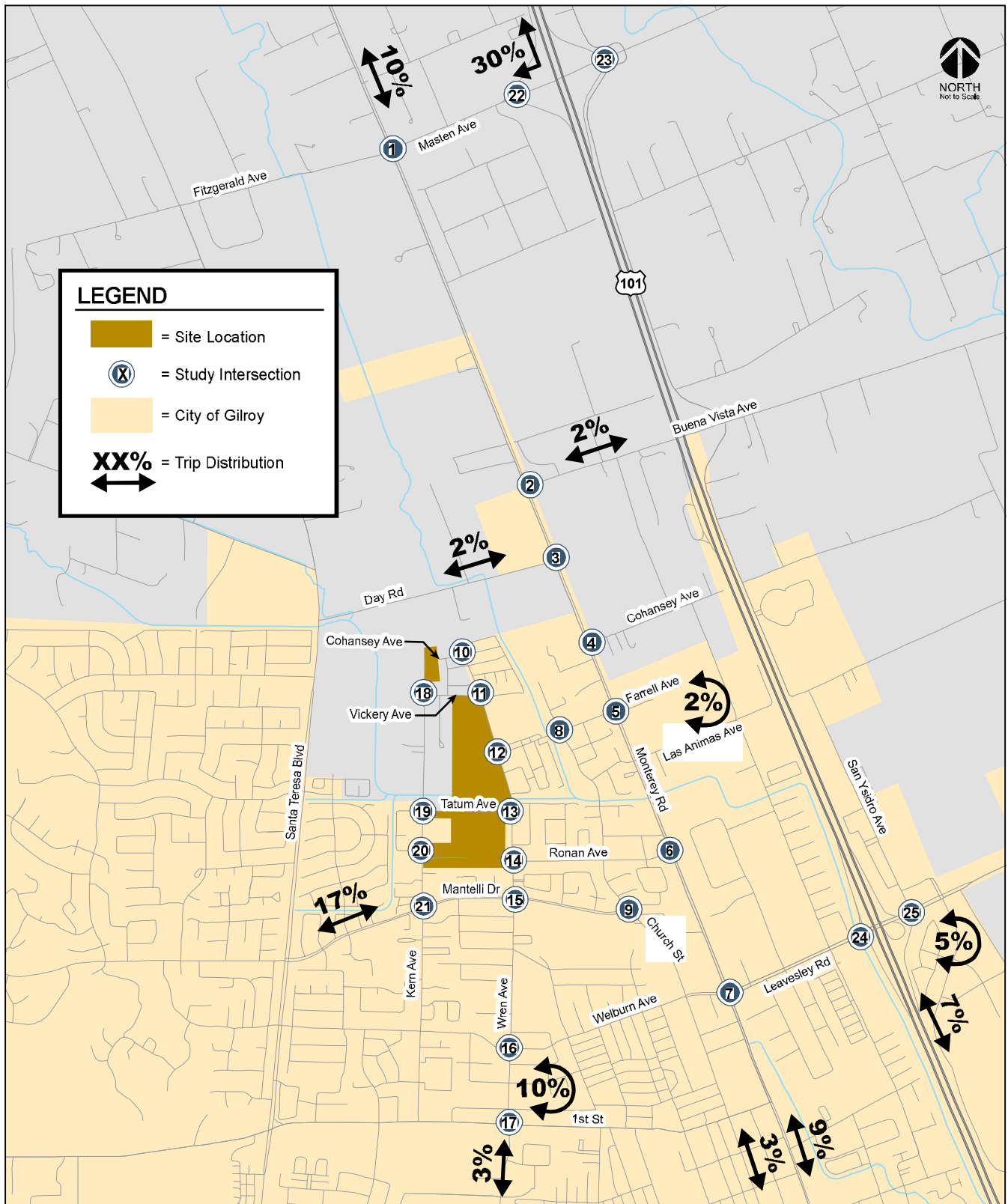


Figure 9
Proposed Project Trip Distribution

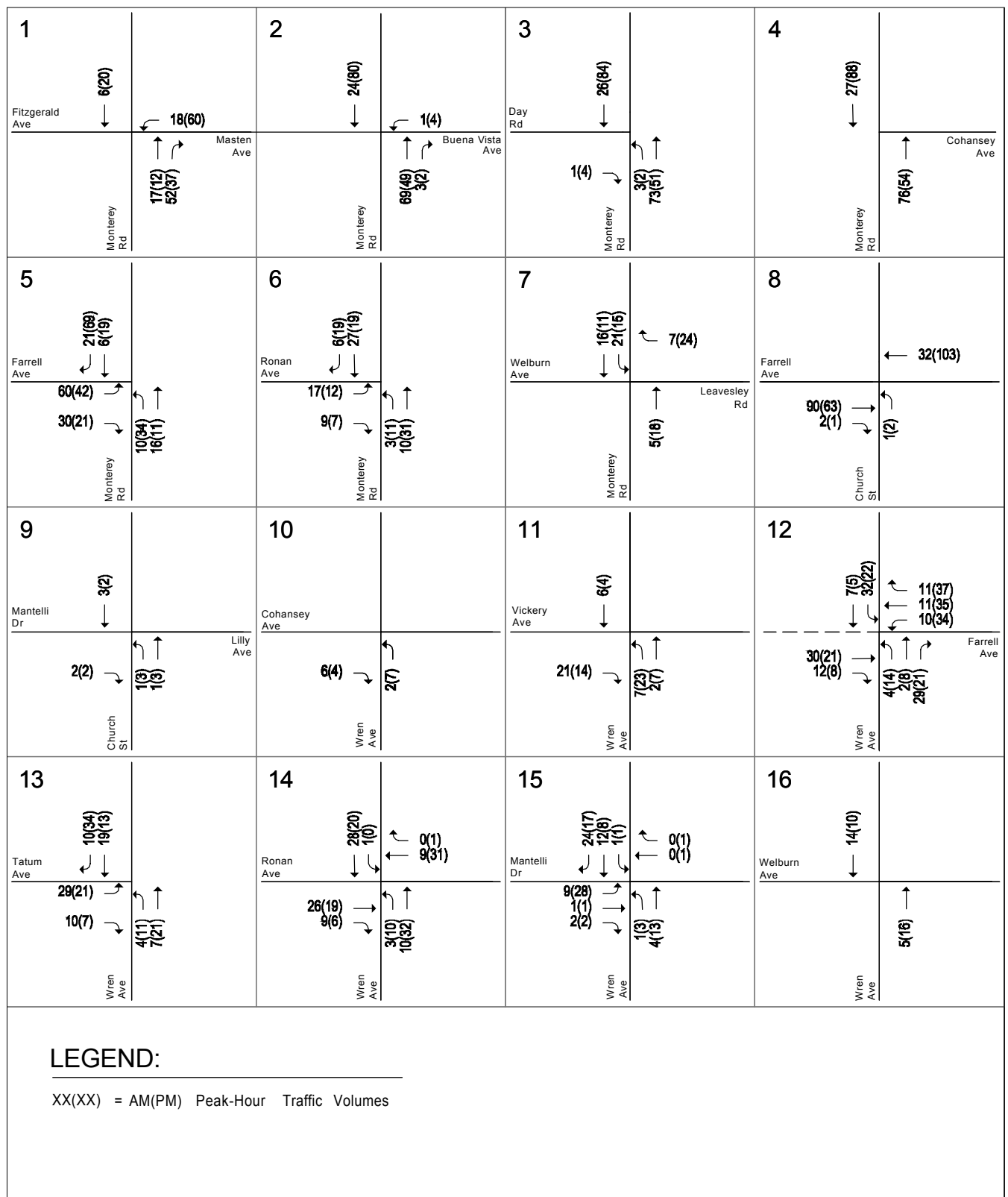


Figure 10
Project Trip Assignment – Existing Roadway Network

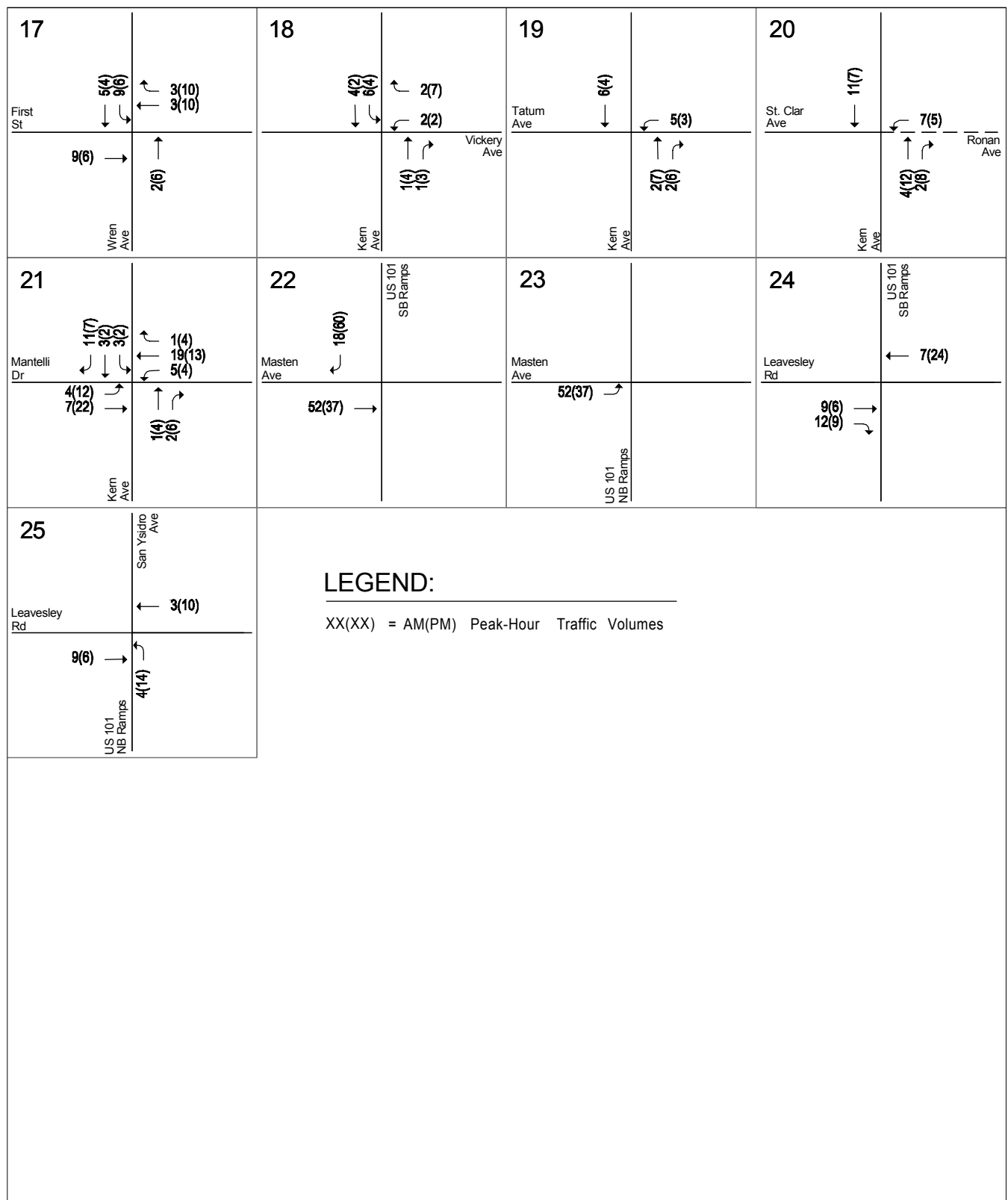


Figure 10 (Continued)
Project Trip Assignment – Existing Roadway Network

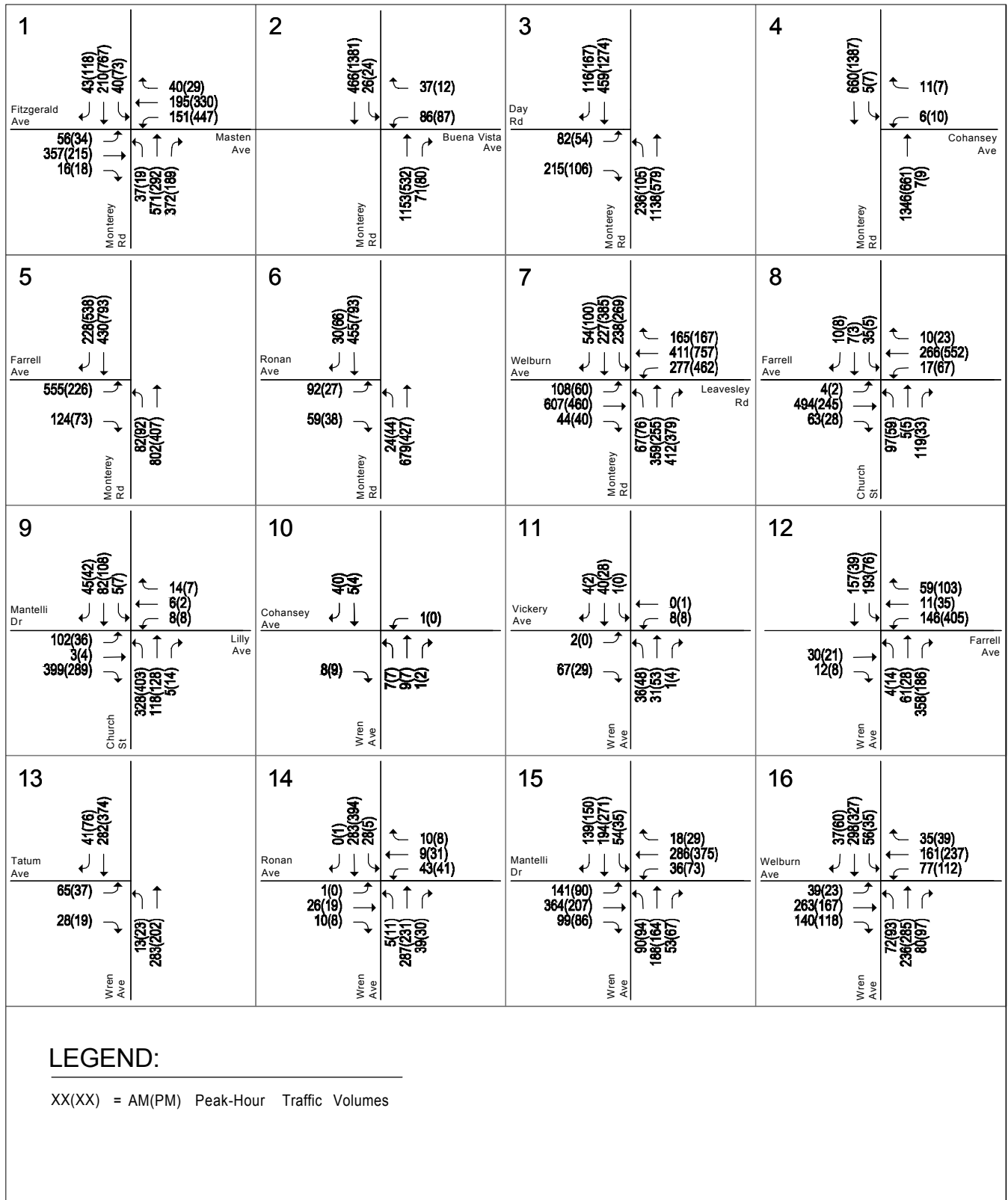


Figure 11
Existing Plus Project Traffic Volumes

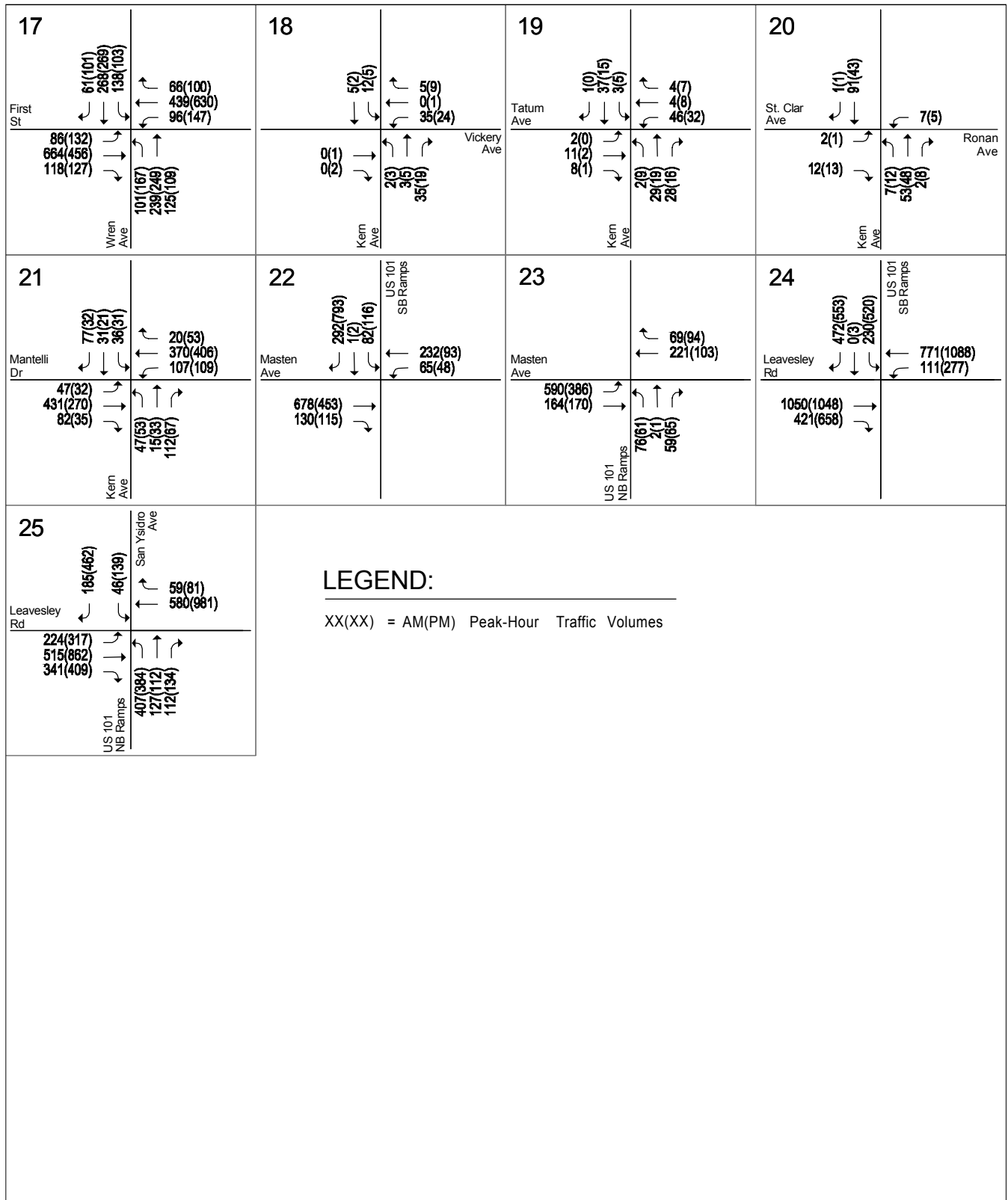


Figure 11 (Continued)
Existing Plus Project Traffic Volumes

Existing Plus Project Intersection Levels of Service

The results of the intersection level of service analysis under existing plus project conditions are discussed below and summarized in Table 6. The analysis results are presented for all study intersections based on City of Gilroy level of service standard. Caltrans intersections also were evaluated based on Caltrans level of service standards.

The level of service calculation sheets are included in Appendix C.

City of Gilroy/Santa Clara County Intersections

Signalized Intersections

The results of the level of service analysis of the signalized study intersections under existing plus project conditions indicate that one of the study intersections is projected to operate at an unacceptable LOS D during the PM peak-hour:

1. Monterey Road and Masten Avenue/Fitzgerald Avenue (LOS D – PM peak-hour)

Based on City of Gilroy level of service standards, the above intersection would be deficient under existing plus project conditions.

The remaining signalized study intersections would continue to operate at acceptable levels of service during the AM and PM peak hours under existing plus project conditions.

CMP Intersection

The results of the level of service analysis for the CMP intersection under existing plus project conditions show that, measured against the CMP level of service standards, the CMP study intersection of Monterey Road and Leavesley Road/Welburn Avenue (#7) is projected to operate at an acceptable LOS C during the AM and PM peak hours.

Unsignalized Intersections

The results of the level of service analysis of the unsignalized intersections under existing plus project conditions indicate that two of the unsignalized study intersections are projected to operate with overall average intersection delays corresponding to an unacceptable LOS D during one of the peak hours:

3. Monterey Road and Day Road (LOS D – AM peak-hour)
16. Wren Avenue and Welburn Avenue (LOS D – PM peak-hour)

Based on City of Gilroy level of service standards, the above intersections would be deficient under existing plus project conditions.

Additionally, the unsignalized intersection analysis results indicate that the following study intersection would operate with average delays corresponding to LOS F on its stop-controlled approach with the highest delay and the traffic volume would be high enough to satisfy the peak-hour volume warrant during the same peak-hour:

2. Monterey Road and Buena Vista Avenue (LOS F/signal warrant met – AM and PM)
3. Monterey Road and Day Road (LOS F/signal warrant met – AM and PM peak hours)
23. US 101 NB ramps and Masten Avenue (LOS F/signal warrant met – AM peak-hour)

Based on the City of Gilroy level of service standards, unsignalized intersections are considered deficient when both the average delay on the stop-controlled approach with the highest delay operates at an unacceptable level of service and the intersection traffic volumes satisfy the peak-hour volume

Table 6
Existing Plus Project Intersection Level of Service Results

Study Int. Number	Intersection	Jurisdiction ¹	Intersection Control	LOS Standard	TIF Int. ²	Peak Hour	Existing			Existing Plus Project		
							Avg. Delay	LOS	Warrant Met? ³	Avg. Delay	LOS	Warrant Met? ³
1	Monterey Road and Masten Avenue/Fitzgerald Avenue	SCC	Signal	C	Yes	AM PM	30.9 43.3	C D	-- --	30.9 43.6	C D	-- --
2	Monterey Road and Buena Vista Avenue	CofG	One-Way Stop (Average Delay)	C	Yes	AM PM	5.0 2.1	A A+	-- --	6.4 2.6	A A+	-- --
			One-Way Stop (Worst Approach)	D		AM PM	69.0 41.4	F E	Yes Yes	93.2 54.5	F F	Yes Yes
3	Monterey Road and Day Road	CofG	One-Way Stop (Average Delay)	C	Yes	AM PM	20.6 11.7	C B+	-- --	25.5 16.9	D+ C+	-- --
			One-Way Stop (Worst Approach)	D		AM PM	141.7 ⁴ 152.2 ⁴	F F	Yes Yes	184.9 ⁴ 231.2 ⁴	F F	Yes Yes
4	Monterey Road and Cohansey Avenue	CofG	One-Way Stop (Average Delay)	C	Yes	AM PM	0.3 0.2	A+ A+	-- --	0.3 0.2	A+ A+	-- --
			One-Way Stop (Worst Approach)	D		AM PM	25.2 21.5	D+ C	No No	27.9 24.1	D+ C-	No No
5	Monterey Road and Farrell Avenue	CofG	Signal	C	No	AM PM	16.0 9.7	B A	-- --	16.6 11.4	B B+	-- --
6	Monterey Road and Ronan Avenue	CofG	One-Way Stop (Average Delay)	C	No	AM PM	1.9 0.8	A+ A+	-- --	2.4 1.2	A+ A+	-- --
			One-Way Stop (Worst Approach)	D		AM PM	17.4 15.8	C+ C+	Yes No	20.1 19.3	C C	Yes No
7	Monterey Road and Leavesley Road/Welburn Avenue*	Caltrans	Signal	C	No	AM PM	27.1 29.1	C C	-- --	27.5 29.5	C C	-- --
8	Church Street and Farrell Avenue	CofG	All-Way Stop	C	Yes	AM PM	15.8 13.4	C B	No No	23.6 19.0	C C	No No
9	Church Street and Mantelli Drive/Lilly Ave	CofG	All-Way Stop	C	Yes	AM PM	15.8 16.5	C C	Yes Yes	16.0 16.8	C C	Yes Yes
10	Wren Avenue and Cohansey Avenue	CofG	All-Way Stop	C	Yes	AM PM	7.2 7.0	A A	No No	7.1 7.1	A A	No No
11	Wren Avenue and Vickery Avenue	CofG	All-Way Stop	C	No	AM PM	7.1 7.2	A A	No No	7.2 7.4	A A	No No
12	Wren Avenue and Farrell Avenue	CofG	All-Way Stop	C	Yes	AM PM	10.5 12.8	B B	No No	11.6 14.5	B B	No No
13	Wren Avenue and Tatum Avenue	CofG	Two-Way Stop (Average Delay)	C	No	AM PM	1.2 0.7	A+ A+	-- --	1.9 1.3	A+ A+	-- --
			Two-Way Stop (Worst Approach)	D		AM PM	12.3 12.0	B B	No No	13.5 13.5	B- B-	No No
14	Wren Avenue and Ronan Avenue	CofG	Two-Way Stop (Average Delay)	C	No	AM PM	1.5 1.1	A+ A+	-- --	2.4 2.4	A+ A+	-- --
			Two-Way Stop (Worst Approach)	D		AM PM	14.3 14.1	B- B-	No No	16.4 17.1	C+ C+	No No
15	Wren Avenue and Mantelli Drive	CofG	All-Way Stop	C	Yes	AM PM	17.7 17.6	C C	Yes Yes	18.7 18.9	C C	Yes Yes
16	Wren Avenue and Welburn Avenue	CofG	All-Way Stop	C	Yes	AM PM	20.0 27.6	C D	Yes Yes	20.8 29.5	C D	Yes Yes
17	Wren Avenue and First Street	Caltrans	Signal	C	Yes	AM PM	27.9 31.3	C C	-- --	28.3 31.4	C C	-- --
18	Kern Avenue and Vickery Avenue	CofG	Uncontrolled	C	No	AM PM	7.7 6.9	A A	No No	7.0 6.6	A A	No No
19	Kern Avenue and Tatum Avenue	CofG	Two-Way Stop (Average Delay)	C	No	AM PM	4.3 5.6	A A	-- --	4.2 4.9	A A	-- --
			Two-Way Stop (Worst Approach)	D		AM PM	9.3 9.1	A- A-	No No	9.4 9.1	A- A-	No No
20	Kern Avenue and St. Clair Avenue/Ronan Avenue	CofG	One-Way Stop (Average Delay)	C	No	AM PM	1.2 2.1	A+ A+	-- --	1.4 1.9	A+ A+	-- --
			One-Way Stop (Worst Approach)	D		AM PM	8.8 8.5	A- A-	No No	9.6 9.3	A- A-	No No
21	Kern Avenue and Mantelli Drive	CofG	All-Way Stop	C	Yes	AM PM	12.1 10.6	B B	No No	12.6 11.1	B B	No No

Table 6 (Continued)
Existing Plus Project Intersection Level of Service Results

Study Int. Number	Intersection	Jurisdiction ¹	Intersection Control	LOS Standard	TIF Int. ²	Peak Hour	Existing			Existing Plus Project		
							Avg. Delay	LOS	Warrant Met? ³	Avg. Delay	LOS	Warrant Met? ³
22	US 101 SB Ramps and Masten Avenue	Caltrans	Two-Way Stop (Average Delay)	C	Yes	AM	4.6	A	--	4.7	A	--
			Two-Way Stop (Worst Approach)	D		AM	11.6	B+	--	13.6	B-	--
23	US 101 NB Ramps and Masten Avenue	Caltrans	Two-Way Stop (Average Delay)	C	Yes	AM	14.8	B-	Yes	15.3	C+	Yes
			Two-Way Stop (Worst Approach)	D		PM	18.7	C	Yes	22.1	C-	Yes
24	US 101 SB Ramps and Leavesley Road	Caltrans	Two-Way Stop (Average Delay)	C	Yes	AM	14.0	B-	--	18.2	C+	--
			Two-Way Stop (Worst Approach)	D		PM	6.8	A-	--	7.2	A-	--
25	US 101 SB Ramps and Leavesley Road	Caltrans	Two-Way Stop (Worst Approach)	D		AM	71.2	F	Yes	105.8 ⁴	F	Yes
			Signal	C	No	PM	17.6	C+	No	19.5	C	No
26	US 101 NB Ramps/San Ysidro Avenue and Leavesley Road	Caltrans	Signal	C	No	AM	16.8	B	--	16.7	B	--
						PM	27.6	C	--	27.5	C	--
27	US 101 NB Ramps/San Ysidro Avenue and Leavesley Road	Caltrans	Signal	C	No	AM	26.6	C	--	26.6	C	--
						PM	28.3	C	--	28.5	C	--

Notes:

¹ SCC = Santa Clara County; CofG = City of Gilroy

² TIF Int. = City of Gilroy Traffic Impact Fee intersection.

³ 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.

⁴ The HCM methodology for intersection analysis does not accurately calculate actual intersection operating conditions once the calculated intersection delay exceeds 100+ seconds. Once an intersection is calculated to operate with delays exceeding 100 seconds, any additional traffic to the intersection will increase the intersection delay exponentially, resulting in unrealistic excessive delays that most likely would never be experienced at an actual intersection. However, for the purpose of quantifying the projected increase in delay due to the proposed project, all calculated delays are reported, including those exceeding 100 seconds.

* = CMP intersection

Entries denoted in **bold** indicate conditions that exceed the City's current level of service standard.

traffic signal warrant during the same peak-hour.

The remaining unsignalized study intersections would not have traffic volume and level of service conditions that exceed the City of Gilroy level of service standards under existing plus project conditions.

The peak-hour signal warrant sheets are contained in Appendix D.

Caltrans Intersections

The results of the intersection level of service analysis for the Caltrans intersections under existing plus project conditions show that all of the Caltrans study intersections are projected to operate at an acceptable LOS C or better during the AM and PM peak hours.

Freeway Segment Analysis

As discussed in Chapter 1 of this report, a freeway level of service analysis was not conducted since the number of project trips added to the freeway segments near the site does not equal or exceed one percent of the capacity of those segments. Based on CMP Traffic Impact Analysis Guidelines, a freeway level of service analysis is not required.

4. Background Conditions

This chapter describes background traffic conditions. Background conditions are defined as conditions just prior to completion of the proposed project. Traffic volumes for background conditions comprise volumes from the existing traffic counts plus traffic generated by approved developments in the City of Gilroy. This chapter describes the procedure used to determine background traffic volumes and the resulting traffic conditions. Any planned and funded transportation improvements in the study area are included in background conditions.

Background Transportation Network

It is assumed in the analysis that the transportation network under background conditions would be the same as described under existing conditions with the exception of the following improvements:

Cohansey Avenue Extension – Currently, west of US 101, Cohansey Avenue consists of two segments: one from Monterey Road to west of US 101, and the second one, a short segment located within the Harvest Park Phase I project site that extends from the west side of the Santa Clara Valley Water District channel to the eastern Hewell Property boundary. The approved Harvest Park Phase II project, which is currently under construction, will extend Cohansey Avenue from its terminus point west of the water channel, over the water channel via a new bridge, across the Harvest Park II site, to Monterey Road. The Cohansey Avenue extension will provide an alternative access route to the surrounding land uses (both existing and future) to/from the north.

Signalization of the Monterey Road/Cohansey Avenue Intersection. With the Cohansey Avenue extension, the existing T-intersection of Monterey Road/Cohansey Avenue would become a full (four-legged) intersection. The new full intersection would be signalized to serve the anticipated additional traffic demand from existing and new development in the area.

Approved Developments

Table 7 lists the latest approved but not-yet-completed developments in the City of Gilroy, which are assumed to add traffic to the roadway network under background conditions. The list of approved projects was provided by the City staff in August 2017. The traffic associated with these developments is discussed below.

Table 7
Approved Development Projects in the City of Gilroy

#	Project Name/Applicant	Project Location/Address	Project Description
1	Bolsa Road (Zen Nursery)	5350 Bolsa Rd	17 Industrial lots, 1 open space preserve, 1 private road, 20 ac parcel
2	Cannery Apartments	111 Lewis St	104 apartments
3	Country Estates, Phase 1-3	West end of Mantelli Dr, west of Santa Teresa Blvd	SFDUs: 123 sf lots (phase 1-A), 30 sf lots (phase 1-B), 87 sf lots (phase 2), 63 sf lots (phase 3) (22 units remaining)
4	The Fresh Group	Northeast corner of Forest St and Leavesley Rd	113,100 square foot full-service hotel and 43,100 square foot extended stay hotel
5	Gilroy Hampton Inn	Monterey Rd and Travel Park Cir	105-room hotel
6	Golden State Brewery	7560 Monterey St	10,336 s.f. brew pub with an eating establishment
7	Imwalle Properties (Santa Teresa Townhouses)	First St and Santa Teresa Blvd	217 townhouses
8	Jan Hochhauser/San Ysidro Ct	199 Banes Ln (Tenth St and Alexander St)	5-story, 265 unit apartment complex
9	Las Animas Residential Subdivision (GUSD)	8450 Wren Ave	70 SFR subdivision w/ private streets
10	McCarthy Business Park (Wellington)	South side of Hwy. 152 East, east of Silacci Wy	145,715 sf Highway Commercial Shopping Center & 73.4 ac Industrial Park
11	Melia (Martin Industrial)	Southeast corner of Las Animas Ave and Monterey St.	9-lot industrial subdivision - 40,904 s.f. total
12	Monterey Gateway	Monterey at Ervin Ct	75 Affordable Senior Family Units
13	Murray/Forest Industrial	Between Murray Ave and Forest St, south of Kishimura Dr	14 Industrial lots on 7.3 ac.
14	Noah Concrete	5717 Obata Wy	12,600 s.f. office building (no longer 12,600 sq ft building but a small modular)
15	Performance Food Group	5480 Monterey Rd	350,000 s.f. distribution center on a 29 acre lot
16	PSI Development Co.. Inc.	9070 Kern Ave	40-unit apartment complex
17	San Ysidro Storage	9080 San Ysidro Ave	114,035 self storage
18	Sports Complex	Monterey Frontage Road, S. of West Luchessa Ave	3-phase sports park with 7 multi-use ball fields, picnic areas, volley ball courts, bocce ball courts, skate facility, tot lot play area, bike/pedestrian trail, parking and offices
19	Syngenta Flowers	2280 Hecker Pass Highway	Greenhouses: 6,878 s.f.; Hoop Houses: 2,400 s.f.; Potting Shed: 1,875 s.f.; Shade Structure: 75 s.f.
20	Harvest Park II / James Suner	West of Monterey Rd, north and south of Cohansey Ave	57-lot single-family residential subdivision
21	SV Affordable Investors, LLC	Harvest Park, Monterey Rd at Cohansey Ave	66 Unit 3-Story Apt Complex at Harvest Park 2
22	SV Affordable Investors, LLC	Harvest Park, Monterey Rd at Cohansey Ave	32 Unit 3-Story Apt Complex at Harvest Park
23	Vince Fortino (Monterey Road Commercial)	5400 Monterey Rd	122.51 ksf commercial space, 137.21 ksf industrial space, 24.5 ksf office space
24	Zhongmin Feng	300 Obata Wy	Plastic Sheet Recycling Plant, 10,500 s.f. factory building w/ 1000 s.f. office
25	Glen Loma Ranch Specific Plan	Santa Teresa Blvd, between Third St and Thomas Rd	1,690 residential units and 155,550 s.f. of commercial (273 units completed)
26	Hecker Pass Specific Plan	North and South of Hecker Pass Hwy, west of Santa Teresa Blvd	554 homes, 91.91 ksf agri-commercial, 3ksf convenience market, 29.19 ksf agriculture (300 units completed)
Source: City of Gilroy Planning Department, August 2017			

Background Traffic Volumes

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 as described in the previous chapter (Chapter 3 – Existing Plus Project Conditions). The traffic from approved developments includes both new trip productions and attractions on the local transportation system. The traffic associated with residential uses would be considered new productions, which would be going to commercial and employment areas. The traffic associated with non-residential land uses would be considered new trip attractions. In some cases, the new trips added by approved developments could be double counted since some trips generated by the new residential developments would be attracted to the new commercial land uses. Therefore, to account for this double counting and to be consistent with the procedures used for all other traffic studies in the City of Gilroy, trips from new residential projects were not assigned to the areas where new commercial development is planned to occur.

Additionally, as a result of the planned Cohansey Avenue Extension (from Monterey Road to the Harvest Park Phase I project site), travel patterns associated with existing and future traffic in the vicinity of the Cohansey Avenue Extension would change. Traffic volumes from the project area traveling to/from the north on Monterey Road would have an alternative route. For this reason, a reassignment of existing and approved traffic volumes was performed to account for the change in travel pattern associated with the Cohansey Avenue Extension (future roadway network) under background conditions.

Background traffic volumes are shown on Figure 12. Traffic volumes for all components of traffic are tabulated in Appendix B.

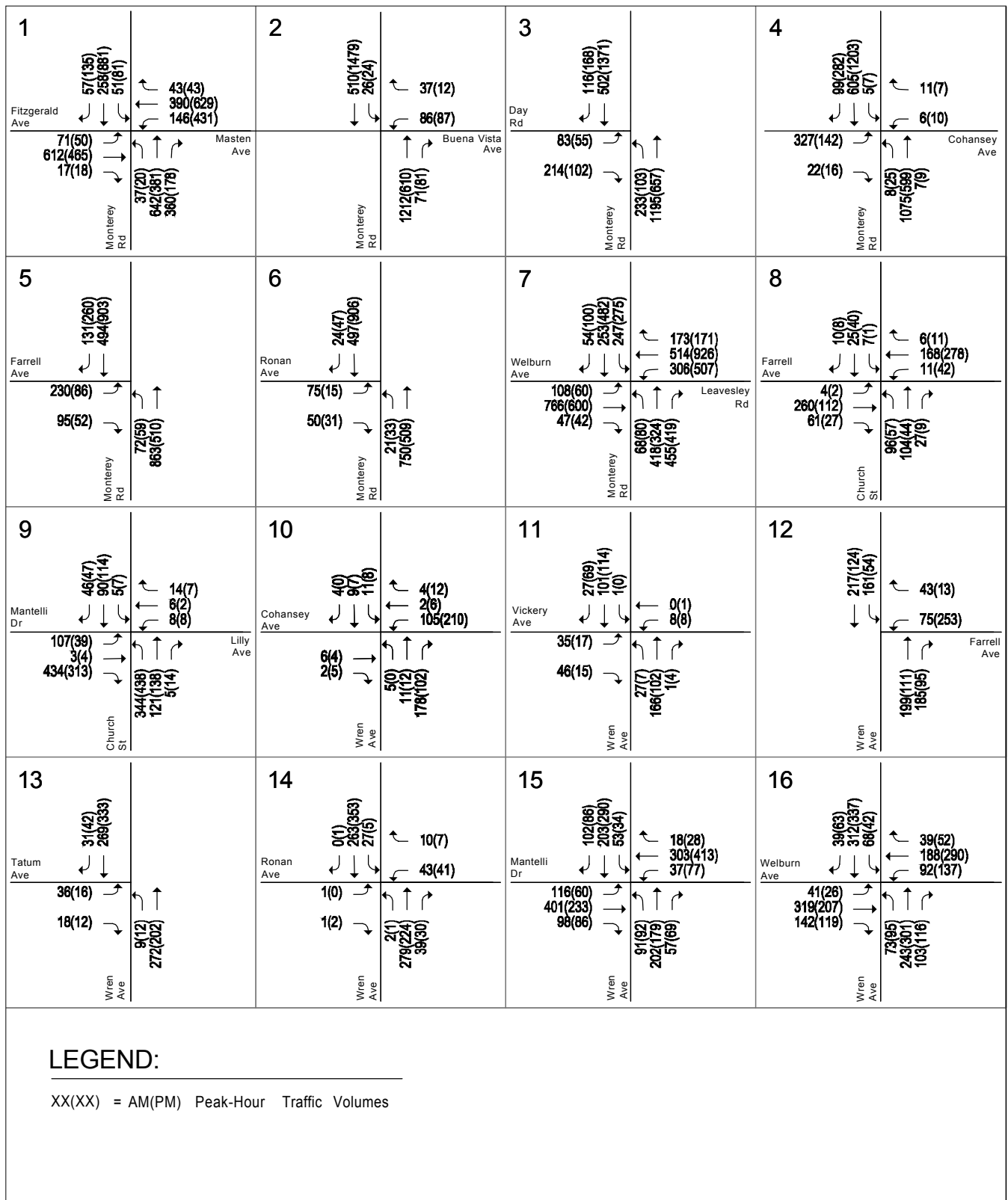


Figure 12
Background Traffic Volumes

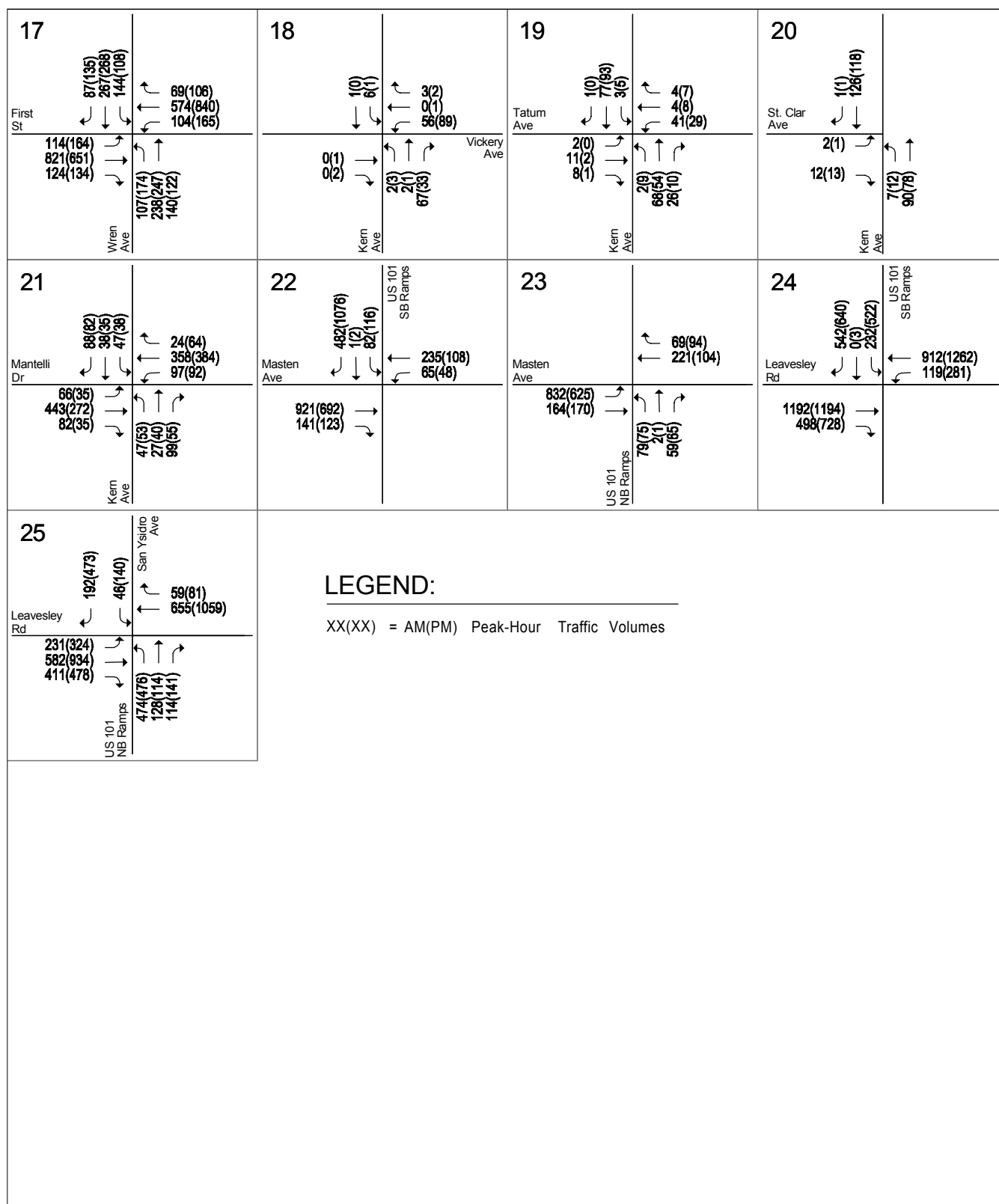


Figure 12 (Continued)
Background Traffic Volumes

Background Intersection Levels of Service

The results of the intersection level of service analysis under background conditions are discussed below and summarized in Table 8. The analysis results are presented for all study intersections based on City of Gilroy level of service standard and impact criteria. Caltrans intersections also are evaluated based on Caltrans level of service standards and impact criteria.

The level of service calculation sheets are included in Appendix C.

City of Gilroy/Santa Clara County Intersections

Signalized Intersections

The results of the level of service analysis of the signalized study intersections indicate that the following study intersection is projected to operate at unacceptable levels of service under background conditions:

1. Monterey Road and Masten Avenue/Fitzgerald Avenue (LOS E – AM and PM peak hours)

The remaining signalized study intersections are projected to operate at acceptable levels of service during the AM and PM peak hours under background conditions.

CMP Intersection

The results of the level of service analysis for the CMP intersection under background conditions show that, measured against the CMP level of service standards, the CMP study intersection of Monterey Road and Leavesley Road/Welburn Avenue (#7) would continue to operate at an acceptable LOS C during the AM and PM peak hours.

Unsignalized Intersections

The results of the level of service analysis of the unsignalized intersections under background conditions indicate that four of the unsignalized study intersections are projected to operate with overall average intersection delays corresponding to an unacceptable LOS D or worse during at least one of the peak hours analyzed:

3. Monterey Road and Day Road (LOS D – AM peak-hour)
16. Wren Avenue and Welburn Avenue (LOS D - AM, LOS F – PM peak hours)
22. US 101 Southbound Ramps and Masten Avenue (LOS E – PM peak-hour)
23. US 101 Northbound Ramps and Masten Avenue (LOS F – AM peak-hour)

The unsignalized intersection analysis results also indicate that the following study intersections are projected to operate with average delays corresponding to LOS E or F on its stop-controlled approach with the highest delay during at least one of the peak hours analyzed and the traffic volume during the same peak hour is high enough to satisfy the peak-hour volume warrant:

2. Monterey Road and Buena Vista Avenue (LOS F/signal warrant met – AM and PM)
3. Monterey Road and Day Road (LOS F/signal warrant met – AM and PM)
22. US 101 SB Ramps and Masten Avenue (LOS F/signal warrant met – PM peak-hour)
23. US 101 NB Ramps and Masten Avenue (LOS F/signal warrant met – AM and PM)

Based on the City of Gilroy level of service standards, unsignalized intersections are considered deficient when both the average delay on the stop-controlled approach with the highest delay operates at an unacceptable level of service and the intersection traffic volumes satisfy the peak-hour volume traffic signal warrant during the same peak-hour.

Table 8
Background Conditions Intersection Level of Service Results

Study Int. Number	Intersection	Jurisdiction ¹	Intersection Control	LOS Standard	TIF Int. ²	Peak Hour	Existing			Background		
							Avg. Delay	LOS	Warrant Met? ³	Avg. Delay	LOS	Warrant Met? ³
1	Monterey Road and Masten Avenue/Fitzgerald Avenue	SCC	Signal	C	Yes	AM PM	30.9 43.3	C D	-- --	59.1 78.4	E+ E-	-- --
2	Monterey Road and Buena Vista Avenue	CofG	One-Way Stop (Average Delay)	C	Yes	AM PM	5.0 2.1	A A+	-- --	8.1 3.6	A- A	-- --
			One-Way Stop (Worst Approach)	D		AM PM	69.0 41.4	F E	Yes Yes	124.6 ⁴ 80.1	F F	Yes Yes
3	Monterey Road and Day Road	CofG	One-Way Stop (Average Delay)	C	Yes	AM PM	20.6 11.7	C B+	-- --	31.3 23.4	D C-	-- --
			One-Way Stop (Worst Approach)	D		AM PM	141.7 ⁴ 152.2 ⁴	F F	Yes Yes	239.2 ⁴ 355.9 ⁴	F F	Yes Yes
4	Monterey Road and Cohansey Avenue	CofG	One-Way Stop, Signal ⁵	C	Yes	AM PM	0.3 0.2	A+ A+	-- --	13.7 9.7	B A	-- --
			One-Way Stop (Worst Approach)	D		AM PM	25.2 21.5	D+ C	No No			
5	Monterey Road and Farrell Avenue	CofG	Signal	C	No	AM PM	16.0 9.7	B A	-- --	13.8 7.7	B A	-- --
6	Monterey Road and Ronan Avenue	CofG	One-Way Stop (Average Delay)	C	No	AM PM	1.9 0.8	A+ A+	-- --	1.9 0.8	A+ A+	-- --
			One-Way Stop (Worst Approach)	D		AM PM	17.4 15.8	C+ C+	Yes No	20.3 18.8	C C	Yes No
7	Monterey Road and Leavesley Road/Welburn Avenue*	Caltrans	Signal	C	No	AM PM	27.1 29.1	C C	-- --	28.2 30.8	C C	-- --
8	Church Street and Farrell Avenue	CofG	All-Way Stop	C	Yes	AM PM	15.8 13.4	C B	No No	11.3 9.9	B A	No No
9	Church Street and Mantelli Drive/Lilly Ave	CofG	All-Way Stop	C	Yes	AM PM	15.8 16.5	C C	Yes Yes	18.0 20.1	C C	Yes Yes
10	Wren Avenue and Cohansey Avenue	CofG	All-Way Stop	C	Yes	AM PM	7.2 7.0	A A	No No	8.4 9.3	A A	No No
11	Wren Avenue and Vickery Avenue	CofG	All-Way Stop	C	No	AM PM	7.1 7.2	A A	No No	8.2 7.8	A A	No No
12	Wren Avenue and Farrell Avenue	CofG	All-Way Stop	C	Yes	AM PM	10.5 12.8	B B	No No	9.8 10.5	A B	No No
13	Wren Avenue and Tatum Avenue	CofG	Two-Way Stop (Average Delay)	C	No	AM PM	1.2 0.7	A+ A+	-- --	1.2 0.7	A+ A+	-- --
			Two-Way Stop (Worst Approach)	D		AM PM	12.3 12.0	B B	No No	12.3 11.9	B B	No No
14	Wren Avenue and Ronan Avenue	CofG	Two-Way Stop (Average Delay)	C	No	AM PM	1.5 1.1	A+ A+	-- --	1.5 1.1	A+ A+	-- --
			Two-Way Stop (Worst Approach)	D		AM PM	14.3 14.1	B- B-	No No	14.4 14.2	B- B-	No No
15	Wren Avenue and Mantelli Drive	CofG	All-Way Stop	C	Yes	AM PM	17.7 17.6	C C	Yes Yes	19.5 20.6	C C	Yes Yes
16	Wren Avenue and Welburn Avenue	CofG	All-Way Stop	C	Yes	AM PM	20.0 27.6	C D	Yes Yes	29.3 54.0	D F	Yes Yes
17	Wren Avenue and First Street	Caltrans	Signal	C	Yes	AM PM	27.9 31.3	C C	-- --	28.0 31.8	C C	-- --
18	Kern Avenue and Vickery Avenue	CofG	Uncontrolled	C	No	AM PM	7.7 6.9	A A	No No	7.9 7.4	A B	No No
19	Kern Avenue and Tatum Avenue	CofG	Two-Way Stop (Average Delay)	C	No	AM PM	4.3 5.6	A A	-- --	2.9 2.6	A+ A+	-- --
			Two-Way Stop (Worst Approach)	D		AM PM	9.3 9.1	A- A-	No No	9.9 9.8	A- A-	No No
20	Kern Avenue and St. Clair Avenue/Ronan Avenue	CofG	One-Way Stop (Average Delay)	C	No	AM PM	1.2 2.1	A+ A+	-- --	0.8 1.0	A+ A+	-- --
			One-Way Stop (Worst Approach)	D		AM PM	8.8 8.5	A- A-	No No	9.1 9.0	A- A-	No No
21	Kern Avenue and Mantelli Drive	CofG	All-Way Stop	C	Yes	AM PM	12.1 10.6	B B	No No	13.1 11.3	B B	No No

Table 8 (Continued)
Background Conditions Intersection Level of Service Results

Study Int. Number	Intersection	Jurisdiction ¹	Intersection Control	LOS Standard	TIF Int. ²	Peak Hour	Existing			Background		
							Avg. Delay	LOS	Warrant Met? ³	Avg. Delay	LOS	Warrant Met? ³
22	US 101 SB Ramps and Masten Avenue	Caltrans	Two-Way Stop (Average Delay)	C	Yes	AM	4.6	A	--	6.7	A	--
						PM	11.6	B+	--	49.7	E-	--
			Two-Way Stop (Worst Approach)	D		AM	14.8	B-	Yes	20.0	C	Yes
23	US 101 NB Ramps and Masten Avenue	Caltrans	Two-Way Stop (Average Delay)	C	Yes	AM	14.0	B-	--	66.3	F	--
						PM	6.8	A-	--	16.6	C+	--
			Two-Way Stop (Worst Approach)	D		AM	71.2	F	Yes	572.6 ⁴	F	Yes
24	US 101 SB Ramps and Leavesley Road	Caltrans	Signal	C	No	AM	16.8	B	--	17.3	B	--
						PM	27.6	C	--	28.6	C	--
25	US 101 NB Ramps/San Ysidro Avenue and Leavesley Road	Caltrans	Signal	C	No	AM	26.6	C	--	26.9	C	--
						PM	28.3	C	--	29.4	C	--
<div>Notes:</div> <div>¹ SCC = Santa Clara County; CofG = City of Gilroy</div> <div>² TIF Int. = City of Gilroy Traffic Impact Fee intersection.</div> <div>³ Signal warrant analysis based on the Peak Hour Signal Warrant #3, Figure 4C Caltrans MUTCD, 2014.</div> <div>Signal warrant analysis is not applicable to signalized intersections.</div> <div>⁴ The HCM methodology for intersection analysis does not accurately calculate actual intersection operating conditions once the calculated intersection delay exceeds 100+ seconds. Once an intersection is calculated to operate with delays exceeding 100 seconds, any additional traffic to the intersection will increase the intersection delay exponentially, resulting in unrealistic excessive delays that most likely would never be experienced at an actual intersection. However, for the purpose of quantifying the projected increase in delay due to the proposed project, all calculated delays are reported, including those exceeding 100 seconds.</div> <div>⁵ One-way stop-controlled intersection under existing conditions. Assumed to be signalized under background conditions.</div> <div>* = CMP intersection</div> <div>Entries denoted in bold indicate conditions that exceed the City's current level of service standard.</div>												

The remaining unsignalized study intersections would not have traffic volume and level of service conditions that exceed the City of Gilroy level of service standards during the peak hours.

The peak-hour signal warrant sheets are contained in Appendix D.

Caltrans Intersections

The results of the intersection level of service analysis for the Caltrans intersections under background conditions show that the following Caltrans study intersections are projected to operate at unacceptable levels of service, based on Caltrans level of service standards, during one of the peak hours analyzed:

- 22. US 101 Southbound Ramps and Masten Avenue (LOS E – PM peak-hour)
- 23. US 101 Northbound Ramps and Masten Avenue (LOS F – AM peak-hour)

The remaining Caltrans intersections are projected to operate at acceptable levels of service during the peak hours.

5. Background Plus Project Conditions

This chapter describes background plus project traffic conditions, significant project impacts, and measures that are recommended to mitigate significant project impacts. Included are descriptions of the significance criteria that define an impact, estimates of project-generated traffic, identification of the impacts, and descriptions of the mitigation measures and recommended changes in the study area needed to address these impacts. Background plus project conditions are represented by background traffic conditions (existing plus approved traffic) with the addition of traffic generated by the proposed project.

Although some of the information provided below has already been described in Chapter 3 – Existing Plus Project Conditions, it is presented again within this chapter for the reader's convenience.

Significant Impact Criteria

Significance criteria are used to define what constitutes an impact. For this analysis, impacts on intersections are based on the City of Gilroy, CMP, and Caltrans Level of Service standards.

City of Gilroy and Santa Clara County Definition of Significant Signalized Intersection Level of Service Impacts

The City of Gilroy uses two sets of impact criteria, one for intersections located west of US 101 and another set for intersections located in the LOS D commercial area designated in the City of Gilroy General Plan, primarily east of US 101.

Three of the signalized study intersections are located within the LOS D area. The rest of the signalized study intersections are located in the LOS C area and are subject to the LOS C standard.

LOS C Area

For intersections located west of US 101 in the LOS C areas, the project is said to create a significant adverse impact on traffic conditions at a signalized intersection if for any peak hour:

1. The level of service at the intersection 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. If the intersection is already operating at an unacceptable LOS D and the addition of project traffic causes the average delay to increase by two (2) second or more, or

3. 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 one (1) second or more.

LOS D Area

For intersections located in the LOS D area, primarily east of US 101 and in the Tenth Street corridor, the project is said to create a significant adverse impact on traffic conditions at a signalized intersection if for any peak hour:

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 one (1) second or more.

A significant impact is said to be satisfactorily mitigated when measures are implemented that would restore intersection levels of service to background (no-project) conditions or better.

City of Gilroy and Santa Clara County Definition of Significant Unsignalized Intersection Impacts

One of the unsignalized study intersections is located within the LOS D area.

The project is said to create a significant adverse impact on traffic conditions at an unsignalized intersection if for any peak hour:

1. For intersections in the LOS C areas: The average overall level of service at the intersection degrades from an acceptable LOS C or better under background conditions to an unacceptable LOS D or worse under background plus project conditions, or

If the average overall intersection level of service is already at an unacceptable LOS D and the addition of project traffic causes the average overall delay to increase by two (2) second or more, or

2. For intersections in the LOS D areas: The average overall intersection 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

If the average overall intersection level of service is already at an unacceptable LOS E or F and the addition of project traffic causes the overall average delay to increase by one (1) second or more, or

3. If the worst approach at a one- or two-way stop-controlled intersection is projected to operate at an unacceptable LOS E or F under background plus project conditions and the addition of project traffic causes the traffic volumes at the intersection to satisfy the peak-hour volume traffic signal warrant adopted by Caltrans.

A significant impact is said to be satisfactorily mitigated when measures are implemented that would restore intersection levels of service to background (no-project) conditions or better.

CMP Definition of Significant Intersection Impacts

The definition of a significant impact at a CMP intersection is the same as for the City of Gilroy, except that the CMP standard for acceptable level of service at a CMP intersection is LOS E or better. A significant impact by CMP standards is said to be satisfactorily mitigated when measures are implemented that would restore intersection operations to LOS E or better.

Caltrans Facilities Level of Service Standards and Impact Criteria

Caltrans identifies a level of service standard of LOS C for its facilities, including intersections and freeway facilities. Based on Caltrans' level of service impact criteria, the project is said to create a significant adverse impact on traffic conditions at a Caltrans facility if for either peak-hour:

- The level of service at the study facility degrades from an acceptable LOS C or better under no-project conditions to an unacceptable LOS D or worse under project conditions, or
- The project results in the increase in delay at facilities that are already operating at unacceptable levels (LOS D or worse).

Definition of Significant Operations Impacts

The City of Gilroy considers a project to create a significant adverse impact on operations 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.

Definition of Significant Parking Impacts

The City of Gilroy considers a project to create a significant adverse impact on parking conditions if:

1. The proposed on-site parking supply does not satisfy the parking requirement contained in the City of Gilroy Municipal Code.

Definition of Significant Emergency Access Impacts

The City of Gilroy considers a project to create a significant adverse impact on emergency access to the project site if:

1. The proposed site design does not satisfy the emergency access requirements contained in the City of Gilroy Municipal Code, or if the proposed site design is determined by the City Engineer to provide inadequate emergency access.

Transportation Network Under Background Plus Project Conditions

It is assumed in the analysis that the transportation network under background plus conditions would be the same as described under background conditions, in addition to the following improvements:

Cohansey Avenue – the proposed project would construct the segment of Cohansey Avenue from the Harvest Park Phase I western site boundary to Kern Avenue. Cohansey Avenue would connect the project site to Wren Avenue and Monterey Road under background plus project conditions.

Kern Avenue – the proposed project would develop Kern Avenue, along the Hewell Property western site boundary, and the east side of the street (project's frontage) to conform to City of Gilroy standards and the adjacent developed segment of Kern Avenue.

Vickery Avenue – the proposed project would develop Vickery Avenue, along the Hewell Property southern site boundary, and the north side of the street (project's frontage) to conform to City of Gilroy standards and the rest of Vickery Avenue. The remaining segment of Vickery Avenue is planned to be improved by others.

Kern Avenue and Vickery Avenue Intersection – this intersection is currently an undeveloped/uncontrolled intersection (mainly a two-legged intersection without any posted traffic control signs/pavement legend). With implementation of the proposed project both Kern and Vickery Avenues would be improved along the Hewell Property frontage, consequently improving the intersection. It was assumed in the analysis that the intersection of Kern Avenue/Vickery Avenue would operate as an all-way stop controlled intersection with implementation of the proposed project.

Farrell Avenue – Farrell Avenue would be extended westward into the Wren Investors site, providing direct access to the northern portion of the Wren Investors site and forming a four-legged intersection with Wren Avenue. This intersection is assumed to continue to be all-way stop controlled.

St. Clar Avenue/Ronan Avenue – St. Clar Avenue would be extended eastward into the project site, forming a four-legged intersection at Kern Avenue, and connect to Ronan Avenue, just west of Wren Avenue. This new roadway extension would provide direct access to the southern portion of the Wren Investors site and provide an alternate connection between Wren and Kern Avenues.

Project Description

A full project description is presented in Chapter 3, Existing Plus Project Conditions. A brief project description is provided below.

The preliminary development plans for the project sites include 137 low-density residential lots, 20 medium-density residential lots, 102 high-density townhome/apartments, and 0.40 acres of neighborhood commercial within the Wren Investors site; and 48 single-family residential units within the Hewell Property site. Direct access to the project sites would be provided via Cohansey Avenue, Kern Avenue, Vickery Avenue, Wren Avenue, Farrell Avenue, Tatum Avenue, and St. Clar/Ronan Avenue.

Project Trip Generation, Distribution, and Assignments

A detailed description of the procedures used to estimate project trip generation is presented in Chapter 3. A summary of the trip generation estimates for the proposed project are described below. The trip distribution and assignment under background plus project conditions also are described below.

Trip Generation

On the basis of the ITE trip generation rates, and after applying the applicable trip reductions, it is estimated that the proposed project would generate 3,105 net new daily trips, with 234 trips (61 inbound and 173 outbound) occurring during the AM peak-hour and 321 trips (199 inbound and 122 outbound) occurring during the PM peak-hour. The project trip generation estimates are presented in Table 5, in Chapter 3.

Trip Distribution

The project trip distribution pattern is shown graphically on Figure 9, Chapter 3.

Trip Assignment

The peak-hour trips generated by the proposed development were assigned to the roadway system in accordance with the trip distribution pattern discussed above and the anticipated freeway interchanges serving the project site. The planned (and currently under construction) Cohansey Avenue extension will provide a secondary access point to the project sites, as well as other existing uses, to/from the north. This alternative access is reflected in the assignment of project traffic under background plus project conditions. The project trip assignment under the future roadway network is presented graphically on Figure 13.

Background Plus Project Traffic Volumes

The project trips were added to background traffic volumes to obtain background plus project traffic volumes. The background plus project traffic volumes are shown graphically on Figure 14. Traffic volumes for all components of traffic are tabulated in Appendix B.

Background Plus Project Intersection Levels of Service

The results of the intersection level of service analysis under background plus project conditions are discussed below and summarized in Table 9. The analysis results are presented for all study intersections based on City of Gilroy level of service standard and impact criteria. Caltrans intersections also are evaluated based on Caltrans level of service standards and impact criteria.

The level of service calculation sheets are included in Appendix C.

City of Gilroy/Santa Clara County Intersections

Signalized Intersections

The results of the level of service analysis of the signalized study intersections indicate that the following study intersection is projected to operate at unacceptable levels of service during both peak hours under background plus project conditions:

1. Monterey Road and Masten Avenue/Fitzgerald Avenue (LOS E – AM and PM peak hours)

However, the addition of project traffic at the above intersection is not sufficient to cause the average delay to increase by more than 1.0 second. This typically happens when project traffic volumes are low and/or are added to non-critical movements of the intersection. Therefore, based on City of Gilroy intersection impact criteria, the project would not cause a significant level of service impact at this location.

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

CMP Intersection

The results of the level of service analysis for the CMP intersection under background plus project conditions show that, measured against the CMP level of service standards, the CMP study intersection of Monterey Road and Leavesley Road/Welburn Avenue (#7) is projected to operate at an acceptable LOS C during the AM and PM peak hours.

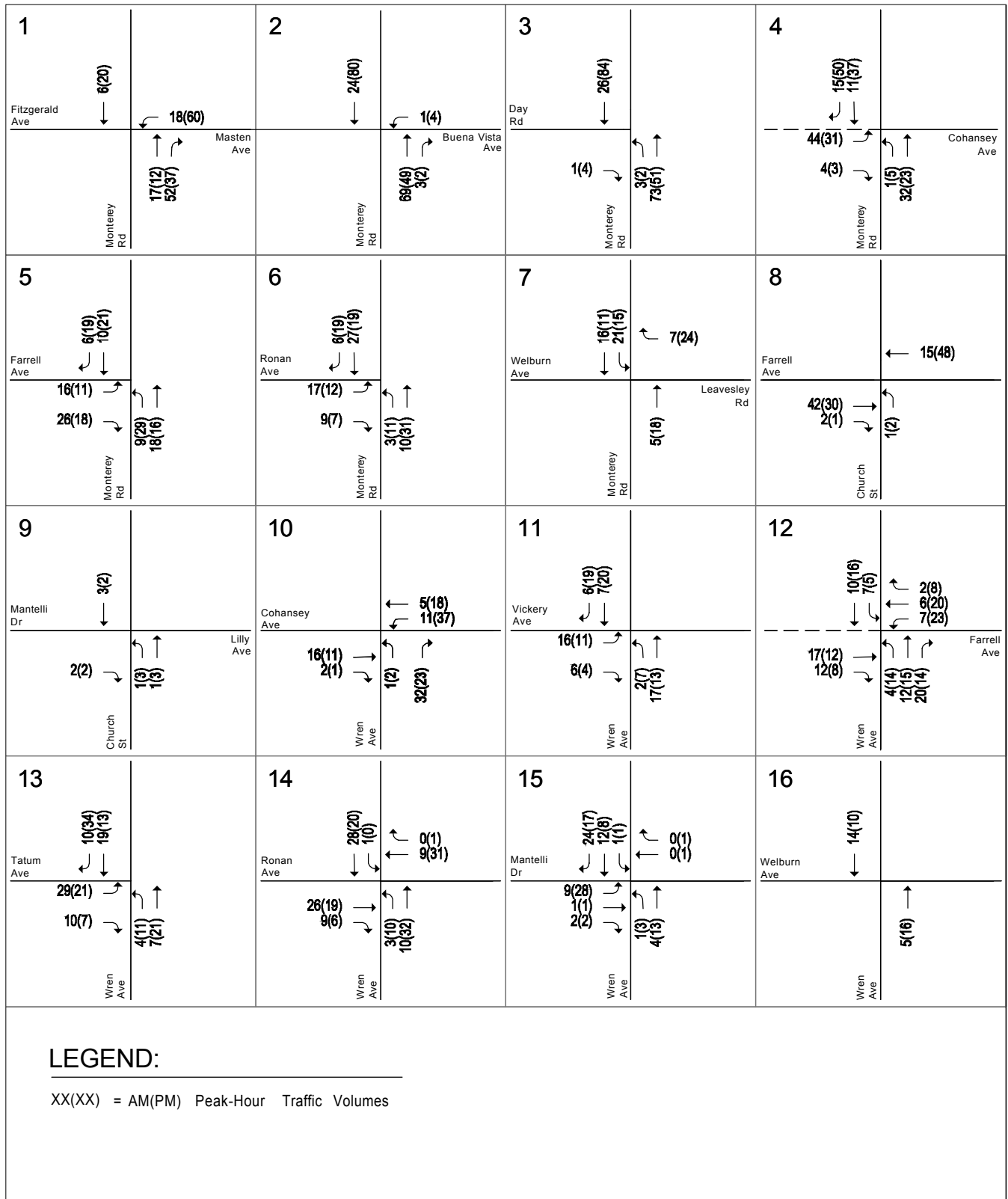


Figure 13
Project Trip Assignment – Future Roadway Network

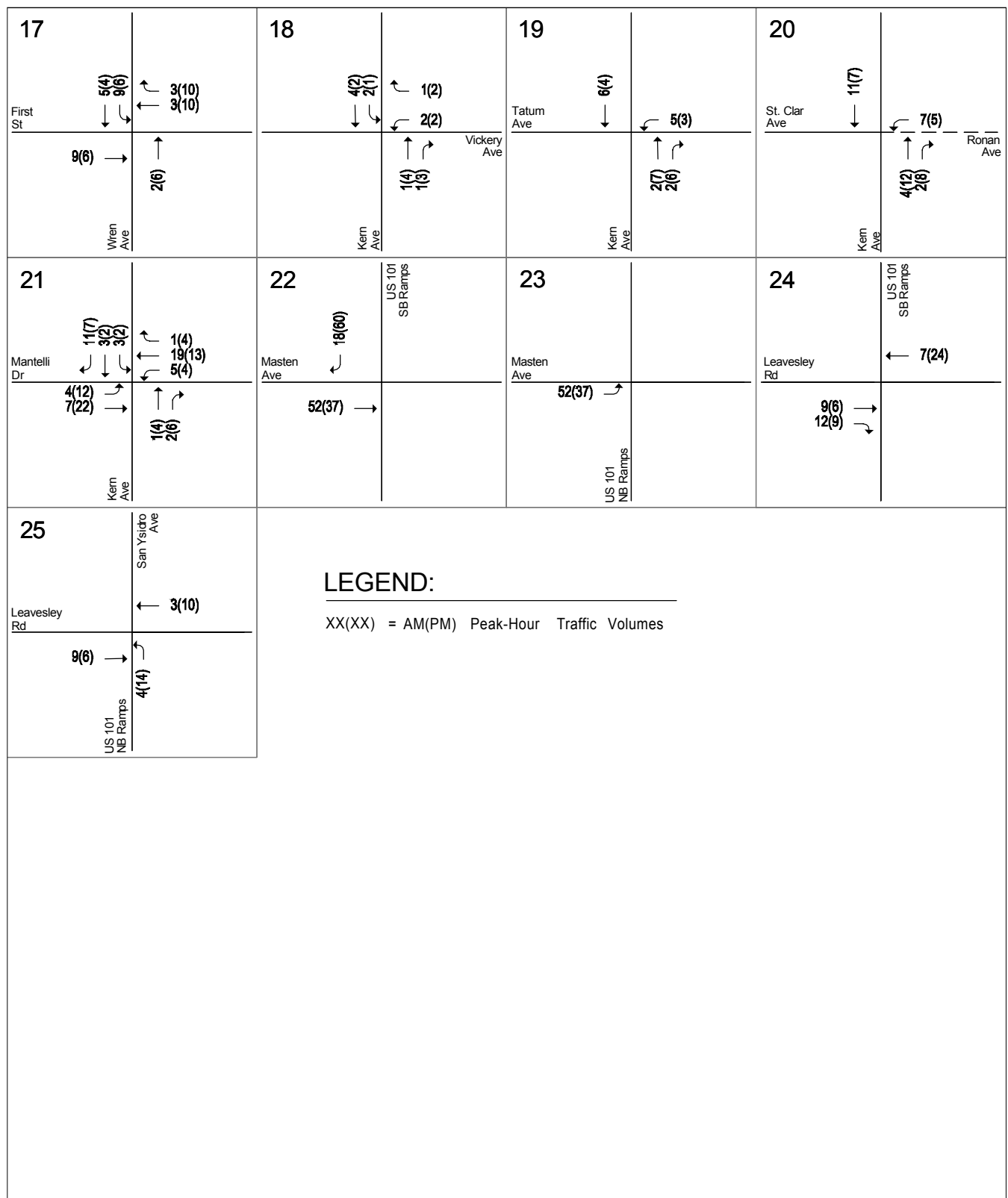


Figure 13 (Continued)
Project Trip Assignment – Future Roadway Network

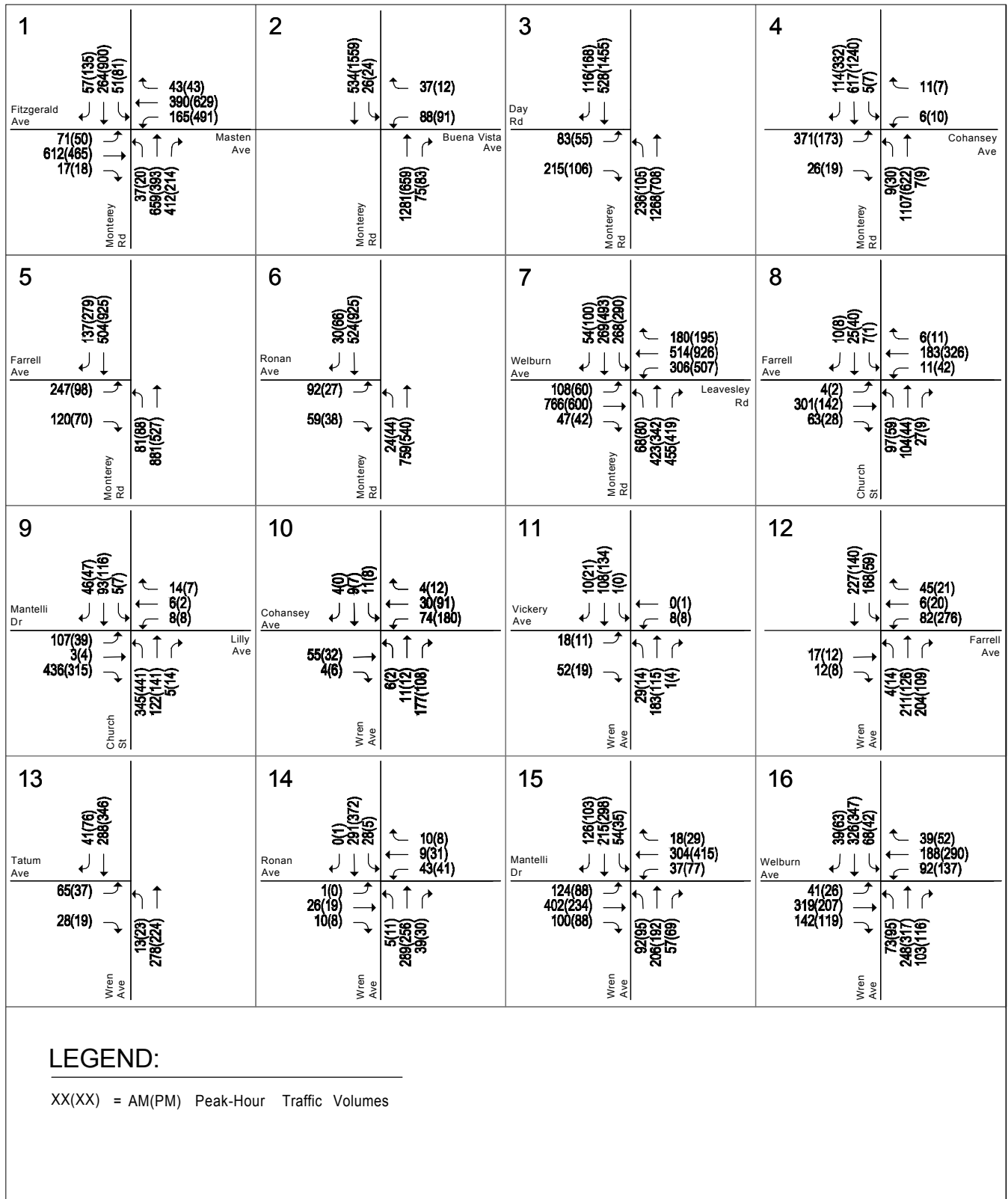


Figure 14
Background Plus Project Traffic Volumes

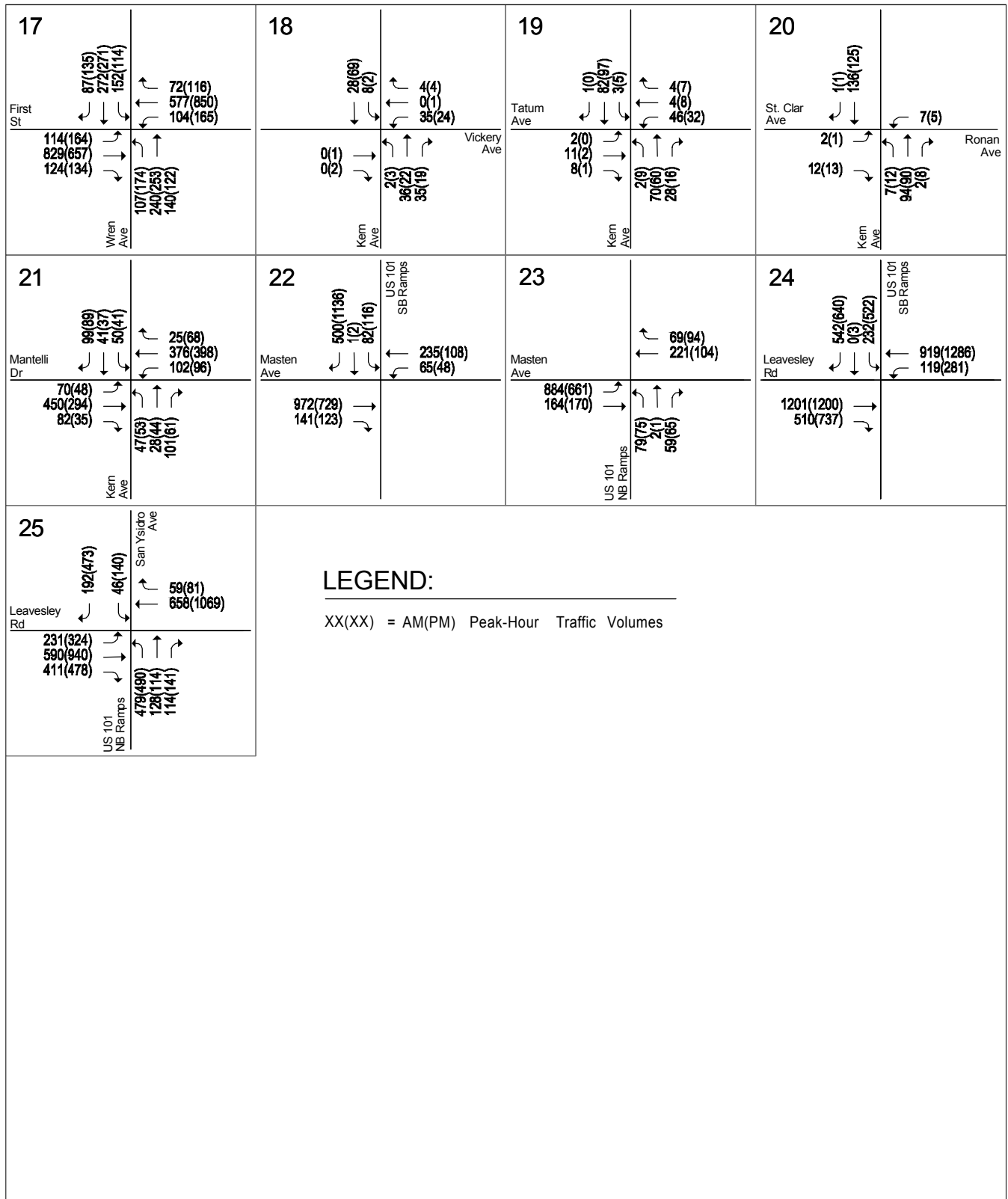


Figure 14 (Continued)
Background Plus Project Traffic Volumes

Table 9
Background Plus Project Conditions Intersection Level of Service Results

Study Int. Number	Intersection	Jurisdiction ¹	Intersection Control	LOS Standard	TIF Int. ²	Peak Hour	Background			Background Plus Project			
							Avg. Delay	LOS	Warrant Met? ³	Avg. Delay	LOS	Delay Change ⁴	Warrant Met? ³
1	Monterey Road and Masten Avenue/Fitzgerald Avenue	SCC	Signal	C	Yes	AM	59.1	E+	--	59.4	E+	+0.3	--
						PM	78.4	E-	--	79.0	E-	+0.6	--
2	Monterey Road and Buena Vista Avenue	CofG	One-Way Stop (Average Delay)	C	Yes	AM	8.1	A-	--	10.9	B+	+2.8	--
						PM	3.6	A-	--	5.0	A	+1.4	--
			One-Way Stop (Worst Approach)	D		AM	124.6 ⁵	F	Yes	176.0 ⁵	F	+51.4	Yes
						PM	80.1	F	Yes	116.7 ⁵	F	+36.6	Yes
3	Monterey Road and Day Road	CofG	One-Way Stop (Average Delay)	C	Yes	AM	31.3	D	--	37.4	E+	+6.1	--
						PM	23.4	C-	--	31.5	D	+8.1	--
			One-Way Stop (Worst Approach)	D		AM	239.2 ⁵	F	Yes	299.1 ⁵	F	+59.9	Yes
						PM	355.9 ⁵	F	Yes	497.0 ⁵	F	+141.1	Yes
4	Monterey Road and Cohansey Avenue	CofG	Signal	C	Yes	AM	13.7	B	--	17.7	B	+4.0	--
						PM	9.7	A	--	13.4	B	+3.7	--
5	Monterey Road and Farrell Avenue	CofG	Signal	C	No	AM	13.8	B	--	14.5	B	+0.7	--
						PM	7.7	A	--	9.4	A	+1.7	--
6	Monterey Road and Ronan Avenue	CofG	One-Way Stop (Average Delay)	C	No	AM	1.9	A+	--	2.6	A+	+0.7	--
						PM	0.8	A+	--	1.2	A+	+0.4	--
			One-Way Stop (Worst Approach)	D		AM	20.3	C	Yes	24.0	C-	+3.7	Yes
						PM	18.8	C	No	24.3	C-	+5.5	No
7	Monterey Road and Leavesley Road/Welburn Avenue*	Caltrans	Signal	C	No	AM	28.2	C	--	28.7	C	+0.5	--
						PM	30.8	C	--	31.3	C	+0.5	--
8	Church Street and Farrell Avenue	CofG	All-Way Stop	C	Yes	AM	11.3	B	No	12.3	B	+1.0	No
						PM	9.9	A	No	10.7	B	+0.8	No
9	Church Street and Mantelli Drive/Lilly Ave	CofG	All-Way Stop	C	Yes	AM	18.0	C	Yes	18.2	C	+0.2	Yes
						PM	20.1	C	Yes	20.5	C	+0.4	Yes
10	Wren Avenue and Cohansey Avenue	CofG	All-Way Stop	C	Yes	AM	8.4	A	No	8.3	A	-0.1	No
						PM	9.3	A	No	8.9	A	-0.4	No
11	Wren Avenue and Vickery Avenue	CofG	All-Way Stop	C	No	AM	8.2	A	No	8.2	A	+0.0	No
						PM	7.8	A	No	7.8	A	+0.0	No
12	Wren Avenue and Farrell Avenue	CofG	All-Way Stop	C	Yes	AM	9.8	A	No	10.4	B	+0.6	No
						PM	10.5	B	No	11.3	B	+0.8	No
13	Wren Avenue and Tatum Avenue	CofG	Two-Way Stop (Average Delay)	C	No	AM	1.2	A+	--	1.9	A+	+0.7	--
						PM	0.7	A+	--	1.3	A+	+0.6	--
			Two-Way Stop (Worst Approach)	D		AM	12.3	B	No	13.5	B-	+1.2	No
						PM	11.9	B	No	13.3	B	+1.4	No
14	Wren Avenue and Ronan Avenue	CofG	Two-Way Stop (Average Delay)	C	No	AM	1.5	A+	--	2.4	A+	+0.9	--
						PM	1.1	A+	--	2.4	A+	+1.3	--
			Two-Way Stop (Worst Approach)	D		AM	14.4	B-	No	16.6	C+	+2.2	No
						PM	14.2	B-	No	17.2	C+	+3.0	No
15	Wren Avenue and Mantelli Drive	CofG	All-Way Stop	C	Yes	AM	19.5	C	Yes	20.7	C	+1.2	Yes
						PM	20.6	C	Yes	22.6	C	+2.0	Yes
16	Wren Avenue and Welburn Avenue	CofG	All-Way Stop	C	Yes	AM	29.3	D	Yes	31.1	D	+1.8	Yes
						PM	54.0	F	Yes	57.5	F	+3.5	Yes
17	Wren Avenue and First Street	Caltrans	Signal	C	Yes	AM	28.0	C	--	28.3	C	+0.3	--
						PM	31.8	C	--	32.0	C	+0.2	--
18	Kern Avenue and Vickery Avenue	CofG	Uncontrolled, AWSC ⁶	C	No	AM	7.9	A	No	7.2	A	-0.7	No
						PM	7.4	B	No	8.6	A	+1.2	No
19	Kern Avenue and Tatum Avenue	CofG	Two-Way Stop (Average Delay)	C	No	AM	2.9	A+	--	3.0	A+	+0.1	--
						PM	2.6	A+	--	2.5	A+	-0.1	--
			Two-Way Stop (Worst Approach)	D		AM	9.9	A-	No	10.0	A-	+0.1	No
						PM	9.8	A-	No	9.9	A-	+0.1	No
20	Kern Avenue and St. Clair Avenue/Ronan Avenue	CofG	One-Way Stop (Average Delay)	C	No	AM	0.8	A+	--	1.0	A+	+0.2	--
						PM	1.0	A+	--	1.0	A+	+0.0	--
			One-Way Stop (Worst Approach)	D		AM	9.1	A-	No	10.2	B+	+1.1	No
						PM	9.0	A-	No	10.2	B+	+1.2	No
21	Kern Avenue and Mantelli Drive	CofG	All-Way Stop	C	Yes	AM	13.1	B	No	13.7	B	+0.6	No
						PM	11.3	B	No	11.9	B	+0.6	No

Table 9 (Continued)
Background Plus Project Conditions Intersection Level of Service Results

Study Int. Number	Intersection	Jurisdiction ¹	Intersection Control	LOS Standard	TIF Int. ²	Peak Hour	Background			Background Plus Project			
							Avg. Delay	LOS	Warrant Met? ³	Avg. Delay	LOS	Delay Change ⁴	Warrant Met? ³
22	US 101 SB Ramps and Masten Avenue	Caltrans	Two-Way Stop	C	Yes	AM	6.7	A	--	7.0	A-	+0.3	--
			(Average Delay)		PM	49.7	E-	--	62.9	F	+13.2	--	
			Two-Way Stop (Worst Approach)	D	PM	20.0	C	Yes	21.2	C	+1.2	Yes	
23	US 101 NB Ramps and Masten Avenue	Caltrans	Two-Way Stop	C	Yes	AM	66.3	F	--	84.0	F	+17.7	--
			(Average Delay)		PM	16.6	C+	--	19.7	C	+3.1	--	
			Two-Way Stop (Worst Approach)	D	PM	572.6 ⁵	F	Yes	766.6 ⁵	F	+194.0	Yes	
24	US 101 SB Ramps and Leavesley Road	Caltrans	Signal	C	No	AM	17.3	B	--	17.3	B	+0.0	--
25	US 101 NB Ramps/San Ysidro Avenue and Leavesley Road	Caltrans	Signal	C	No	AM	26.9	C	--	27.0	C	+0.1	--
						PM	29.4	C	--	29.5	C	+0.1	--
Notes: ¹ SCC = Santa Clara County; CofG = City of Gilroy ² TIF Int. = City of Gilroy Traffic Impact Fee Intersection. ³ 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. ⁴ Change in delay, expressed in seconds, for background plus project conditions is measured relative to background conditions. ⁵ The HCM methodology for intersection analysis does not accurately calculate actual intersection operating conditions once the calculated intersection delay exceeds 100+ seconds. Once an intersection is calculated to operate with delays exceeding 100 seconds, any additional traffic to the intersection will increase the intersection delay exponentially, resulting in unrealistic excessive delays that most likely would never be experienced at an actual intersection. However, for the purpose of quantifying the projected increase in delay due to the proposed project, all calculated delays are reported, including those exceeding 100 seconds. ⁶ Uncontrolled intersection under existing conditions. Assumed to be all-way stop-controlled with the project. * = CMP intersection Entries denoted in bold indicate conditions that exceed the City's current level of service standard. <div><div></div> - Denotes significant impact based on City of Gilroy criteria. <div></div> - Denotes significant impact based on Caltrans criteria.</div>													

Unsignalized Intersections

The results of the level of service analysis of the unsignalized intersections under background plus project conditions indicate that four of the unsignalized study intersections are projected to operate with overall average intersection delays corresponding to an unacceptable LOS D or worse during at least one of the peak hours analyzed:

3. Monterey Road and Day Road (**Impact:** AM and PM peak hours)
16. Wren Avenue and Welburn Avenue (**Impact:** PM peak-hour)
22. US 101 Southbound Ramps and Masten Avenue (**Impact:** PM peak-hour)
23. US 101 Northbound Ramps and Masten Avenue (**Impact:** AM peak-hour)

The above intersections also are projected to operate at unacceptable levels under background conditions, and the addition of project traffic would cause the intersections' average delay to increase beyond the City's delay increase threshold during the deficient peak hours. Based on City of Gilroy unsignalized intersection level of service impact criteria, this is considered a project impact.

Additionally, the unsignalized intersection analysis results indicate that the following four unsignalized study intersections are projected to operate with average delays corresponding to LOS F on its stop-controlled approach with the highest delay during at least one of the peak hours analyzed and the traffic volume during the same peak hour would be high enough to satisfy the peak-hour volume warrant:

2. Monterey Road and Buena Vista Avenue (**Impact:** AM and PM peak hours)
3. Monterey Road and Day Road (**Impact:** AM and PM peak hours)
22. US 101 SB Ramps and Masten Avenue (**Impact:** PM peak-hour)
23. US 101 NB Ramps and Masten Avenue (**Impact:** AM and PM peak hours)

Based on the unsignalized intersection level of service impact criteria, intersections where both the average delay on the stop-controlled approach with the highest delay operates at LOS E or F and the addition of project traffic causes the traffic volumes at the intersection to satisfy the peak-hour volume traffic signal warrant, are considered to be impacted by the project. Although this condition was met under background conditions (the intersections were identified as being deficient under background conditions), the proposed project would contribute to the projected deficiency at these locations, increasing the delay for the approach with the highest delay. Therefore, this is also considered a project impact.

The remaining unsignalized study intersections would not have traffic volume and level of service conditions that exceed the City of Gilroy level of service standards during the AM and PM peak hours.

The peak-hour signal warrant sheets are contained in Appendix D.

Caltrans Intersections

The results of the intersection level of service analysis for the Caltrans intersections under background plus project conditions show that the following Caltrans study intersections are projected to operate at unacceptable levels of service, based on Caltrans level of service standards, during one of the peak hours analyzed:

- 22. US 101 Southbound Ramps and Masten Avenue (**Impact:** PM peak-hour)
- 23. US 101 Northbound Ramps and Masten Avenue (**Impact:** AM peak-hour)

The level of service calculations show that the addition of project traffic to the above intersections would cause the intersection average delay to increase. This constitutes a significant project impact based on Caltrans intersection level of service impact criteria.

The remaining Caltrans study intersections would continue to operate at acceptable levels of service during the AM and PM peak hours under background plus project conditions.

Freeway Segment Analysis

As discussed in Chapter 1 of this report, a freeway level of service analysis was not conducted since the number of project trips added to the freeway segments near the site does not equal or exceed one percent of the capacity of those segments. Based on CMP Traffic Impact Analysis Guidelines, a freeway level of service analysis is not required.

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.

Analysis Procedures and Assumptions

The operations analysis is based on vehicle queuing for high-demand movements at intersections. Vehicle queues were estimated using a Poisson probability distribution. For this analysis, the average length of a vehicle in a queue is assumed to be 25 feet (20 feet vehicle length plus 5-foot headway space). This is a value typically used in traffic engineering practice (including most jurisdictions in the Santa Clara County) for the evaluation of vehicle queues.

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. The adequacy of the queue storage capacity for the following intersection movements was evaluated in this analysis:

1. Monterey Road and Masten Avenue/Fitzgerald Avenue – Westbound left-turn movement
4. Monterey Road and Cohansey Avenue – Eastbound approach
5. Monterey Road and Farrell Avenue – Eastbound approach and northbound left-turn movement
7. Monterey Road and Leavesley Road/Welburn Avenue – Southbound left-turn movement
12. Wren Avenue and Farrell Avenue – Westbound left-turn movement
23. US 101 NB Ramps and Masten Avenue – Eastbound left-turn movement
25. US 101 NB Off-Ramp/San Ysidro Avenue and Leavesley Road – Northbound left-turn movement

The operations analysis results under background plus project are summarized in Table 10. The intersection queue calculation sheets are included in Appendix E.

Operations Analysis Results

The existing maximum queue length for all of the above movements is estimated to be able to accommodate within the available queue storage capacity for each of the movements during the peak hours, with the exception of the westbound left-turn movement at the intersection of Monterey Road and Masten Avenue/Fitzgerald Avenue.

The maximum queue length for the westbound left-turn movement at the *Monterey Road and Masten Avenue/Fitzgerald Avenue* intersection is estimated to be 22 vehicles (or 550 feet) during the PM peak hour under existing conditions. This exceeds the existing storage capacity of approximately 340 feet (or 13 vehicles) for this movement by approximately 9 vehicles. The addition of approved (background) traffic to this movement would cause the projected queue length to increase by 2 vehicles (to 24 vehicles, or 600 feet) during the PM peak hour under background conditions. The addition of project traffic to this turn movement would cause the projected 95th percentile vehicle queue to increase by 3 vehicles (from 24 to 27 vehicles, or 600 to 675 feet) under background plus project conditions. Contribution to a vehicle queue in a turn-movement with inadequate queue storage capacity is considered a project impact, according to the City of Gilroy definition of significant traffic operations impacts.

The remaining study intersection movements would continue to provide adequate queue storage to serve the projected queue lengths under project conditions.

Table 10
Intersection Vehicle Queue Analysis

Measurement	Monterey/ Masten		Monterey/ Cohansey ³		Monterey/ Farrell			Monterey/ Leavesley		Wren/ Farrell	US 101 NB On-Ramps/ Masten		US 101 NB Off-Ramps/ Leavesley
	WBL AM	WBL PM	EB AM	EB PM	EB AM	EB PM	NBL PM	SBL AM	SBL PM	WBL PM	EBL AM	EBL PM	NBL PM
Existing Conditions													
Cycle/Delay ¹ (sec)	95	145			75	80	80	80	92	16.2	9.4	8.1	105
Lanes	1	1	1	1	2	2	1	1	1	1	1	1	2
Volume (vph)	133	387			589	236	58	217	254	371	538	349	370
Volume (vphpl)	133	387	0	0	295	118	58	217	254	371	538	349	185
Avg. Queue (veh./ln.)	4	16			6	3	1	5	6	2	1	1	5
Avg. Queue ² (ft./ln.)	88	390	0	0	153	66	32	121	162	42	35	20	135
95th % Queue (veh./ln.)	7	22			10	6	3	9	11	4	4	2	9
95th % Queue (ft./ln.)	175	550	0	0	250	150	75	225	275	100	100	50	225
Storage (ft./ln.)	340	340			700	700	325	450	450	250	150	150	350
Adequate (Y/N)	YES	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Existing Plus Project Conditions													
Cycle/Delay ¹ (sec)	95	145			75	80	80	80	92	20.3	9.7	8.2	105
Lanes	1	1			2	2	1	1	1	1	1	1	2
Volume (vph)	151	447			679	299	92	238	269	405	590	386	384
Volume (vphpl)	151	447			340	150	92	238	269	405	590	386	192
Avg. Queue (veh./ln.)	4	18			7	3	2	5	7	2	2	1	6
Avg. Queue ² (ft./ln.)	100	450			177	83	51	132	172	57	40	22	140
95th % Queue (veh./ln.)	8	25			12	7	5	9	11	5	4	3	10
95th % Queue (ft./ln.)	200	625			300	175	125	225	275	125	100	75	250
Storage (ft./ln.)	340	340			700	700	325	450	450	250	150	150	350
Adequate (Y/N)	YES	NO			YES	YES	YES	YES	YES	YES	YES	YES	YES
Background Conditions													
Cycle/Delay ¹ (sec)	95	145	60	60	75	80	80	80	92	12.8	11.7	9.1	105
Lanes	1	1	1	1	2	2	1	1	1	1	1	1	2
Volume (vph)	146	431	349	158	325	138	59	247	275	253	832	625	476
Volume (vphpl)	146	431	349	158	163	69	59	247	275	253	832	625	238
Avg. Queue (veh./ln.)	4	17	6	3	3	2	1	5	7	1	3	2	7
Avg. Queue ² (ft./ln.)	96	434	145	66	85	38	33	137	176	22	68	39	174
95th % Queue (veh./ln.)	7	24	10	6	7	4	3	10	12	3	6	4	12
95th % Queue (ft./ln.)	175	600	250	150	175	100	75	250	300	75	150	100	300
Storage (ft./ln.)	340	340	Future	Future	700	700	325	450	450	250	150	150	350
Adequate (Y/N)	YES	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Background Plus Project Conditions													
Cycle/Delay ¹ (sec)	95	145	60	60	75	80	80	80	92	14.3	12.4	9.3	105
Lanes	1	1	1	1	2	2	1	1	1	1	1	1	2
Volume (vph)	164	491	397	192	367	167	88	268	290	276	884	662	490
Volume (vphpl)	164	491	397	192	184	84	88	268	290	276	884	662	245
Avg. Queue (veh./ln.)	4	20	7	3	4	2	2	6	7	1	3	2	7
Avg. Queue ² (ft./ln.)	108	494	165	80	96	46	49	149	185	27	76	43	179
95th % Queue (veh./ln.)	8	27	11	6	7	4	4	10	12	3	6	4	12
95th % Queue (ft./ln.)	200	675	275	150	175	100	100	250	300	75	150	100	300
Storage (ft./ln.)	340	340	Future	Future	700	700	325	450	450	250	150	150	350
Adequate (Y/N)	YES	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

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.
³ Eastbound approach assumed to be completed under background and background plus project conditions.
 NB = Northbound, SB = Southbound, EB = Eastbound, WB = Westbound, R = Right, T = Through, L = Left.

Parking Analysis

Based on the parking rates found in the City of Gilroy Zoning Ordinance (Section 31, Off-street parking requirements), single family residential units must provide a minimum of 2 off-street parking stalls per dwelling unit (one of which should be a covered carport or garage). Multi-family residential units are required to provide 1.5 parking stalls per one to two bedrooms dwelling units, and 2 stalls for each unit having three or more bedrooms or rooms that could be used as bedrooms, plus 1 stall for every four units for guests. One stall for each unit should be covered with a garage or carport. In addition, based on City of Gilroy parking requirements, the retail portion of the project should provide one parking stall for every 250 square feet of gross floor area.

The Americans with Disabilities Act (ADA) requires developments to provide one accessible parking space for every 25 parking spaces provided for the first 100 parking spaces, and one additional parking space for every 50 parking spaces provided from 100 up to 200 total parking spaces. 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. Both the retail and multi-family portions of the project should comply with and satisfy ADA parking requirements.

The proposed project must adhere to these requirements in order to satisfy City of Gilroy standards.

Emergency Access Evaluation

A review of the Preliminary Master Plan for the Wren Investors site and the Conceptual Development Plan for the Hewell Property site for adequacy of site access and on-site circulation is presented in Chapter 7 (Other Transportation Issues).

Wren Investors Site

Based on the review of the Preliminary Master Plan, it was determined that with the preliminary internal roadway layout and dimensions, every proposed single-family residential unit within the project development would be accessible from at least three different access points, making emergency vehicle access and circulation within the project site adequate. Emergency access to the multi-family units must be verified to ensure that the widths and turn radii of the access aisles comply with City requirements. The final design of all access roadways will have to be approved by the City of Gilroy.

Hewell Property Site

Based on the review of the Conceptual Development Plan, every residential unit within the site would be accessible from at least two different access points, making emergency vehicle access within the project site adequate. However, the design of all new roadways and alleys providing direct access to the proposed residential units must adhere to City of Gilroy design guidelines and standards and should provide adequate turn-radii for emergency vehicles and large trucks to maneuver through the site. With the appropriate roadway widths and turn-radii, on-site circulation for emergency vehicles would be adequate. The final design of all access roadways will have to be approved by the City of Gilroy.

Recommended Mitigation Measures under Background Plus Project Conditions

Described below are the intersection impacts under background plus project conditions and recommended mitigation measures necessary to maintain the level of service standard and acceptable intersection operations under background plus project conditions. The resulting levels of service with implementation of the proposed mitigation measures are summarized in Table 11.

2. Monterey Road and Buena Vista Avenue (City of Gilroy Intersection)

Impact: The projected level of service on the highest-delay approach at this unsignalized intersection is projected to be LOS F during the AM and PM peak hours under background plus project conditions and the traffic volume levels at the intersection would be high enough to satisfy the peak-hour volume traffic signal warrant during both the AM and PM peak hours (City of Gilroy Impact).

Mitigation: The project impact to this intersection could be mitigated with the installation of a traffic signal, which would include protected left-turn movements on the southbound approach. Implementation of the above improvements would improve the intersection level of service to acceptable LOS A during the AM and PM peak hours under background plus project conditions.

The above improvements are planned in the City's Traffic Circulation Master Plan (TCMP) and are included in the City's Traffic Impact Fee (TIF) Program. The developer will be required to pay the applicable TIF fee as a fair-share contribution toward improvements at this intersection. With implementation of this mitigation measure, this impact would be less-than-significant.

3. Monterey Road and Day Road (City of Gilroy Intersection)

Impact: This unsignalized intersection is projected to operate at unacceptable LOS D during the AM peak hour under background conditions and the addition of project traffic would cause the intersection level of service to deteriorate to unacceptable LOS E and D during the AM and PM peak hours, respectively (City of Gilroy Impact). Additionally, the projected level of service on the highest-delay approach would be LOS F during the AM and PM peak hours under background plus project conditions and the traffic volume levels at the intersection would be high enough to satisfy the peak-hour volume traffic signal warrant during both the AM and PM peak hours (City of Gilroy Impact).

Mitigation: The project impact to this intersection could be mitigated with the installation of a traffic signal, which would include protected left-turn movements on the northbound approach. Implementation of the above improvements would improve the intersection level of service to acceptable LOS B during the AM and PM peak hours under background plus project conditions.

The above improvements are planned in the City's TCMP and are included in the City's TIF Program. The developer will be required to pay the applicable TIF fee as a fair-share contribution toward improvements at this intersection. With implementation of this mitigation measure, this impact would be less-than-significant.

Table 11
Mitigated Background Plus Project Intersection Level of Service Results

Study Int. Number	Intersection	Jurisdiction ¹	Intersection Control	LOS Standard	TIF Int. ²	Peak Hour	Background Plus Project				Mitigated	
							Avg. Delay	LOS	Delay Change ⁴	Warrant Met? ³	Avg. Delay	LOS
2	Monterey Road and Buena Vista Avenue	CofG	One-Way Stop (Average Delay)	C	Yes	AM	10.9	B+	+2.8	--	9.0	A
					PM	5.0	A	+1.4	--	8.4	A	
			One-Way Stop (Worst Approach)	D		AM	176.0 ⁵	F	+51.4	Yes		
3	Monterey Road and Day Road	CofG	One-Way Stop (Average Delay)	C	Yes	AM	37.4	E+	+6.1	--	13.8	B
					PM	31.5	D	+8.1	--	11.1	B+	
			One-Way Stop (Worst Approach)	D		AM	299.1 ⁵	F	+59.9	Yes		
16	Wren Avenue and Welburn Avenue	CofG	All-Way Stop	C	Yes	AM	31.1	D	+1.8	Yes	29.6	C
					PM	57.5	F	+3.5	Yes	33.7	C-	
22	US 101 SB Ramps and Masten Avenue	Caltrans	Two-Way Stop (Average Delay)	C	Yes	AM	7.0	A-	+0.3	--	11.2	B+
					PM	62.9	F	+13.2	--	10.9	B+	
			Two-Way Stop (Worst Approach)	D		AM	21.2	C	+1.2	Yes		
23	US 101 NB Ramps and Masten Avenue	Caltrans	Two-Way Stop (Average Delay)	C	Yes	AM	84.0	F	+17.7	--	21.7	C+
					PM	19.7	C	+3.1	--	13.9	B	
			Two-Way Stop (Worst Approach)	D		AM	766.6 ⁵	F	+194.0	Yes		
						PM	107.1 ⁵	F	+25.1	Yes		
Notes: ¹ SCC = Santa Clara County; CofG = City of Gilroy ² TIF Int. = City of Gilroy Traffic Impact Fee intersection. ³ 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. ⁴ Change in delay, expressed in seconds, for background plus project conditions is measured relative to background conditions. Change in delay, expressed in seconds, for cumulative plus project conditions is measured relative to cumulative no project conditions. ⁵ The HCM methodology for intersection analysis does not accurately calculate actual intersection operating conditions once the calculated intersection delay exceeds 100+ seconds. Once an intersection is calculated to operate with delays exceeding 100 seconds, any additional traffic to the intersection will increase the intersection delay exponentially, resulting in unrealistic excessive delays that most likely would never be experienced at an actual intersection. However, for the purpose of quantifying the projected increase in delay due to the proposed project, all calculated delays are reported, including those exceeding 100 seconds. * = CMP intersection Entries denoted in bold indicate conditions that exceed the City's current level of service standard. <div><div></div> - Denotes significant impact based on City of Gilroy criteria.</div> <div><div></div> - Denotes significant impact based on Caltrans criteria.</div>												

16. Wren Avenue and Welburn Avenue (City of Gilroy Intersection)

Impact: This unsignalized intersection is projected to operate at unacceptable LOS F during the PM peak hour under background conditions and the addition of project traffic would cause the overall intersection delay to increase by more than 1.0 second (City of Gilroy Impact).

Mitigation: The project impact to this intersection could be mitigated with the installation of a traffic signal that would include protected left-turn signal phasing on the northbound/southbound approaches and split phasing on the eastbound/westbound approaches. Implementation of the above improvements would improve the intersection level of service to LOS C during the AM and PM peak hours under background plus project conditions.

The above improvements are planned in the City's TCMP and are included in the City's TIF Program. The developer will be required to pay the applicable TIF fee as a fair-share contribution toward improvements at this intersection. With implementation of this mitigation measure, this impact would be less-than-significant.

22. US 101 SB Ramps and Masten Avenue (Caltrans Intersection)

Impact: This unsignalized intersection is projected to operate at unacceptable LOS E during the PM peak hour under background conditions and the addition of project traffic would cause the overall intersection delay to increase by more than 1.0 second (City of Gilroy and Caltrans impact). Additionally, the projected level of service on the highest-delay approach would be LOS F during the PM peak hour under background plus project conditions and the traffic volume levels at the intersection would be high enough to satisfy the peak-hour volume traffic signal warrant (City of Gilroy Impact).

Mitigation: The project impact to this intersection could be mitigated with the installation of a traffic signal that would include split signal phasing on the southbound approach and protected phasing on the westbound approach. Additionally, a receiving lane in the westbound direction also is needed as an exclusive lane for the southbound right-turn movement volumes. Implementation of the above improvements would improve the intersection level of service to acceptable LOS B during the AM and PM peak hours under background plus project conditions.

The above improvements are planned in the City's TCMP and are included in the City's TIF Program. The developer will be required to pay the applicable TIF fee as a fair-share contribution toward improvements at this intersection. With implementation of this mitigation measure, this impact would be less-than-significant.

23. US 101 NB Ramps and Masten Avenue (Caltrans Intersection)

Impact: This unsignalized intersection is projected to operate at unacceptable LOS F during the AM peak hour under background conditions and the addition of project traffic would cause the overall intersection delay to increase by more than 1.0 second (City of Gilroy and Caltrans impact). Additionally, the projected level of service on the highest-delay approach would be LOS F during the AM and PM peak hours under background plus project conditions and the traffic volume levels at the intersection would be high enough to satisfy the peak-hour volume traffic signal warrant (City of Gilroy Impact).

Mitigation: The project impact to this intersection could be mitigated with the installation of a traffic signal that would include split signal phasing on the northbound approach and protected

phasing on the eastbound approach. Implementation of the above improvements would improve the intersection level of service to acceptable LOS C or better under background plus project conditions.

In addition to installation of a traffic signal, providing adequate queue storage capacity for the relatively high projected eastbound left-turn movement volumes at this intersection also would be required. In the case providing adequate queue storage capacity for the eastbound left-turn movement is not feasible, a northbound loop on-ramp may be necessary to serve the eastbound on Masten Avenue to northbound US 101 traffic volumes. It should be noted that a loop on-ramp is one of the improvements included in the City's TCMP for this location. The level of analysis to determine the necessary interchange lane configuration would be completed in the interchange's Project Study Report (PSR).

The above improvements are planned in the City's TCMP and are included in the City's TIF Program. The developer will be required to pay the applicable TIF fee as a fair-share contribution toward improvements at this intersection. With implementation of this mitigation measure, this impact would be less-than-significant.

1. Monterey Road and Masten Avenue/Fitzgerald Avenue – Westbound Left-Turn

Impact: The addition of project traffic to the westbound left-turn movement at this intersection would cause the projected 95th percentile vehicle queue to increase by three vehicles (from 24 to 27 vehicles, or 600 to 675 feet) from background to background plus project conditions. This exceeds the existing storage capacity of approximately 340 feet (or 13 vehicles). Based on City of Gilroy definition of significant traffic operations impacts, this is considered a project impact.

Mitigation: The project impact to the westbound left-turn movement of the Monterey Road/Masten Avenue/Fitzgerald Avenue intersection could be mitigated by providing a second westbound left-turn lane. However, it should be noted that the westbound movement of the intersection is operated on a split signal phase (both left and through westbound movements proceed through the intersection simultaneously). With this type of phasing, the situation will never occur where the left-turn movement is stopped while the adjacent through movement is trying to proceed. Additionally, the westbound through movement volume is about the same as the westbound left-turn volume. Therefore, an even split between the left and the through lanes can be expected during most signal cycles at the intersection. Because all movements in the westbound direction proceed through the intersection at the same time and the left-turn queue would rarely block the through lane or prevent through vehicles from reaching the intersection, this left-turn queue storage deficiency most likely would not create safety or operational problems.

The addition of a second westbound left-turn lane on Master Avenue has been identified in the City of Gilroy General Plan and in the City's TIF Program. Section 4.4.12 of the Development Agreement between the City of Gilroy and Glen Loma Ranch requires the developer of Glen Loma Ranch to construct this improvement, or mitigate the impact by other means. The developer will be required to pay the applicable TIF fee as a fair-share contribution toward improvements at this intersection. With implementation of this mitigation measure, this impact would be less-than-significant.

6.

Cumulative Conditions

This chapter presents a summary of the traffic conditions that would occur under cumulative conditions with the proposed project. Cumulative conditions are defined as conditions shortly after completion of the proposed project. Traffic volumes for cumulative conditions comprise volumes from existing traffic counts plus traffic generated by other approved developments in the vicinity of the site, trips generated by the proposed project, and traffic from proposed but not yet approved developments. This chapter describes the procedure used to determine cumulative traffic volumes and the resulting traffic conditions.

Cumulative Transportation Network

It is assumed in this analysis that the transportation network under cumulative conditions would be the same as described under background conditions. Under cumulative plus project conditions, the transportation network would be the same as described under background plus project conditions.

Proposed Developments

The latest list of proposed but not yet approved (pending) developments in the City of Gilroy was provided by City staff in August 2017. Table 12 lists the pending developments in the City of Gilroy, which are assumed to add traffic to the roadway network under cumulative conditions. Traffic associated with proposed developments is discussed below.

Cumulative Conditions Traffic Volumes

Baseline cumulative peak-hour traffic volumes (without project traffic) were calculated by adding to background volumes the estimated traffic from proposed but not yet approved (pending) development projects. The added traffic from proposed developments was estimated based on the location, size, and use of each proposed development, and applying the process of trip generation, distribution, and assignment described in Chapter 3. The same assumptions utilized to estimate approved project traffic, as discussed in Chapter 4 (Background Conditions), were applied to estimate pending project traffic. The baseline cumulative conditions traffic volumes are presented graphically on Figure 15.

Cumulative plus project traffic volumes were calculated by adding project-generated trips to baseline cumulative volumes. The cumulative plus project peak-hour traffic volumes are shown on Figure 16. Peak-hour intersection turning movement volumes for all intersections and study scenarios are tabulated in Appendix B.

Table 12
Pending Development Projects in the City of Gilroy

#	Project Name/Applicant	Project Location/Address	Project Description
1	Downtown Specific Plan	Downtown Gilroy	560ksf retail, 312ksf office space, 1,276 residential units
2	Eagle Ridge: Bellavista	Eagle Ridge Dr	16-lot single-family homes
3	First & Kern Apartments	First St and Kern Ave	120-unit apartments
4	First & Kelton Commercial	First St and Kelton Dr	12,000 s.f. commercial complex
5	Gary Carnes	Miller Pond	15 lots subdivision
6	Gilroy Crossing - Regency Phase II Industrial Only	Southeast corner of Camino Arroyo and Hwy 152	Industrial (5.64 acres remaining)
7	Gilroy Self-Storage	6500 & 6700 Cameron Blvd	39,751 SF self-storage additions
8	Glen Loma Elementary School (GUSD)	N/e corner of Santa Teresa Blvd and Club Drive	800-student K-5 elementary school
9	Greenfield Drive Subdivision	Thomas Ln	14 lots development on 8 acres
10	Hwy 152 Retail Cntr-Newman (Industrial)	Easterly terminus of Renz Ln	Industrial Park (12.84 acres)
11	Intex Building Tenant Improvements	8425 Monterey Rd	11,186-square foot warehouse tenant space converts to auto repair use space
12	Jan Hochhauser	Royal Way	65-unit condominium
13	Larson Steel	5747 Obata Wy	10,500 s.f. industrial building with warehouse and steel fabrication shop
14	Leavesley Road Chevron	Northwest quadrant of Murray Ave and Leavesley Rd	Two new fuel pumps (4 fueling stations) with an overhead canopy
15	Mayock Industrial Addition	205 Mayock Rd	10,000 s.f. addition to an existing industrial building
16	Monterey Apartments	8955 Monterey Rd	78-unit apartment with new 4,600 s.f. commercial
17	Silacci Way	6705 Silacci Wy	91,045 s.f. for contractor truck parking and equipment yard
18	Wren Investor	Vickery Ln between Kern Ave and Wren Ave	137 low-density residential lots, 20 medium-density residential lots, 102 high-density townhome/apartments, and 0.40 acres of neighborhood commercial
Source: City of Gilroy Planning Department, August 2017			

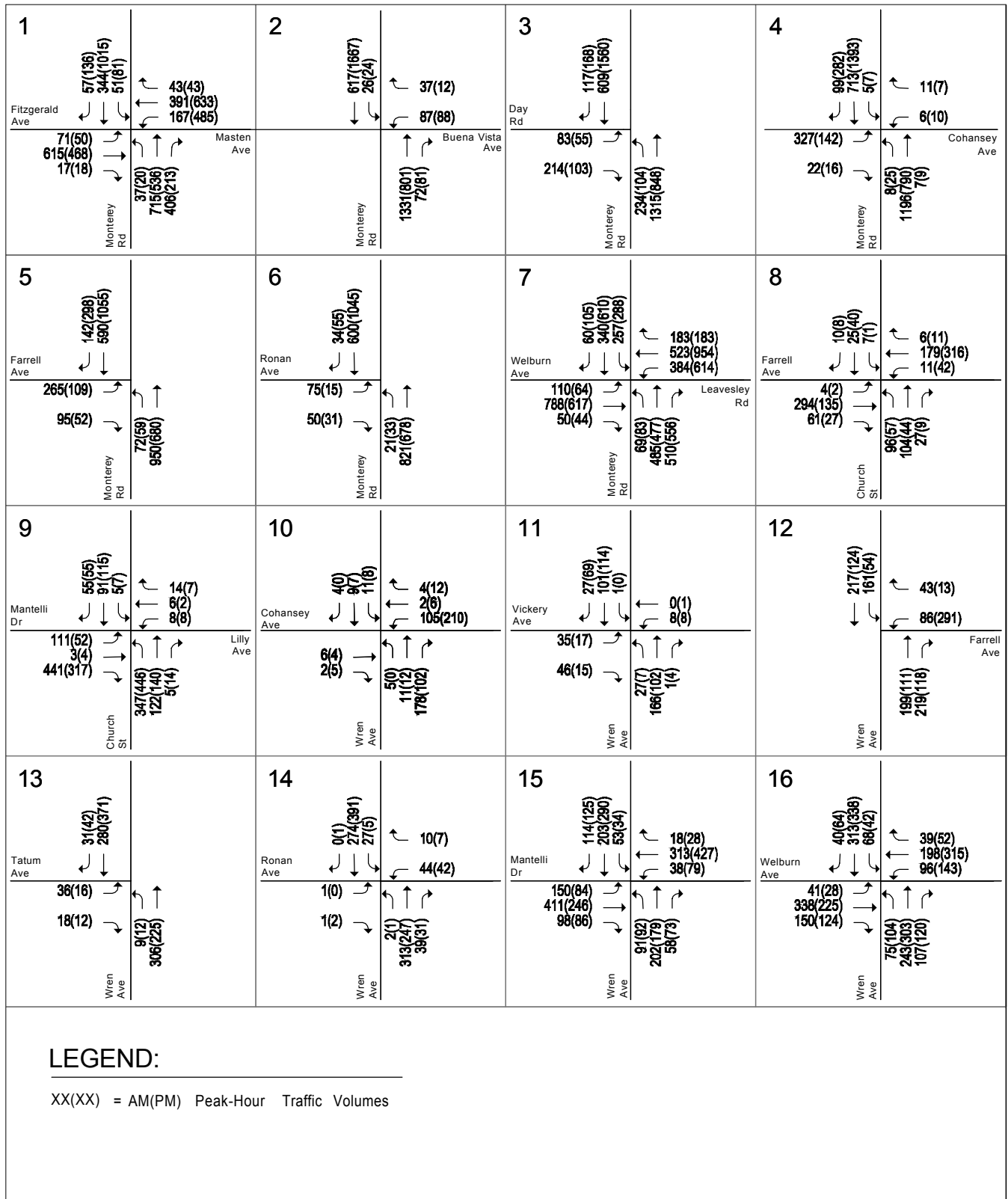


Figure 15
Cumulative Traffic Volumes

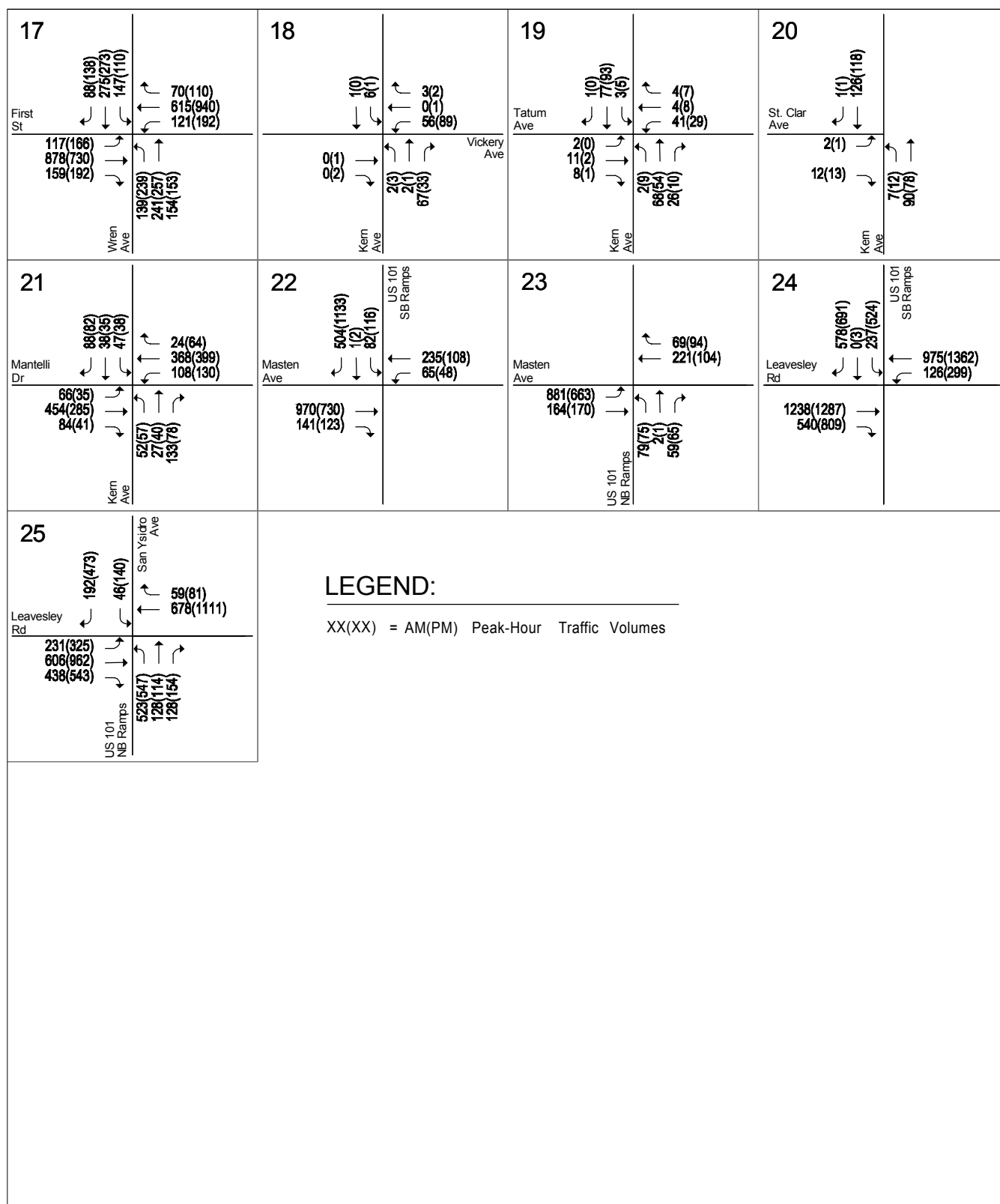


Figure 15 (Continued)
Cumulative Traffic Volumes

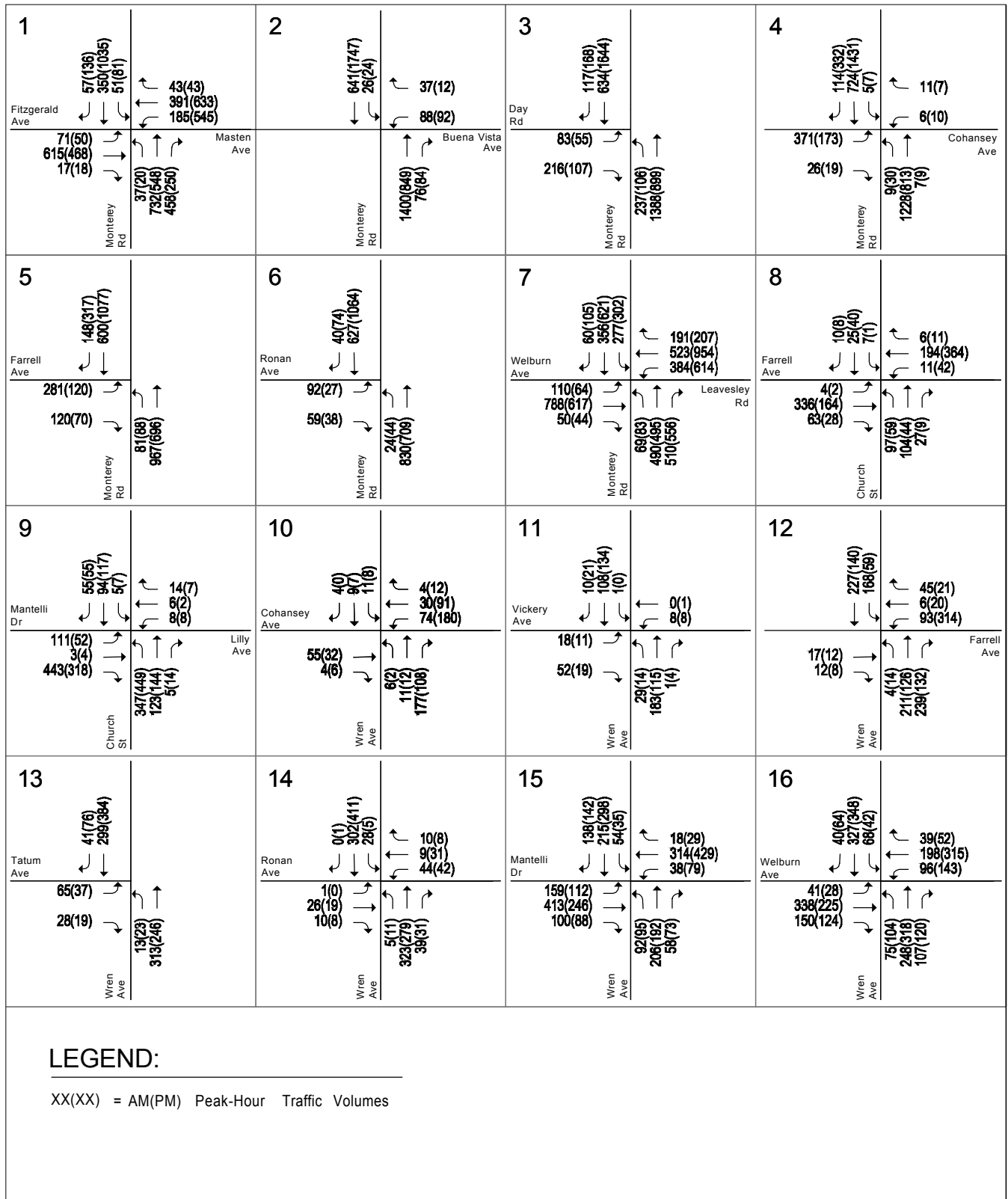


Figure 16
Cumulative Plus Project Traffic Volumes

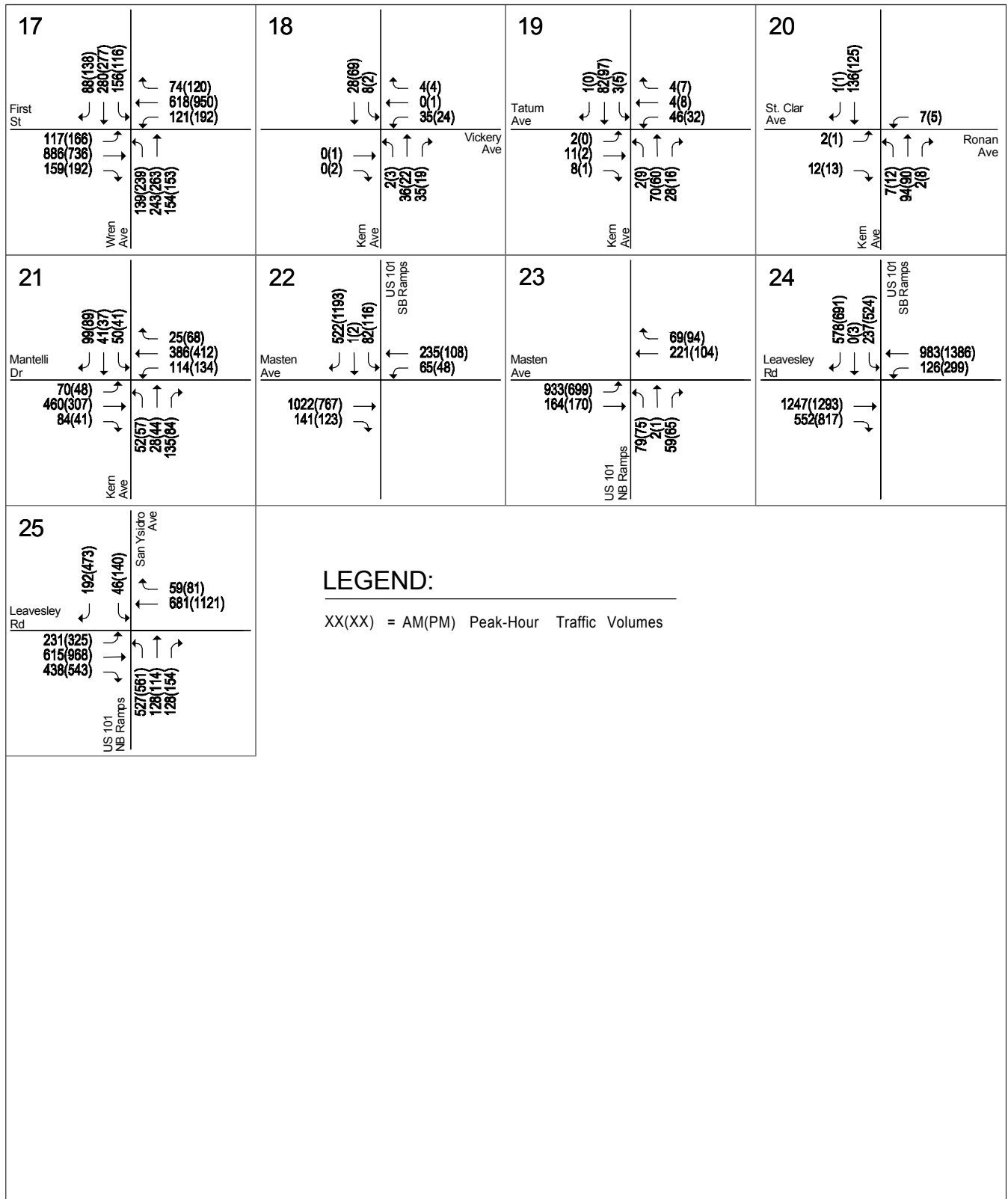


Figure 16 (Continued)
Cumulative Plus Project Traffic Volumes

Cumulative Conditions Intersection Levels of Service

The results of the intersection level of service analysis under cumulative plus project conditions are discussed below and summarized in Table 13. The analysis results are presented for all study intersections based on City of Gilroy level of service standard and impact criteria. Caltrans intersections also are evaluated based on Caltrans level of service standards and impact criteria.

The level of service calculation sheets are included in Appendix C.

City of Gilroy/Santa Clara County Intersections

Signalized Intersections

The results of the level of service analysis for the signalized study intersections indicate that the following study intersection is projected to operate at an unacceptable level of service during both peak hours under cumulative plus project conditions:

1. Monterey Road and Masten Avenue/Fitzgerald Avenue (**Impact:** PM peak-hour)

The level of service calculations show that the addition of project traffic at the above intersections would cause the intersection average delay to increase by more than one second during the PM peak-hour. This constitutes a significant cumulative project impact, based on City of Gilroy signalized intersection level of service impact criteria.

The remaining signalized study intersections would continue to operate at acceptable levels of service during the AM and PM peak hours under cumulative plus project conditions.

CMP Intersection

The results of the level of service analysis for the CMP intersection under cumulative plus project conditions show that, measured against the CMP level of service standards, the CMP study intersection of Monterey Road and Leavesley Road/Welburn Avenue (#7) is projected to operate at an acceptable LOS C during the AM and PM peak hours.

Unsignalized Intersections

The results of the level of service analysis of the unsignalized intersections under cumulative plus project conditions indicate that four of the unsignalized study intersections are projected to operate with overall average intersection delays corresponding to an unacceptable LOS D or worse during at least one of the peak hours analyzed:

3. Monterey Road and Day Road (**Impact:** AM and PM peak hours)
16. Wren Avenue and Welburn Avenue (**Impact:** AM and PM peak hours)
22. US 101 Southbound Ramps and Masten Avenue (**Impact:** PM peak-hour)
23. US 101 Northbound Ramps and Masten Avenue (**Impact:** AM peak-hour)

The above intersections also are projected to operate at unacceptable levels under cumulative conditions, and the addition of project traffic would cause the intersections' average delay to increase beyond the City's delay increase threshold during the deficient peak hours. Based on City of Gilroy unsignalized intersection level of service impact criteria, this is considered a cumulative project impact.

Additionally, the unsignalized intersection analysis results indicate that the following four unsignalized study intersections (three of which also are listed above) are projected to operate with average delays corresponding to LOS F on its stop-controlled approach with the highest delay during at least one of the

Table 13
Cumulative Plus Project Intersection Level of Service Results

Study Int. Number	Intersection	Jurisdiction ¹	Intersection Control	LOS Standard	TIF Int. ²	Peak Hour	Cumulative No Project			Cumulative Plus Project			
							Avg. Delay	LOS	Warrant Met? ³	Avg. Delay	LOS	Change ⁴	Warrant Met? ³
1	Monterey Road and Masten Avenue/Fitzgerald Avenue	SCC	Signal	C	Yes	AM	63.0	E	--	63.4	E	+0.4	--
						PM	86.7	F	--	88.5	F	+1.8	--
2	Monterey Road and Buena Vista Avenue	CofG	One-Way Stop (Average Delay)	C	Yes	AM	13.5	B-	--	17.4	C+	+3.9	--
						PM	8.3	A-	--	11.7	B+	+3.4	--
				D		AM	234.2 ⁵	F	Yes	312.2 ⁵	F	+78.0	Yes
						PM	218.5 ⁵	F	Yes	313.9 ⁵	F	+95.4	Yes
3	Monterey Road and Day Road	CofG	One-Way Stop (Average Delay)	C	Yes	AM	48.2	E-	--	55.9	F	+7.7	--
						PM	42.8	E	--	55.0	F	+12.2	--
				D		AM	409.0 ⁵	F	Yes	491.5 ⁵	F	+82.5	Yes
						PM	755.9 ⁵	F	Yes	997.5 ⁵	F	+241.6	Yes
4	Monterey Road and Cohansey Avenue	CofG	Signal	C	Yes	AM	13.8	B	--	18.0	B-	+4.2	--
						PM	9.6	A	--	14.6	B	+5.0	--
5	Monterey Road and Farrell Avenue	CofG	Signal	C	No	AM	13.8	B	--	14.5	B	+0.7	--
						PM	7.5	A	--	9.0	A	+1.5	--
6	Monterey Road and Ronan Avenue	CofG	One-Way Stop (Average Delay)	C	No	AM	2.1	A+	--	3.0	A+	+0.9	--
						PM	0.8	A+	--	1.4	A+	+0.6	--
				D		AM	25.6	D+	Yes	32.3	D-	+6.7	Yes
						PM	24.0	C-	No	34.0	D-	+10.0	No
7	Monterey Road and Leavesley Road/Welburn Avenue*	Caltrans	Signal	C	No	AM	29.8	C	--	30.4	C	+0.6	--
						PM	33.9	C-	--	34.5	C-	+0.6	--
8	Church Street and Farrell Avenue	CofG	All-Way Stop	C	Yes	AM	12.0	B	No	13.2	B	+1.2	No
						PM	10.5	B	No	11.5	B	+1.0	No
9	Church Street and Mantelli Drive/Lilly Ave	CofG	All-Way Stop	C	Yes	AM	18.6	C	Yes	18.7	C	+0.1	Yes
						PM	21.3	C	Yes	21.7	C	+0.4	Yes
10	Wren Avenue and Cohansey Avenue	CofG	All-Way Stop	C	Yes	AM	8.4	A	No	8.3	A	-0.1	No
						PM	9.3	A	No	8.9	A	-0.4	No
11	Wren Avenue and Vickery Avenue	CofG	All-Way Stop	C	No	AM	8.2	A	No	8.2	A	+0.0	No
						PM	7.8	A	No	7.8	A	+0.0	No
12	Wren Avenue and Farrell Avenue	CofG	All-Way Stop	C	Yes	AM	10.0	A	No	10.6	B	+0.6	No
						PM	11.3	B	No	12.2	B	+0.9	No
13	Wren Avenue and Tatum Avenue	CofG	Two-Way Stop (Average Delay)	C	No	AM	1.1	A+	--	1.9	A+	+0.8	--
						PM	0.7	A+	--	1.2	A+	+0.5	--
				D		AM	12.7	B	No	14.1	B-	+1.4	No
						PM	12.4	B	No	14.1	B-	+1.7	No
14	Wren Avenue and Ronan Avenue	CofG	Two-Way Stop (Average Delay)	C	No	AM	1.5	A+	--	2.4	A+	+0.9	--
						PM	1.1	A+	--	2.4	A+	+1.3	--
				D		AM	15.2	C+	No	17.7	C+	+2.5	No
						PM	15.2	C+	No	18.8	C	+3.6	No
15	Wren Avenue and Mantelli Drive	CofG	All-Way Stop	C	Yes	AM	21.5	C	Yes	23.1	C	+1.6	Yes
						PM	22.6	C	Yes	24.9	C	+2.3	Yes
16	Wren Avenue and Welburn Avenue	CofG	All-Way Stop	C	Yes	AM	33.3	D	Yes	35.4	E	+2.1	Yes
						PM	65.6	F	Yes	69.3	F	+3.7	Yes
17	Wren Avenue and First Street	Caltrans	Signal	C	Yes	AM	29.1	C	--	29.3	C	+0.2	--
						PM	34.5	C-	--	34.7	C-	+0.2	--
18	Kern Avenue and Vickery Avenue	CofG	Uncontrolled, AWSC ⁶	C	No	AM	7.9	A	No	7.2	A	-0.7	No
						PM	7.4	B	No	8.6	A	+1.2	No
19	Kern Avenue and Tatum Avenue	CofG	Two-Way Stop (Average Delay)	C	No	AM	2.9	A+	--	3.0	A+	+0.1	--
						PM	2.6	A+	--	2.5	A+	-0.1	--
				D		AM	9.9	A-	No	10.0	A-	+0.1	No
						PM	9.8	A-	No	9.9	A-	+0.1	No
20	Kern Avenue and St. Clair Avenue/Ronan Avenue	CofG	One-Way Stop (Average Delay)	C	No	AM	0.8	A+	--	1.0	A+	+0.2	--
						PM	1.0	A+	--	1.0	A+	+0.0	--
				D		AM	9.1	A-	No	10.2	B+	+1.1	No
						PM	9.0	A-	No	10.2	B+	+1.2	No
21	Kern Avenue and Mantelli Drive	CofG	All-Way Stop	C	Yes	AM	13.9	B	No	14.6	B	+0.7	No
						PM	12.1	B	No	12.8	B	+0.7	No

Table 13 (Continued)
Cumulative Plus Project Intersection Level of Service Results

Study Int. Number	Intersection	Jurisdiction ¹	Intersection Control	LOS Standard	TIF Int. ²	Peak Hour	Cumulative No Project			Cumulative Plus Project			
							Avg. Delay	LOS	Warrant Met? ³	Avg. Delay	LOS	Delay Change ⁴	Warrant Met? ³
22	US 101 SB Ramps and Masten Avenue	Caltrans	Two-Way Stop (Average Delay)	C	Yes	AM	7.1	A-	--	7.5	A-	+0.4	--
			Two-Way Stop (Worst Approach)	D		PM	62.1	F	--	76.2	F	+14.1	--
			Two-Way Stop (Average Delay)	D		PM	21.2	C	Yes	22.6	C-	+1.4	Yes
23	US 101 NB Ramps and Masten Avenue	Caltrans	Two-Way Stop (Average Delay)	C	Yes	AM	82.8	F	--	104.7 ⁵	F	+21.9	--
			Two-Way Stop (Worst Approach)	D		PM	19.9	C	--	23.9	C-	+4.0	--
			Two-Way Stop (Average Delay)	D		PM	754.0 ⁵	F	Yes	1002.5 ⁵	F	+248.5	Yes
24	US 101 SB Ramps and Leavesley Road	Caltrans	Signal	C	No	AM	17.8	B	--	17.7	B	-0.1	--
			Signal	C	No	PM	31.3	C	--	31.5	C	+0.2	--
25	US 101 NB Ramps/San Ysidro Avenue and Leavesley Road	Caltrans	Signal	C	No	AM	27.2	C	--	27.2	C	+0.0	--
			Signal	C	No	PM	30.0	C	--	30.2	C	+0.2	--
Notes: ¹ SCC = Santa Clara County; CofG = City of Gilroy ² TIF Int. = City of Gilroy Traffic Impact Fee intersection. ³ 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. ⁴ Change in delay, expressed in seconds, for cumulative plus project conditions is measured relative to cumulative no project conditions. ⁵ The HCM methodology for intersection analysis does not accurately calculate actual intersection operating conditions once the calculated intersection delay exceeds 100+ seconds. Once an intersection is calculated to operate with delays exceeding 100 seconds, any additional traffic to the intersection will increase the intersection delay exponentially, resulting in unrealistic excessive delays that most likely would never be experienced at an actual intersection. However, for the purpose of quantifying the projected increase in delay due to the proposed project, all calculated delays are reported, including those exceeding 100 seconds. ⁶ Uncontrolled intersection under existing conditions. Assumed to be all-way stop-controlled with the project. * = CMP intersection Entries denoted in bold indicate conditions that exceed the City's current level of service standard. <div><div></div> - Denotes significant impact based on City of Gilroy criteria. <div></div> - Denotes significant impact based on Caltrans criteria.</div>													

peak hours analyzed and the traffic volume during the same peak hour would be high enough to satisfy the peak-hour volume warrant:

2. Monterey Road and Buena Vista Avenue (**Impact:** AM and PM peak hours)
3. Monterey Road and Day Road (**Impact:** AM and PM peak hours)
22. US 101 SB Ramps and Masten Avenue (**Impact:** PM peak-hour)
23. US 101 NB Ramps and Masten Avenue (**Impact:** AM and PM peak hours)

Based on the unsignalized intersection level of service impact criteria, intersections where both the average delay on the stop-controlled approach with the highest delay operates at LOS E or F and the addition of project traffic causes the traffic volumes at the intersection to satisfy the peak-hour volume traffic signal warrant, are considered to be impacted by the project. Although this condition was met under cumulative conditions, the proposed project would contribute to the projected deficiency at these locations, increasing the delay for the approach with the highest delay. Therefore, this is also considered a cumulative project impact.

The remaining unsignalized study intersections would not have traffic volume and level of service conditions that exceed the City of Gilroy level of service standards during the AM and PM peak hours.

The peak-hour signal warrant sheets are contained in Appendix D.

Caltrans Intersections

The results of the intersection level of service analysis for the Caltrans intersections under cumulative plus project conditions show that the following Caltrans study intersections are projected to operate at unacceptable levels of service, based on Caltrans level of service standards, during one of the peak hours analyzed:

- 22. US 101 Southbound Ramps and Masten Avenue (**Impact:** PM peak-hour)
- 23. US 101 Northbound Ramps and Masten Avenue (**Impact:** AM peak-hour)

The level of service calculations show that the addition of project traffic to the above intersections would cause the intersection average delay to increase. This constitutes a significant cumulative project impact based on Caltrans intersection level of service impact criteria.

The remaining Caltrans study intersections would continue to operate at acceptable levels of service during the AM and PM peak hours under cumulative plus project conditions.

Recommended Mitigation Measures under Cumulative Plus Project Conditions

Described below are the intersection impacts under cumulative plus project conditions and recommended mitigation measures necessary to maintain the City's level of service standard and acceptable intersection operations. The resulting levels of service with implementation of the proposed mitigation measures are summarized in Table 14.

1. Monterey Road and Masten Avenue/Fitzgerald Avenue (Santa Clara County Intersection)

Impact: This signalized intersection is projected to operate at unacceptable LOS E and F during the AM and PM peak hours, respectively, under cumulative conditions and the addition of project traffic would cause the intersection average delay to increase by more than 1.0 second (City of Gilroy Impact).

Mitigation: The minimum required improvements to mitigate the project impact at this intersection include adding a separate eastbound left-turn lane, a second westbound left-turn lane, and updating the signal phasing to protected left-turns in the eastbound/westbound direction. Implementation of the above improvements would improve the intersection level of service to better than cumulative (no project) conditions, satisfactorily mitigating the project impact. However, the intersection is projected to continue to be deficient (LOS D) during the PM peak-hour.

The above improvements are planned in the City's Traffic Circulation Master Plan (TCMP) and are included in the City's Traffic Impact Fee (TIF) Program. Section 4.4.12 of the Development Agreement between the City of Gilroy and Glen Loma Ranch requires the developer of Glen Loma Ranch to construct this improvement, or mitigate the impact by other means. The developer will be required to pay the applicable TIF fee as a fair-share contribution toward improvements at this intersection. With implementation of this mitigation measure, this impact would be less-than-significant.

2. Monterey Road and Buena Vista Avenue (City of Gilroy Intersection)

Impact: The projected level of service on the highest-delay approach at this unsignalized intersection is projected to be LOS F during the AM and PM peak hours under cumulative plus project conditions and the traffic volume levels at the intersection would be high enough to satisfy the peak-hour volume traffic signal warrant during both the AM and PM peak hours (City of Gilroy Impact).

Table 14
Mitigated Cumulative Plus Project Intersection Levels of Service

Study Int. Number	Intersection	Jurisdiction ¹	Intersection Control	LOS Standard	TIF Int. ²	Peak Hour	Cumulative Plus Project				Mitigated	
							Avg. Delay	LOS	Delay Change ⁴	Warrant Met? ³	Avg. Delay	LOS
1	Monterey Road and Masten Avenue/Fitzgerald Avenue	SCC	Signal	C	Yes	AM PM	63.4 88.5	E F	+0.4 +1.8	-- --	32.5 46.9	C- D
2	Monterey Road and Buena Vista Avenue	CofG	One-Way Stop (Average Delay)	C	Yes	AM PM	17.4 11.7	C+ B+	+3.9 +3.4	-- --	9.4 8.8	A A
			One-Way Stop (Worst Approach)	D		AM PM	312.2⁵ 313.9⁵	F F	+78.0 +95.4	Yes Yes		
3	Monterey Road and Day Road	CofG	One-Way Stop (Average Delay)	C	Yes	AM PM	55.9 55.0	F F	+7.7 +12.2	-- --	13.8 12.7	B B
			One-Way Stop (Worst Approach)	D		AM PM	491.5⁵ 997.5⁵	F F	+82.5 +241.6	Yes Yes		
16	Wren Avenue and Welburn Avenue	CofG	All-Way Stop	C	Yes	AM PM	35.4 69.3	E F	+2.1 +3.7	Yes Yes	24.9 24.7	C C
22	US 101 SB Ramps and Masten Avenue	Caltrans	Two-Way Stop (Average Delay)	C	Yes	AM PM	7.5 76.2	A- F	+0.4 +14.1	-- --	12.0 11.0	B+ B+
			Two-Way Stop (Worst Approach)	D		AM PM	22.6 129.4⁵	C- F	+1.4 +23.7	Yes Yes		
23	US 101 NB Ramps and Masten Avenue	Caltrans	Two-Way Stop (Average Delay)	C	Yes	AM PM	104.7⁵ 23.9	F C-	+21.9 +4.0	-- --	23.4 14.0	C B
			Two-Way Stop (Worst Approach)	D		AM PM	1002.5⁵ 141.7⁵	F F	+248.5 +33.0	Yes Yes		

Notes:

¹ SCC = Santa Clara County; CofG = City of Gilroy

² TIF Int. = City of Gilroy Traffic Impact Fee intersection.

³ 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.

⁴ Change in delay, expressed in seconds, for cumulative plus project conditions is measured relative to cumulative no project conditions.

⁵ The HCM methodology for intersection analysis does not accurately calculate actual intersection operating conditions once the calculated intersection delay exceeds 100+ seconds. Once an intersection is calculated to operate with delays exceeding 100 seconds, any additional traffic to the intersection will increase the intersection delay exponentially, resulting in unrealistic excessive delays that most likely would never be experienced at an actual intersection. However, for the purpose of quantifying the projected increase in delay due to the proposed project, all calculated delays are reported, including those exceeding 100 seconds.

* = CMP intersection

Entries denoted in **bold** indicate conditions that exceed the City's current level of service standard.

- Denotes significant impact based on City of Gilroy criteria.

- Denotes significant impact based on Caltrans criteria.

Mitigation: The project impact to this intersection could be mitigated with the installation of a traffic signal, which would include protected left-turn movements on the southbound approach. Implementation of the above improvements would improve the intersection level of service to acceptable LOS A during the AM and PM peak hours under cumulative plus project conditions.

The above improvements are planned in the City's TCMP and are included in the City's TIF Program. The developer will be required to pay the applicable TIF fee as a fair-share contribution toward improvements at this intersection. With implementation of this mitigation measure, this impact would be less-than-significant.

3. Monterey Road and Day Road (City of Gilroy Intersection)

Impact: This unsignalized intersection is projected to operate at unacceptable LOS E during the AM and PM peak hours under cumulative conditions and the addition of project traffic would cause the overall intersection delay to increase by more than 1.0 second (City of Gilroy impact). Additionally, the projected level of service on the highest-delay approach would be LOS F during the AM and PM peak hours under cumulative plus project conditions and the traffic volume levels at the intersection would be high enough to satisfy the peak-hour volume traffic signal warrant during both the AM and PM peak hours (City of Gilroy impact).

Mitigation: The project impact to this intersection could be mitigated with the installation of a traffic signal, which would include protected left-turn movements on the northbound approach. Implementation of the above improvements would improve the intersection level of service to acceptable LOS B during the AM and PM peak hours under cumulative plus project conditions.

The above improvements are planned in the City's TCMP and are included in the City's TIF Program. The developer will be required to pay the applicable TIF fee as a fair-share contribution toward improvements at this intersection. With implementation of this mitigation measure, this impact would be less-than-significant.

16. Wren Avenue and Welburn Avenue (City of Gilroy Intersection)

Impact: This unsignalized intersection is projected to operate at unacceptable LOS D and F during the AM and PM peak hours, respectively, under cumulative conditions and the addition of project traffic would cause the overall intersection delay to increase beyond the City's delay increase threshold (City of Gilroy Impact).

Mitigation: The project impact to this intersection could be mitigated with the addition of separate left-turn lanes on both the eastbound and westbound approaches, and installation of a traffic signal that would include protected left-turn signal phasing on all approaches of the intersection. Implementation of the above improvements would improve the intersection level of service to LOS C during the AM and PM peak hours under cumulative plus project conditions.

The above improvements are planned in the City's TCMP and are included in the City's TIF Program. The developer will be required to pay the applicable TIF fee as a fair-share contribution toward improvements at this intersection. With implementation of this mitigation measure, this impact would be less-than-significant.

22. US 101 SB Ramps and Masten Avenue (Caltrans Intersection)

Impact: This unsignalized intersection is projected to operate at unacceptable LOS F during the PM peak hour under cumulative conditions and the addition of project traffic would cause the overall intersection delay to increase by more than 1.0 second (City of Gilroy and Caltrans impact). Additionally, the projected level of service on the highest-delay approach would be LOS F during the PM peak hour under cumulative plus project conditions and the traffic volume levels at the intersection would be high enough to satisfy the peak-hour volume traffic signal warrant (City of Gilroy Impact).

Mitigation: The project impact to this intersection could be mitigated with the installation of a traffic signal that would include split signal phasing on the southbound approach and protected phasing on the westbound approach. Additionally, a receiving lane in the westbound direction also is needed as an exclusive lane for the southbound right-turn movement volumes. Implementation of the above improvements would improve the intersection level of service to acceptable LOS B during the AM and PM peak hours under cumulative plus project conditions.

The above improvements are planned in the City's TCMP and are included in the City's TIF Program. The developer will be required to pay the applicable TIF fee as a fair-share contribution toward improvements at this intersection. With implementation of this mitigation measure, this impact would be less-than-significant.

23. US 101 NB Ramps and Masten Avenue (Caltrans Intersection)

Impact: This unsignalized intersection is projected to operate at unacceptable LOS F during the AM peak hour under cumulative conditions and the addition of project traffic would cause the overall intersection delay to increase by more than 1.0 second (City of Gilroy and Caltrans impact). Additionally, the projected level of service on the highest-delay approach would be LOS F during the AM and PM peak hours under cumulative plus project conditions and the traffic volume levels at the intersection would be high enough to satisfy the peak-hour volume traffic signal warrant (City of Gilroy Impact).

Mitigation: The project impact to this intersection could be mitigated with the installation of a traffic signal that would include split signal phasing on the northbound approach and protected phasing on the eastbound approach. Implementation of the above improvements would improve the intersection level of service to acceptable LOS C or better under cumulative plus project conditions.

In addition to installation of a traffic signal, providing adequate queue storage capacity for the relatively high projected eastbound left-turn movement volumes at this intersection also would be required. In the case providing adequate queue storage capacity for the eastbound left-turn movement is not feasible, a northbound loop on-ramp may be necessary to serve the eastbound on Masten Avenue to northbound US 101 traffic volumes. It should be noted that a loop on-ramp is one of the improvements included in the City's TCMP for this location. The level of analysis to determine the necessary interchange lane configuration would be completed in the interchange's Project Study Report (PSR).

The above improvements are planned in the City's TCMP and are included in the City's TIF Program. The developer will be required to pay the applicable TIF fee as a fair-share contribution toward improvements at this intersection. With implementation of this mitigation measure, this impact would be less-than-significant.

7. Other Transportation Issues

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. These are not considered environmental issues, and may not be evaluated in an environmental assessment, but have been included in the traffic study to meet the requirements of the local jurisdiction and Caltrans. The other transportation issues considered in this chapter include:

- Freeway ramp operations
- Potential impacts to bicycle, pedestrian, transit facilities
- Site access and circulation evaluation
- Neighborhood traffic issues

Unlike the level of service impact methodology, which is adopted by the City Council, the analyses in this chapter are based on professional judgment in accordance with the standards and methods employed by the traffic engineering community.

Freeway Ramp Evaluation

A review of metered freeway ramps providing access to and from US 101 and the project site was performed to identify the effect of the addition of project traffic on the queues at metered study freeway on-ramps. Uncontrolled freeway on-ramps are typically not evaluated since these ramps do not experience measurable queue lengths. It should be noted that the evaluation of freeway ramps is not required based on the City's transportation impact analysis guidelines. Nor are there adopted methodologies and impact criteria for the analysis of freeway ramps.

Study Freeway On-Ramps

It is projected that the project will result in the addition of peak hour trips to two freeway interchanges: (1) US 101 at Masten Avenue, (2) and US 101 at Leavesley Road. The study on-ramps are evaluated during the peak-period when the proposed project would have the greatest effect on the existing queue lengths. The majority of the proposed project traffic that is projected to utilize the freeway on-ramps will occur during the AM peak-hour at both the northbound on-ramp at Masten Avenue and the southbound on-ramp at Leavesley Road. Ramps at each of the interchanges are metered in the northbound direction only during the AM peak-hour and in the southbound direction only during the PM peak-hour (direction of commute traffic).

US 101 Northbound On-Ramp at Masten Avenue

The northbound on-ramp at Masten Avenue consists of a diagonal ramp and includes two mixed-flow lanes and one high occupancy vehicle (HOV) lane. Although a ramp meter is installed, field

observations revealed that the ramp meter is continuously green during the AM peak-hour, allowing the ramp to function as an uncontrolled ramp. No measurable vehicular queues were observed at this ramp. Therefore, it can be concluded that the addition of the project traffic to this ramp during the peak hours would not have an effect on existing queue lengths.

US 101 Southbound On-Ramp at Leavesley Road

The southbound on-ramp at Leavesley Road consists of a diagonal ramp with two mixed-flow lanes with ramp meter. Field observations revealed that this ramp meter is operational during the PM peak-hour only. Therefore, during the AM peak-hour, when the proposed project would add the most traffic to this on-ramp, the vehicular queues on this ramp are negligible and the project traffic during the AM peak-hour would not have an effect on the existing queue length.

Since the ramp meter at the Leavesley Road southbound on-ramp is operational during the PM peak-hour, and although the project traffic added to this ramp would be minimal during the PM peak-hour, an evaluation of the queue length on this ramp during the PM peak-hour was completed. The existing queue lengths at the ramp were measured in the field during the PM peak-hour.

The maximum observed queue length on the on-ramp during the PM peak-hour was a total of 88 vehicles, or 44 vehicles per lane. The maximum queue length was observed to extend nearly back to its intersection with Leavesley Road, although this only occurred once during the hour-long observation.

The proposed project is projected to add 9 trips to the US 101 southbound on-ramp at Leavesley Road during the PM peak-hour, which represents less than a 1% increase in volume from existing conditions, and equates to potentially one vehicle trip added to the on-ramp approximately every 6.5 minutes. The project could potentially add one or two vehicles to the maximum queue if vehicles were to arrive at just the right moment when the queue is at its maximum. Thus, it can be concluded that the addition of PM project trips to this metered on-ramp would have very little effect on the existing vehicle queues at the ramp.

Bicycle Circulation

Various bicycle facilities exist in the vicinity of the project site (existing bike lanes are available along segments of Cohansey Avenue, Wren Avenue, Farrell Avenue, Church Street, Welburn Avenue, and Mantelli Drive). In addition, 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 study area, some of which would benefit the project. Of the planned facilities, the following are relevant to the project:

Bicycle paths, bicycle/pedestrian trails are planned for:

- Monterey Road Trail – located east of the project site, this trail is a countywide route proposed to extend south from Morgan Hill to Buena Vista Avenue in Gilroy;
- Day Road Trail – located north of the project site, this trail runs along Day Road west of Santa Teresa Boulevard, then eastward across to Buena Vista Avenue and ending at New Avenue;
- Lions Creek Trail – along the Santa Clara Valley Water District channel, Lions Creek Trail would extend from west of Christopher High School to Day Road (East), parallel to (east of) Santa Teresa Boulevard and (north of) Tatum Avenue, to Church Street;
- Ronan Channel/Llagas Creek Trail – located south of the project site, this trail will link residential areas in the northwest area of the City with commercial and industrial areas to the east and southeast;
- Las Animas Trail – along Las Animas Avenue, this trail would extend east from Monterey Road to Murray Avenue.

- North Santa Teresa Trail – located northwest of the project site, this trail will link the Lions Creek Trail to the regional Santa Teresa trail north of Fitzgerald Avenue;
- Creek Trail – from Fitzgerald Avenue to Cohansey Avenue between Santa Teresa Boulevard and Monterey Road; and

Bike lanes are planned for:

- Farrell Avenue, between Wren Avenue and Monterey Road
- Cohansey Avenue
- Wren Avenue, between Farrell Avenue and Vickery Avenue
- Monterey Road, between Farrell Avenue and Leavesley Road

Bicycle routes are planned for:

- Welburn Avenue, between Wren Avenue and Monterey Road.

Additionally, the VTA *Valley Transportation Plan 2040* (VTP2040) identifies various bicycle projects in the Gilroy area, some of which are also listed above. The VTP2040 is a long-range transportation planning document, which is the first step in the development and eventual construction of the projects. The bicycle projects identified in the VTP2040 located in the Gilroy area are summarized in Table 15.

Project's Effect on Bicycle Facilities

The proposed project would 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 immediate vicinity of the project site. However, along segments with missing bicycle facilities, project-related bicycle traffic would need to share the roadway with auto traffic. The implementation of the above planned bicycle facilities would enhance the existing facilities and provide a continuous bicycle network to serve the project area. Since the above planned bicycle facilities are not fully funded, it is uncertain when these facilities would be open.

Although the City of Gilroy currently does not have requirements for bicycle parking, VTA recommends bicycle-parking rates for new developments in *Bicycle Technical Guidelines*, December 2007. According to VTA's recommended rates, multi-family residential developments (such as apartments, condominiums, and townhouses) should strive to supply one Class I (bike lockers) bike parking space for every 3 units plus one Class II (bike racks) bike parking space for every 15 units. Additionally, VTA also recommends to supply one Class I bike parking for every 30 employees plus one Class II bike parking for every 6,000 s.f. of retail space. Based on these rates, the multi-family residential component of the proposed project (102 units) should provide a total of 34 Class I and 7 Class II bicycle parking spaces, while the retail component (8,000 square feet) should provide 1 Class I and 1-2 Class II bicycle parking spaces.

Recommended Bicycle Facility Improvements

The following recommendations are made to promote non-auto modes of transportation in the City and to accommodate bicycle travel near the project site:

Install Bicycle Parking Facilities. It is recommended that the proposed project provide adequate bicycle parking supply, based on VTA's recommended bicycle-parking rates, to serve the multi-family and retail components of the project.

Contribute to Planned Bicycle Facilities in the Project Area. It is recommended that the proposed project contribute to the completion of planned bicycle facilities that would serve the project site directly, in particular those along Kern, Cohansey, and Wren Avenues. The contribution should include striped

Table 15
VTP2040 Bicycle Improvement Projects in Gilroy

VTP ID	Project Title	Description
<i>Bicycle Projects in Gilroy</i>		
B4	Lions Creek Santa Clara Valley Water District (SCVWD) Service Rd. Trail: West of Kern Ave. between Kern and Day	Construct 12-foot-wide bicycle/pedestrian trail to follow the existing SCVWD service road elevation and alignment
B5	Lions Creek SCVWD Service Road Trail: West of Santa Teresa Blvd./Day Rd. East (between Tapestry and Day Rd. East)	Install 12-foot-wide bicycle/pedestrian trail segment, to connect Christopher High School to surrounding neighborhoods, on Santa Teresa Blvd. to the bicycle/pedestrian bridge across Lions Creek.
B6	Northern Uvas Creek SCVWD Service Road Trail (Gilroy Gardens Extension Trail)	Construct a 12-foot wide bicycle/pedestrian trail, to connect and expand the existing Uvas Creek trail system, on Santa Teresa Blvd. at Third St. to Burchell Creek Bridge.
B7	Western Ronan Channel SCVWD Service Road Trail	Convert an existing unpaved creek-side maintenance road that is closed to the public to a multi-use public trail for use by bicyclists and pedestrians.
B50	Santa Teresa Boulevard Bicycle Delineation and Shoulder Widening	Project provides bicycle delineation at eight intersections between SR-152 and Castro Valley Rd.; provides bike slots and shoulder widening as needed through intersections with acceleration/deceleration lanes and free running right-turn lanes allowing for safer transitions for through traveling bicyclists.
B77	Gilroy Sports Park Trail: Santa Teresa Boulevard/Mesa Road to Sports Park Ticket Booth	Construct a 12-foot-wide bicycle/pedestrian trail to connect Gavilan College and planned future residential development in Southern Gilroy to the Sports Park.
B78	Lions Creek Trail West: Gap Closure from Santa Teresa Blvd. at Day Road East to Just East of Kern Avenue Bridge	Construct a paved 4,100-foot-extension of an all-weather 12-foot wide bicycle trail on Lions Creek connecting existing Lions Creek Trail East to Santa Teresa Blvd., area schools, public transit, regional transit centers, and to existing on-street bicycle facilities.
B115	Fitzgerald Avenue Bicycle Shoulder widening from Santa Teresa Boulevard to Monterey Highway	Install shoulders on Fitzgerald Ave. to support safe operations for bicycles.
B116	Watsonville Road shoulders from Santa Teresa Boulevard to SR 152	Improve paved shoulder for bicycle use, add center lane and right-turn enhancements at select locations to accommodate vehicular turning such that shoulders remain unobstructed for bicyclists.
Source: VTA's Valley Transportation Plan 2040 (VTP 2040).		

bike facilities, to the extent practical, along Kern Avenue, and extending the existing bike lane along Cohansey Avenue from the Harvest Park site to Kern Avenue. Additionally, it is recommended that the missing bike lanes along Wren Avenue, approximately 1,000 feet between Farrell Avenue and Vickery Avenue, be installed to provide a continuous bike lane along Wren Avenue.

Ultimately, the contribution, if required, should be determined by the City of Gilroy and it should be based on the project's contribution to the total projected growth in the study area.

Pedestrian Circulation

As discussed in Chapter 2 (Existing Conditions), pedestrian facilities in the project area consist primarily of sidewalks along residential streets in the study area. Although most developed areas in the vicinity of the project site have sidewalks along both sides of the street, some streets within the project area have sidewalks missing along one or both sides of the street, including segments of Wren Avenue,

Kern Avenue, Tatum Avenue, Vickery Avenue, and Farrell Avenue. This results in a discontinuous pedestrian facility network in the project area.

Project's Effect on Pedestrian Facilities

It can be expected that new pedestrian traffic would be generated by the proposed project. Possible pedestrian destinations near the project sites include Antonio Del Buono Elementary School (located adjacent to and east of the Wren Investors site), Las Animas Park (located between one quarter mile to less than one mile south of the project sites along Mantelli Drive), and the bus stops along Monterey Road (located just over half a mile east of the project sites). Rod Kelley Elementary School also is located half a mile to one mile south of the project site (along Kern Avenue), a distance which might be considered too far for some to walk to school. Pedestrians accessing the above pedestrian destinations would mainly utilize Kern, Wren, Cohansey, Vickery, and Farrell Avenues. However, with the missing sidewalks along segments of these roadways, there is currently not a continuous pedestrian connection between the Hewell Property and Wren Investors sites, or between the project sites and other pedestrian facilities/destinations.

Existing bus stops on Monterey Road could be accessed from the project site via Cohansey Avenue (with the Cohansey Avenue extension), Farrell Avenue, and Ronan Avenue. Continuous sidewalks would be available along Cohansey Avenue, however, both Farrell and Ronan Avenues currently have segments with missing sidewalks along at least one side of the street. The existing/future traffic signals at the intersections of Cohansey and Farrell Avenues with Monterey Road would facilitate crossing Monterey Road to access the northbound bus stops, located on the east side of Monterey Road. However, no pedestrian crossing of Monterey Road is located at Ronan Avenue, forcing pedestrians to walk northward approximately one-third of a mile to the signalized intersection of Monterey Road/Las Animas Avenue, where the next northbound bus stop is located.

The lack of connectivity between the project site and other pedestrian destinations potentially could discourage pedestrian activity or force pedestrians to walk along undeveloped roadway shoulders and/or within the street.

Although it is not feasible for the proposed project to install all missing sidewalks in the vicinity of the project sites, providing sidewalks along both sides of all new roadways within the project sites and along the project's frontage on Kern, Vickery, and Wren Avenues, would greatly improve pedestrian connectivity and circulation in the study area. The new sidewalks would connect to other existing and planned sidewalks along Cohansey Avenue and Wren Avenue, providing a continuous pedestrian connection between the project sites and Wren Avenue, including access to the Antonio Del Buono Elementary School. However, the lack of a continuous pedestrian facility along Kern Avenue would continue, affecting pedestrian connectivity between the project sites and pedestrian destinations along Kern Avenue.

Antonio Del Buono Elementary School is located in the northeast quadrant of the Wren Avenue/Farrell Avenue intersection, east of the Wren Investors site. The intersection of Wren Avenue/Farrell Avenue, a T-intersection, is currently controlled by stop signs on all approaches of the intersection. A single high-visibility crosswalk is currently striped along the east leg of the intersection, providing a pedestrian connection between the school and the neighborhoods south of Farrell Avenue. With the proposed project, Farrell Avenue would be extended into the Wren Investors site and this intersection would become a four-legged intersection. In addition to providing vehicular access to the project site, the intersection would provide the main pedestrian access between the project site and Antonio Del Buono school. As such, marked pedestrian crosswalks on Wren Avenue at Farrell Avenue should be provided.

A discussion of the project's effect on traffic conditions in the vicinity of the Antonio Del Buono Elementary School is provided in the following sections.

Recommended Pedestrian Circulation Improvements

Installation of Sidewalks. It is recommended that with the development of the project area, sidewalks along both sides of all new streets on the project site and along existing project frontage streets with missing sidewalks be built. This would provide a continuous sidewalk connection from every proposed residential unit within the project site to existing and planned pedestrian facilities within the study area.

Installation of School Crosswalks on All Legs of Farrell Avenue/Wren Avenue Intersection. The project, in coordination with the City of Gilroy, should consider installing high visibility school crosswalks on all legs of the intersection of Farrell Avenue and Wren Avenue.

Development of a Safe Route to Schools Program. It is recommended that the project developer work with the City of Gilroy to develop a safe route to schools program from the project site to the anticipated school sites serving the project.

Transit Service

Although the project site is not directly served by a bus route, bus stops serving the project site are located along Wren Avenue (at Ramona Way) and along Monterey Road (at Cohansey Avenue, Farrell Avenue, and Ronan Avenue).

In addition, Caltrain provides commuter rail service between Gilroy and San Francisco. The Gilroy Caltrain Station (Transit Center) is located in Downtown Gilroy, approximately 3 miles south of the project site, and the San Martin Caltrain Station is located approximately 4.5 miles north of the project site.

One of the planned transit projects in the City of Gilroy is the future High Speed Rail (HSR) project. The HSR line is planned to extend through Gilroy. Two alignments for this project are currently proposed: the first alignment would run parallel to the existing train tracks east of Monterey Road with a new station located near the existing Gilroy Caltrain Station; the second alignment would run east of US 101 with a new station located north of Leavesley Road.

Additionally, the VTA *Valley Transportation Plan 2040* (VTP2040) identifies two transit projects in Gilroy. These are described in Table 16 below.

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 new project development residents could utilize public transportation. Applying an estimated three percent (3%) transit mode share, which is probably the highest that could be expected for the project, equates to approximately 7 to 10 new transit riders during the peak hours. The estimated number of new transit riders for the proposed project could be served by the existing bus line currently serving the project area. Therefore, the additional transit demand generated by the project would not justify additional transit services in the study area, based on the project demand alone. However, as the area surrounding the project site develops, the demand for public transportation could increase.

Recommended Transit Service Improvements

Expansion of Service. With the development of the project area, VTA should consider expanding Bus Route 19 service area further north to directly serve the project area, or add a new route that would serve the project sites directly. Additionally, with the expansion of the service area, new bus stops could be located along Wren Avenue, Cohansey Avenue, and/or Kern Avenue.

Table 16
VTP2040 Transit Projects in Gilroy

VTP ID	Project Title	Description
Transit Projects in Gilroy		
T14	Caltrain: South County	Double track segment on the Caltrain line between San Jose and Gilroy.
T15	Caltrain/HSR Station Improvements: San Jose Diridon and Gilroy Stations	Provide station improvements needed to accommodate and support the high-speed train service.
Source: VTA's Valley Transportation Plan 2040 (VTP 2040).		

Site Access and On-Site Circulation

This analysis is based on a review of the Preliminary Master Plan for the Wren Investors site, dated October 23, 2012, by MH Engineering Co., and the Conceptual Development Plan for the Hewell Property site, dated December 20, 2013, also by MH Engineering Co. The plans are presented on Figures 2 and 3 of this report.

Site Access

Wren Investors Site

Access to the Wren Investors site would be provided via existing/new intersections along Vickery Avenue, Wren Avenue, and Kern Avenue. New internal roadways would connect to existing roadways and existing intersections, creating new or four-legged intersections. Farrell Avenue would be extended westward into the project site, providing direct access to the northern portion of the Wren Investors site and forming a four-legged intersection with Wren Avenue. Two additional access points would provide access to the northern portion of the Wren Investors site, one along Wren Avenue, north of Farrell Avenue, and one along Vickery Avenue.

St. Clar Avenue would be extended eastward into the project site, forming a four-legged intersection at Kern Avenue, and connecting to Ronan Avenue, just west of Wren Avenue. This new roadway extension, in addition to Tatum Avenue, would provide direct access to the southern portion of the project site and as well as an alternate connection between Wren and Kern Avenues.

Hewell Property Site

The project site plan shows Cohansey Avenue, Kern Avenue, and Vickery Avenue to be the access roadways to the project site. The extension of Cohansey Avenue from the Harvest Park Phase site, through the project site, to Kern Avenue, would provide a direct connection from the project site to Monterey Road.

Every residential unit within the site would be accessible from at least two different access points. Therefore, vehicular access to/from the project site should be adequate.

On-Site Circulation

Wren Investors Site

Various new access roadways would provide direct access to the residential units and commercial area within the site. The Santa Clara Valley Water District channel runs east-west just north of Tatum Avenue splitting the project site in two, with no on-site direct connection between the northern and

southern parts of the site. The multi-family units are shown to be served by their own internal drive aisles/alleys, which have driveways along Tatum Avenue and along the new roadways both north and south of Tatum Avenue. All new internal access roadways are shown to be 60 feet wide, with the exception of the cul-de-sacs, which are shown to be 52 feet wide. No dimensions on the multi-family drive aisles are shown.

The City of Gilroy requires 60 feet of right-of-way (ROW) for local streets, which includes 11 feet of sidewalk/landscape on each side of the street, two 12-foot travel lanes, and two 7-foot parking lanes. The required ROW for cul-de-sacs is 52 feet, and includes 7 feet of sidewalk/landscape on each side of the street, two 12-foot travel lanes, and two 7-foot parking lanes. Thus, the proposed roadway widths satisfy the City of Gilroy street design standards. However, although not specified on the preliminary site plan, design of the multi-family units' access aisles also should adhere to City of Gilroy design guidelines.

Three cul-de-sacs are located on the northern portion of the project site. All other streets within the site would be through streets. With the preliminary internal roadway layout and dimensions, every proposed single-family residential unit within the project development is accessible from at least three different access points, making emergency vehicle access and circulation within the project site adequate. Emergency access to the multi-family units should be verified to ensure that the widths and turn radii of the access aisles comply with City requirements. The final design will have to be approved by the City of Gilroy.

Hewell Property Site

In addition to extending Cohansey Avenue from its terminus point at the Harvest Park site/eastern Hewell Property site boundary to Kern Avenue, three other access roadways/residential streets also would be constructed within the project site (labeled as Lane 1, Lane 2, and Alley D in the site plan on Figure 2). The new access roadways would connect to the existing roadway network and provide direct access to the proposed residential units. Lanes 1 and 2 are shown to be 36 feet wide (face of curb to face of curb (FC to FC)) and would consist of two 11-foot travel lanes and two 7-foot parking lanes. Alley D is shown to be 20 feet wide and would consist of two 10-foot travel lanes (with no on-street parking). Additionally, the Cohansey Avenue extension through the site is shown to be 54-feet wide (consisting of two 12-foot travel lanes, two 8-foot bike lanes, and a 14-foot center median) and would be consistent with the segment of Cohansey Avenue east of the project site. Both Kern and Vickery Avenues, adjacent to the project site, are shown to be 40 feet wide and consist of two 12-foot travel lanes and two 8-foot parking lanes.

According to City of Gilroy street design guidelines, local public streets must have a 38-foot FC to FC width in order to provide two 12-foot wide travel lanes and two 7-foot wide parking lanes (one on each side of the street). Based on these recommendations, the proposed FC to FC width for Lanes 1 and 2 do not satisfy the street design guidelines prescribed by the City of Gilroy. However, the City may allow exceptions, and ultimately, the final design will have to be approved by the City of Gilroy.

Design of the 20-foot alley providing access to the units located on the north side of the site should adhere to City of Gilroy design guidelines and standards in order to provide adequate turn-radii for emergency vehicles and large trucks, such as garbage trucks, to maneuver through the site. As with the design of the local streets, the final design of the access alley will have to be approved by the City of Gilroy.

Neighborhood School Traffic Issues

Based on field observations conducted in the project area on November and December 2017, it was observed that Wren and Farrell Avenues, in the vicinity of Antonio Del Buono Elementary School,

experience considerable traffic activity associated with morning school drop-off and afternoon school pick-up activity. The proposed project is projected to add traffic to these segments of Wren and Farrell Avenues, potentially exacerbating the observed AM peak hour existing conditions.

It was observed that during both the morning drop-off time and afternoon pick-up time, the east side of Wren Avenue is heavily parked along the entire school frontage and extending north of the school. Additionally, the undeveloped west side of Wren Avenue, across from the school and along the project site frontage, also is used for parent parking during both peak times. Parent parking along the west side of Wren Avenue was observed to be the heaviest during the afternoon school pick-up time, when parents show prior to the end of the school day, park and wait for their children. Parents park on the west side of Wren Avenue and walk their children to/from the school across the street. Consequently, school children that are dropped-off or picked-up on the west side of Wren Avenue will cross Wren Avenue at a mid-block location without the benefit of a crosswalk, a stop sign to control vehicles, or a crossing guard.

A few times during the morning drop-off time, parents were observed double parking in the northbound travel lane to drop-off their children. This required other northbound vehicles to use the center median lane to drive around the double parked vehicles, which became problematic when vehicles on the west side of the road were parked partially in the southbound lane. Additionally, the majority of the vehicles parked on either side of Wren Avenue were observed to complete a U-turn along this segment of Wren Avenue either after dropping-off their student on the east side of the street or prior to parking on the west side of the street.

The observed parked vehicles along the west side of Wren Avenue, in combination with the constant U-turn movements, contributed to the congestion and obstruction of traffic flow along Wren Avenue as well as created a significant amount of mid-block pedestrian crossings on Wren Avenue in an area where traffic patterns and activity are challenging. The combination of high pedestrian and vehicular volumes on this segment of Wren Avenue, in addition to the lack of sidewalks or paved shoulder on the west side of Wren Avenue, creates an undesirable condition for pedestrians.

No parking problems were observed along Farrell Avenue during either peak school time. The traffic activity on Farrell Avenue mainly consisted of parents driving into the on-site student loading lane (with entrance driveway on Farrell Avenue), then exiting the site on Wren Avenue. During the afternoon pick-up time, the on-site student loading lane backed out of the school site and onto Farrell Avenue. However, the vehicles queued on Farrell Avenue were able to store next to the curb in the westbound direction without affecting westbound traffic flow along Farrell Avenue.

Project's Effect on Neighborhood School Traffic Issues

The existing two-way traffic volume on Wren Avenue, north of Farrell Avenue, is 418 vehicles during the AM peak hour and 174 vehicles during the PM peak hour. The existing traffic activity on this segment of Wren Avenue during the AM peak-hour is predominately school-related traffic. The proposed project is projected to add approximately 31 AM peak-hour trips and 44 PM peak-hour trips to the same segment of Wren Avenue. This equates to an increase in traffic associated with the project of approximately 7 percent during the AM peak hour and 25 percent during the PM peak hour. The added traffic will be residential-related traffic, predominantly commute in nature. However, due to the various roadways and access points providing access to the project site, project traffic would have the opportunity to use alternative routes to and from the project site, in particular during the school's peak hours. Nevertheless, the addition of project traffic to this segment of Wren Avenue with existing pedestrian deficiencies and congestion problems would cause the observed existing conditions during the AM peak-hour to worsen and would exacerbate the undesirable condition associated with pedestrians crossing Wren Avenue along this segment. The effect of project traffic to this segment of Wren Avenue during the PM peak-hour would be minimal.

Additionally, the conflict between project traffic and existing traffic will be further exacerbated because the project traffic would be predominately commute in nature whereas the existing traffic is predominately school-related, each with different trip purposes. Commute traffic is focused more on traveling through the neighborhood to commute routes and employment destinations with as little delay as possible. School-related traffic is more locally focused with shorter trips where access to the school and obtaining convenient parking for student loading is the highest priority. The addition of project traffic to existing traffic on Wren Avenue and the conflict between traffic with different trip purposes has the potential to degrade traffic operations in the corridor.

Possible Improvements

The long-term improvements needed to alleviate the pedestrian deficiencies along Wren Avenue include widening Wren Avenue, across from the school, to provide a suitable parking area for parents to be able to park without blocking the through lanes. Additionally, a sidewalk along this segment of Wren Avenue, on the west side of the street, would be needed in order for school children that are dropped off or picked up on the west side of Wren Avenue to be able to walk to/from the intersection of Wren Avenue/Farrell Avenue and safely cross the street at that location. A new crosswalk across Wren Avenue (on the north leg of the Wren/Farrell intersection) also would be needed. These improvements would address the mid-block pedestrian crossings and the blockage of the travel lanes on Wren Avenue by inadequately parked vehicles on the west side of the street.

With the development of the proposed project, the west side of Wren Avenue would be developed and sidewalks would be provided. Therefore, with the proposed improvements along Wren Avenue planned as part of the project, in addition to possible changes to student loading procedures by the school, traffic conditions during the school peak hours along this segment of Wren Avenue potentially could improve.

Other possible improvements that could be implemented to alleviate traffic conditions in the vicinity of Antonio Del Buono Elementary School include:

- With the development of the proposed project, allow parking or loading zones on the west side of Wren Avenue, along the entire project frontage, to facilitate student loading during school start/end times.
- Design Wren Avenue along the project frontage to accommodate parking, bike lanes, and the necessary vehicular travel lanes.
- Add high visibility school crosswalks at the intersection of Wren Avenue and Farrell Avenue.
- Consider changes to the site plan so homes are not fronting directly onto Wren Avenue or Farrell Avenue, just west of Wren Avenue, as this area is likely to experience school traffic congestion during school start/end times.
- Design the proposed commercial site located on the southwest corner of the Wren Avenue/Farrell Avenue intersection to discourage school-related traffic from parking in the commercial parking lot.
- Encourage the school to develop and enforce a drop-off/pick-up plan in order to minimize mid-block crossing and vehicle/pedestrian conflicts as well as illegal turns adjacent to the school grounds.

Recommendations to Alleviate Neighborhood School Traffic Issues

Contribute to Possible Improvements. The project applicant should work with the City of Gilroy to address the project's contribution to the existing traffic issues and deficiencies and contribute towards the implementation of a feasible improvement.

7. Conclusions

The traffic impact analysis documents the potential traffic impacts to the surrounding transportation network associated with the proposed project. The purpose of the traffic analysis is to satisfy the requirements of the City of Gilroy, the Congestion Management Program (CMP) of the Santa Clara Valley Transportation Authority (VTA), Caltrans, and the California Environmental Quality Act (CEQA).

The study includes the analysis of 25 intersections. The potential impacts of the project on intersections were evaluated in accordance with City of Gilroy and Caltrans level of service standards and impact criteria.

Background Plus Project Conditions Analysis

City of Gilroy/Santa Clara County Intersections

Signalized Intersections

The results of the intersection level of service analysis indicate that, based on City of Gilroy signalized intersection level of service impact criteria, none of the signalized study intersections would be significantly impacted by the proposed project under background plus project conditions.

CMP Intersection

The results of the level of service analysis for the CMP intersection under background plus project conditions show that, measured against the CMP level of service standards, the CMP study intersection of Monterey Road and Leavesley Road/Welburn Avenue (#7) is projected to operate at an acceptable LOS C during the AM and PM peak hours.

Unsignalized Intersections

The results of the level of service analysis show that the following unsignalized study intersections are projected to be impacted by the proposed project under background plus project condition, based on the City of Gilroy overall average intersection delay impact criteria, and/or the worst approach delay and signal warrant impact criteria:

2. Monterey Road and Buena Vista Avenue (**Impact:** AM and PM peak hours)
3. Monterey Road and Day Road (**Impact:** AM and PM peak hours)
16. Wren Avenue and Welburn Avenue (**Impact:** PM peak-hour)
22. US 101 Southbound Ramps and Masten Avenue (**Impact:** PM peak-hour)
23. US 101 Northbound Ramps and Masten Avenue (**Impact:** AM peak-hour)

Caltrans Intersections

The results of the intersection level of service analysis for Caltrans intersections show that two of the Caltrans study intersections are projected to be impacted by the proposed project under background plus project conditions, based on Caltrans intersection level of service impact criteria:

22. US 101 Southbound Ramps and Masten Avenue (**Impact:** PM peak-hour)
23. US 101 Northbound Ramps and Masten Avenue (**Impact:** AM peak-hour)

Freeway Segment Analysis

According to CMP Traffic Impact Analysis Guidelines, a freeway level of service analysis is required if the number of project trips added to any freeway segment equals or exceeds one percent of the capacity of the segment. The key freeway segments in the study area were analyzed to determine if the project traffic on each segment would exceed this threshold. A review of the project trip assignment indicates that the number of project trips on the freeway falls below the one-percent threshold. Thus, the project would not cause a significant increase in traffic on the freeway segments in the study area, and a freeway level of service analysis is not required.

Intersection Operations Analysis

The existing maximum queue length for all of the study intersection movements is estimated to be able to accommodate within the available queue storage capacity for each of the movements during the peak hours, with the exception of the westbound left-turn movement at the intersection of Monterey Road and Masten Avenue/Fitzgerald Avenue.

The maximum queue length for the westbound left-turn movement at the *Monterey Road and Masten Avenue/Fitzgerald Avenue* intersection is estimated to be 22 vehicles (or 550 feet) during the PM peak hour under existing conditions, exceeds the existing storage capacity of approximately 340 feet for this movement. The addition of approved (background) traffic to this movement would cause the projected queue length to increase by 2 vehicles (to 24 vehicles, or 600 feet) during the PM peak hour. The addition of project traffic to this turn movement would cause the projected vehicle queue to increase by 3 vehicles (from 24 to 27 vehicles, or 600 to 675 feet) during the PM peak-hour under background plus project conditions. Contribution to a vehicle queue in a turn-movement with inadequate queue storage capacity is considered a project impact, according to the City of Gilroy definition of significant traffic operations impacts.

Parking Analysis

The proposed project must adhere to the City of Gilroy parking requirements (found in the City of Gilroy Zoning Ordinance, Section 31, Off-street parking requirements) and the Americans with Disabilities Act (ADA) requirements in order to satisfy City of Gilroy standards.

Emergency Access Evaluation

Wren Investors Site

Based on the review of the Preliminary Master Plan, it was determined that with the preliminary internal roadway layout and dimensions, every proposed single-family residential unit within the project development would be accessible from at least three different access points, making emergency vehicle access and circulation within the project site adequate. Emergency access to the multi-family units must be verified to ensure that the widths and turn radii of the access aisles comply with City requirements. The final design of all access roadways will have to be approved by the City of Gilroy.

Hewell Property Site

Based on the review of the Conceptual Development Plan, every residential unit within the site would be accessible from at least two different access points, making emergency vehicle access within the project site adequate. However, the design of all new roadways and alleys providing direct access to the proposed residential units must adhere to City of Gilroy design guidelines and standards and should provide adequate turn-radii for emergency vehicles and large trucks to maneuver through the site. With the appropriate roadway widths and turn-radii, on-site circulation for emergency vehicles would be adequate. The final design of all access roadways will have to be approved by the City of Gilroy.

Recommended Mitigation Measures under Background Plus Project Conditions

Described below are the recommended mitigation measures necessary to maintain the level of service standard and intersection operations under background plus project conditions.

All mitigation measures listed below are planned in the City's Traffic Circulation Master Plan (TCMP) and are included in the City's Traffic Impact Fee (TIF) Program. Thus, the developer will be required to pay the applicable TIF fee as a fair-share contribution toward improvements at this intersection. With implementation of the mitigation measures, the project impacts would be less-than-significant.

2. Monterey Road and Buena Vista Avenue (City of Gilroy Intersection)

Mitigation: The project impact to this intersection could be mitigated with the installation of a traffic signal, which would include protected left-turn movements on the southbound approach. Implementation of the above improvements would improve the intersection level of service to acceptable LOS A during the AM and PM peak hours under background plus project conditions.

3. Monterey Road and Day Road (City of Gilroy Intersection)

Mitigation: The project impact to this intersection could be mitigated with the installation of a traffic signal, which would include protected left-turn movements on the northbound approach. Implementation of the above improvements would improve the intersection level of service to acceptable LOS B during the AM and PM peak hours under background plus project conditions.

16. Wren Avenue and Welburn Avenue (City of Gilroy Intersection)

Mitigation: The project impact to this intersection could be mitigated with the installation of a traffic signal that would include protected left-turn signal phasing on the northbound/southbound approaches and split phasing on the eastbound/westbound approaches. Implementation of the above improvements would improve the intersection level of service to LOS C during the AM and PM peak hours under background plus project conditions.

22. US 101 SB Ramps and Masten Avenue (Caltrans Intersection)

Mitigation: The project impact to this intersection could be mitigated with the installation of a traffic signal that would include split signal phasing on the southbound approach and protected phasing on the westbound approach. Additionally, a receiving lane in the westbound direction also is needed as an exclusive lane for the southbound right-turn movement volumes. Implementation of the above improvements would improve the intersection level of service to acceptable LOS B during the AM and PM peak hours under background plus project conditions.

23. US 101 NB Ramps and Masten Avenue (Caltrans Intersection)

Mitigation: The project impact to this intersection could be mitigated with the installation of a traffic signal that would include split signal phasing on the northbound approach and protected phasing on the eastbound approach. Implementation of the above improvements would improve the intersection level of service to acceptable LOS C or better under background plus project conditions.

1. Monterey Road and Masten Avenue/Fitzgerald Avenue – Westbound Left-Turn

Mitigation: The project impact to the westbound left-turn movement of the Monterey Road/Masten Avenue/Fitzgerald Avenue intersection could be mitigated by providing a second westbound left-turn lane.

Cumulative Plus Project Conditions Analyses**City of Gilroy/Santa Clara County Intersections****Signalized Intersections**

The results of the level of service analysis for the signalized study intersections indicate that the following study intersection is projected to be impacted by the proposed project, based on City of Gilroy signalized intersection level of service impact criteria, under cumulative plus project conditions:

1. Monterey Road and Masten Avenue/Fitzgerald Avenue (**Impact:** PM peak-hour)

CMP Intersection

The results of the level of service analysis for the CMP intersection under cumulative plus project conditions show that, measured against the CMP level of service standards, the CMP study intersection of Monterey Road and Leavesley Road/Welburn Avenue (#7) is projected to operate at an acceptable LOS C during the AM and PM peak hours.

Unsignalized Intersections

The results of the level of service analysis show that the following unsignalized study intersections are projected to be impacted by the proposed project under cumulative plus project condition, based on the City of Gilroy overall average intersection delay impact criteria, and/or the worst approach delay and signal warrant impact criteria:

2. Monterey Road and Buena Vista Avenue (**Impact:** AM and PM peak hours)
3. Monterey Road and Day Road (**Impact:** AM and PM peak hours)
16. Wren Avenue and Welburn Avenue (**Impact:** AM and PM peak hours)
22. US 101 Southbound Ramps and Masten Avenue (**Impact:** PM peak-hour)
23. US 101 Northbound Ramps and Masten Avenue (**Impact:** AM peak-hour)

Caltrans Intersections

The results of the intersection level of service analysis for Caltrans intersections show that two of the Caltrans study intersections are projected to be impacted by the proposed project under cumulative plus project conditions, based on Caltrans intersection level of service impact criteria:

22. US 101 Southbound Ramps and Masten Avenue (**Impact:** PM peak-hour)
23. US 101 Northbound Ramps and Masten Avenue (**Impact:** AM peak-hour)

Recommended Mitigation Measures under Cumulative Plus Project Conditions

Described below are the recommended mitigation measures necessary to maintain the level of service standard and intersection operations under cumulative plus project conditions.

All mitigation measures listed below are planned in the City's TCMP and are included in the City's TIF Program. Thus, the developer will be required to pay the applicable TIF fee as a fair-share contribution toward improvements at this intersection. With implementation of the mitigation measures, the project impacts would be less-than-significant.

1. US 101 NB Ramps and Masten Avenue (Caltrans Intersection)

Mitigation: The minimum required improvements to mitigate the project impact at this intersection include adding a separate eastbound left-turn lane, a second westbound left-turn lane, and updating the signal phasing to protected left-turns in the eastbound/westbound direction. Implementation of the above improvements would improve the intersection level of service to better than cumulative (no project) conditions, satisfactorily mitigating the project impact. However, the intersection is projected to continue to be deficient (LOS D) during the PM peak-hour.

2. Monterey Road and Buena Vista Avenue (City of Gilroy Intersection)

Mitigation: The improvements necessary to mitigate the project impact at this intersection are the same as described in the background plus project conditions section. Implementation of the above improvements would improve the intersection level of service to acceptable LOS A during the AM and PM peak hours under cumulative plus project conditions.

3. Monterey Road and Day Road (City of Gilroy Intersection)

Mitigation: The improvements necessary to mitigate the project impact at this intersection are the same as described in the background plus project conditions section. Implementation of the above improvements would improve the intersection level of service to acceptable LOS B during the AM and PM peak hours under cumulative plus project conditions.

16. Wren Avenue and Welburn Avenue (City of Gilroy Intersection)

Mitigation: The project impact to this intersection could be mitigated with the addition of separate left-turn lanes on both the eastbound and westbound approaches, and installation of a traffic signal that would include protected left-turn signal phasing on all approaches of the intersection. Implementation of the above improvements would improve the intersection level of service to LOS C during the AM and PM peak hours under cumulative plus project conditions.

22. US 101 SB Ramps and Masten Avenue (Caltrans Intersection)

Mitigation: The improvements necessary to mitigate the project impact at this intersection are the same as described in the background plus project conditions section. Implementation of the above improvements would improve the intersection level of service to acceptable LOS B during the AM and PM peak hours under cumulative plus project conditions.

23. US 101 NB Ramps and Masten Avenue (Caltrans Intersection)

Mitigation: The improvements necessary to mitigate the project impact at this intersection are the same as described in the background plus project conditions section. Implementation of the above improvements would improve the intersection level of service to acceptable LOS C or better under cumulative plus project conditions.

Other Transportation Issues

Freeway Ramp Evaluation

A review of metered freeway ramps providing access to and from US 101 and the project site was performed to identify the effect of the addition of project traffic on the queues at metered study freeway on-ramps. Uncontrolled freeway on-ramps are typically not evaluated since these ramps do not experience measurable queue lengths. It should be noted that the evaluation of freeway ramps is not required based on the City's transportation impact analysis guidelines. Nor are there adopted methodologies and impact criteria for the analysis of freeway ramps.

US 101 Northbound On-Ramp at Masten Avenue

The northbound on-ramp at Masten Avenue consists of a diagonal ramp and includes two mixed-flow lanes and one high occupancy vehicle (HOV) lane. Although a ramp meter is installed, field observations revealed that the ramp meter is continuously green during the AM peak-hour, allowing the ramp to function as an uncontrolled ramp. No measurable vehicular queues were observed at this ramp. Therefore, it can be concluded that the addition of the project traffic to this ramp during the peak hours would not have an effect on existing queue lengths.

US 101 Southbound On-Ramp at Leavesley Road

The southbound on-ramp at Leavesley Road consists of a diagonal ramp with two mixed-flow lanes with ramp meter. Field observations revealed that this ramp meter is operational during the PM peak-hour only. Therefore, during the AM peak-hour, when the proposed project would add the most traffic to this on-ramp, the vehicular queues on this ramp are negligible and the project traffic during the AM peak-hour would not have an effect on the existing queue length.

Since the ramp meter at the Leavesley Road southbound on-ramp is operational during the PM peak-hour, and although the project traffic added to this ramp would be minimal during the PM peak-hour, an evaluation of the queue length on this ramp during the PM peak-hour was completed. The existing queue lengths at the ramp were measured in the field during the PM peak-hour.

The maximum observed queue length on the on-ramp during the PM peak-hour was a total of 88 vehicles, or 44 vehicles per lane. The maximum queue length was observed to extend nearly back to its intersection with Leavesley Road, although this only occurred once during the hour-long observation.

The proposed project is projected to add 9 trips to the US 101 southbound on-ramp at Leavesley Road during the PM peak-hour, which represents less than a 1% increase in volume from existing conditions, and equates to potentially one vehicle trip added to the on-ramp approximately every 6.5 minutes. The project could potentially add one or two vehicles to the maximum queue if vehicles were to arrive at just the right moment when the queue is at its maximum. Thus, it can be concluded that the addition of PM project trips to this metered on-ramp would have very little effect on the existing vehicle queues at the ramp.

Bicycle Circulation

Recommended Bicycle Facility Improvements

The following recommendations are made to promote non-auto modes of transportation in the City and to accommodate bicycle travel near the project site:

Install Bicycle Parking Facilities. It is recommended that the proposed project provide adequate bicycle parking supply, based on VTA's recommended bicycle-parking rates, to serve the multi-family and retail components of the project.

Contribute to Planned Bicycle Facilities in the Project Area. It is recommended that the proposed project contribute to the completion of planned bicycle facilities that would serve the project site directly, in particular those along Kern, Cohansey, and Wren Avenues. The contribution should include striped bike facilities, to the extent practical, along Kern Avenue, and extending the existing bike lane along Cohansey Avenue from the Harvest Park site to Kern Avenue. Additionally, it is recommended that the missing bike lanes along Wren Avenue, approximately 1,000 feet between Farrell Avenue and Vickery Avenue, be installed to provide a continuous bike lane along Wren Avenue.

Ultimately, the contribution, if required, should be determined by the City of Gilroy and it should be based on the project's contribution to the total projected growth in the study area.

Pedestrian Circulation

Recommended Pedestrian Circulation Improvements

Installation of Sidewalks. It is recommended that with the development of the project area, sidewalks along both sides of all new streets on the project site and along existing project frontage streets with missing sidewalks be built. This would provide a continuous sidewalk connection from every proposed residential unit within the project site to existing and planned pedestrian facilities within the study area.

Installation of School Crosswalks on All Legs of Farrell Avenue/Wren Avenue Intersection. The project, in coordination with the City of Gilroy, should consider installing high visibility school crosswalks on all legs of the intersection of Farrell Avenue and Wren Avenue.

Development of a Safe Route to Schools Program. It is recommended that the project developer work with the City of Gilroy to develop a safe route to schools program from the project site to the anticipated school sites serving the project.

Transit Service

Recommended Transit Service Improvements

Expansion of Service. With the development of the project area, VTA should consider expanding Bus Route 19 service area further north to directly serve the project area, or add a new route that would serve the project sites directly. Additionally, with the expansion of the service area, new bus stops could be located along Wren Avenue, Cohansey Avenue, and/or Kern Avenue.

Site Access

Wren Investors Site

Every proposed single-family residential unit within the project development would be accessible from at least three different access points, making vehicular access to/from the project site adequate.

Hewell Property Site

Every residential unit within the site would be accessible from at least two different access points. Therefore, vehicular access to/from the project site should be adequate.

On-Site Circulation

Wren Investors Site

The proposed roadway widths satisfy the City of Gilroy street design standards. However, although not specified on the preliminary site plan, design of the multi-family units' access aisles also should adhere to City of Gilroy design guidelines.

Emergency access to the multi-family units should be verified to ensure that the widths and turn radii of the access aisles comply with City requirements. The final design will have to be approved by the City of Gilroy.

Hewell Property Site

Based on City of Gilroy street design guidelines, the proposed FC to FC width for Lanes 1 and 2 do not satisfy the recommended local public street width of 38 feet (FC to FC width). However, the City may allow exceptions, and ultimately, the final design will have to be approved by the City of Gilroy.

Design of the 20-foot alley providing access to the units located on the north side of the site should adhere to City of Gilroy design guidelines and standards in order to provide adequate turn-radii for emergency vehicles and large trucks, such as garbage trucks, to maneuver through the site. As with the design of the local streets, the final design of the access alley will have to be approved by the City of Gilroy.

Neighborhood School Traffic Issues

Possible Improvements

With the development of the proposed project, the west side of Wren Avenue would be developed and sidewalks would be provided. Therefore, with the proposed improvements along Wren Avenue planned as part of the project, in addition to possible changes to student loading procedures by the school, traffic conditions during the school peak hours along this segment of Wren Avenue potentially could improve.

Other possible improvements that could be implemented to alleviate traffic conditions in the vicinity of Antonio Del Buono Elementary School include:

- With the development of the proposed project, allow parking or loading zones on the west side of Wren Avenue, along the entire project frontage, to facilitate student loading during school start/end times.
- Design Wren Avenue along the project frontage to accommodate parking, bike lanes, and the necessary vehicular travel lanes.
- Add high visibility school crosswalks at the intersection of Wren Avenue and Farrell Avenue.
- Consider changes to the site plan so homes are not fronting directly onto Wren Avenue or Farrell Avenue, just west of Wren Avenue, as this area is likely to experience school traffic congestion during school start/end times.
- Design the proposed commercial site located on the southwest corner of the Wren Avenue/Farrell Avenue intersection to discourage school-related traffic from parking in the commercial parking lot.
- Encourage the school to develop and enforce a drop-off/pick-up plan in order to minimize mid-block crossing and vehicle/pedestrian conflicts as well as illegal turns adjacent to the school grounds.

Recommendations to Alleviate Neighborhood School Traffic Issues

Contribute to Possible Improvements. The project applicant should work with the City of Gilroy to address the project's contribution to the existing traffic issues and deficiencies and contribute towards the implementation of a feasible improvement.

APPENDIX D

MITIGATION MONITORING AND REPORTING PROGRAM

MITIGATION MONITORING AND REPORTING PROGRAM

INTRODUCTION

CEQA Guidelines section 15097 requires public agencies to adopt reporting or monitoring programs when they approve projects subject to an environmental impact report or a negative declaration that includes mitigation measures to avoid significant adverse environmental effects. The reporting or monitoring program is to be designed to ensure compliance with conditions of project approval during project implementation in order to avoid significant adverse environmental effects.

The law was passed in response to historic non-implementation of mitigation measures presented in environmental documents and subsequently adopted as conditions of project approval. In addition, monitoring ensures that mitigation measures are implemented and thereby provides a mechanism to evaluate the effectiveness of the mitigation measures.

A definitive set of project conditions would include enough detailed information and enforcement procedures to ensure the measure's compliance. This monitoring program is designed to provide a mechanism to ensure that mitigation measures and subsequent conditions of project approval are implemented.

MONITORING PROGRAM

The basis for this monitoring program is the mitigation measures included in the project mitigated negative declaration. These mitigation measures are designed to eliminate or reduce

significant adverse environmental effects to less than significant levels. These mitigation measures become conditions of project approval, which the project proponent is required to complete during and after implementation of the proposed project.

The attached checklist is proposed for monitoring the implementation of the mitigation measures. This monitoring checklist contains all appropriate mitigation measures in the mitigated negative declaration.

MONITORING PROGRAM PROCEDURES

The City of Gilroy shall use the attached monitoring checklist for the proposed project. The monitoring program should be implemented as follows:

1. The Gilroy Planning Division should be responsible for coordination of the monitoring program, including the monitoring checklist. The Gilroy Planning Division should be responsible for completing the monitoring checklist and distributing the checklist to the responsible individuals or agencies for their use in monitoring the mitigation measures.
2. Each responsible individual or agency will then be responsible for determining whether the mitigation measures contained in the monitoring checklist have been complied with. Once all mitigation measures have been complied with, the responsible individual or agency should submit a copy of the monitoring checklist to the Gilroy Planning Division to be placed in the project file. If the mitigation measure has not been complied with, the monitoring checklist should not be returned to the Gilroy Planning Division.
3. The Gilroy Planning Division will review the checklist to ensure that appropriate mitigation measures and additional conditions of project approval included in the monitoring checklist have been complied with at the appropriate time, e.g. prior to issuance of a use permit, etc. Compliance with mitigation measures is required for project approvals.
4. If a responsible individual or agency determines that a non-compliance has occurred, a written notice should be delivered by certified mail to the project proponent within 10 days, with a copy to the Gilroy Planning Division, describing the non-compliance and requiring compliance within a specified period of time. If non-compliance still exists at the expiration of the specified period of time, construction may be halted and fines may be imposed at the discretion of the City of Gilroy.

MONITORING CHECKLIST

Step 1 – Prior to Approval of Tentative Map and Architectural and Site Review

The following mitigation measure shall be implemented:

Mitigation Measure BIO-2.

The project applicant shall identify protected trees, pursuant to Section 30.38.270 of the City's City Code, on the Tentative Map for residential development and on the Architectural and Site Review plans for commercial development. Protected trees shall be incorporated to the extent feasible into development design.

Party Responsible for Implementation: Project Applicant

Party Responsible for Monitoring: Gilroy Planning Division

Monitoring Notes: _____

Mitigation Measure BIO-3.

During preparation of site plans, the project applicant shall contract with a certified arborist to prepare a tree assessment report for the project site and submit the report to the City of Gilroy Planning Division for review and approval. The tree assessment report shall include, but not be limited to, the following items:

- a. identify all protected trees on the project site, pursuant to Section 30.38.270 of the City Code, including those that can be feasibly incorporated into the proposed development (retained), and those proposed for removal;

- b. recommendations for the size, species, source, location, and number of replacement plantings to mitigate the loss of protected trees; and
- c. for all trees that are to be retained on the project site, provide tree protection measures necessary to minimize construction activity that could affect tree health, structure, or stability.

All arborist recommendations, including the species and locations of all replacement trees, shall be listed on the final landscape plan, and the arborist shall sign the final landscape plan certifying that it is consistent with the tree assessment report recommendations.

Party Responsible for Implementation: Project Applicant

Party Responsible for Monitoring: Gilroy Planning Division

Monitoring Notes: _____

Mitigation Measure C-1.

Prior to approval of any tentative map for the project site, a historic resource evaluation (HRE) shall be prepared by a qualified professional and at the applicant's expense for the historic-era structures on the following Assessor's Parcels: 790-09-006, 790-17-001, 790-17-004, 790-17-007 and 008, and 790-17-010. At minimum, the HRE shall survey and identify all structures on these parcels that are 50 years or greater at the time of the survey and shall evaluate the identified historic-era structures with NRHP and CRHR eligibility criteria. If the HRE determines that significant historic structures are present on the site, a mitigation plan shall be prepared and submitted to the City of Gilroy Planning Director for review and approval prior to any site disturbing activities. The mitigation plan shall be prepared and implemented by a qualified historic professional and at the applicant's expense, and shall include a strategy for preservation of significant historic structures and a plan for adaptive re-use of the resource that utilizes either preservation in place or relocation to an appropriate receiver site elsewhere on the project site or within the City limit.

Party Responsible for Implementation: Project Applicant

Party Responsible for Monitoring: Gilroy Planning Division

Monitoring Notes: _____

Mitigation Measure N-1.

Associated with CEQA compliance for subdivisions and commercial projects at the project site, an acoustical analysis shall be prepared by a qualified acoustical professional. The recommendations in the analysis shall include, but not be limited to, recommendations for building placement and acoustical design features for new construction adjacent to Wren Avenue in proximity to the Antonio Del Buono Elementary School. The report recommendations shall be incorporated into the plans as part of the Tentative Map and Architectural and Site Review applications for future development, and shall be subject to the review and approval of the Planning Division, prior to approval of the Tentative Map and Architectural and Site Review.

Party Responsible for Implementation: Project Applicant

Party Responsible for Monitoring: Gilroy Planning Division

Monitoring Notes: _____

Step 2 – Prior to Issuance of Grading and Building Permits

The following mitigation measure shall be implemented:

Mitigation Measure AQ-1.

The following construction equipment parameters shall be included on all grading and building plans, subject to review and approval by the Building Division:

- a. All mobile diesel-powered off-road equipment larger than 25 horsepower and operating on the site for more than two consecutive days shall meet, at a minimum, U.S. EPA particulate matter emissions standards for Tier 2 engines or equivalent that also includes CARB-certified Level 3 Verified Diesel Emission Control Strategies (VDECS) or Diesel Particulate Filters meeting these requirements. Note that U.S. EPA Tier 4 equipment is considered to meet this measure. Applicant and/or construction contractor shall be responsible for submitting an equipment data list and operations timeframes to the Building Division prior to commencement of grading operations, and updating the information each week that there is a change. For each piece of equipment, the list shall include: CARB identification number, type of equipment (grader, dozer, etc.), emissions classification of equipment (Tier 2, filter type, etc.), compliance or non-compliance with emissions requirements above, and proposed operation schedule.
- b. Include conspicuous signage at the construction site entry and on-site construction office reiterating idle time limits on all diesel-fueled off-road vehicles to five minutes, as required by Title 23, Section 2449, of the California Code of Regulations ("CARB Off-Road Diesel Regulations").
- c. Eliminate the use of portable diesel equipment (e.g., generators) within 200 feet of project boundaries by providing electrical service at the site during the initial construction phase. Alternatively, use propane or natural gas powered equipment if electricity is not available.

Weekly monitoring reports detailing compliance with the measures described above shall be submitted by the applicant to the Building Division during all phases of construction. The Building Division shall ensure this has occurred prior to issuance of an occupancy permit.

Party Responsible for Implementation: Project Applicant

Party Responsible for Monitoring: Gilroy Building Division

Monitoring Notes: _____

Mitigation Measure BIO-1.

If noise generation, ground disturbance, vegetation removal, or other construction activities begin during the bird nesting season (February 1 to September 15), or if construction activities are suspended for at least two weeks and recommence during the bird nesting season, then the project applicant will retain a qualified biologist to conduct a pre-construction survey for nesting birds, including CDFW Fully Protected white-tailed kite. The survey will be performed within suitable nesting habitat areas on and adjacent to the site to ensure that no active nests would be disturbed during project implementation. This survey will be conducted no more than one week prior to the initiation of disturbance and/or construction activities. A report documenting survey results and plan for active bird nest avoidance (if needed) will be completed by the qualified biologist and submitted to the City of Gilroy Planning Division Manager for review and approval prior to disturbance and/or construction activities.

If no active bird nests are detected during the survey, then project activities can proceed as scheduled. However, if an active bird nest of a protected species is detected during the survey, then a plan for active bird nest avoidance will determine and clearly delineate an appropriately sized, temporary protective buffer area around each active nest, depending on the nesting bird species, existing site conditions, and type of proposed disturbance and/or construction activities. The protective buffer area around an active bird nest is typically 75-250 feet, determined at the discretion of the qualified biologist.

To ensure that no inadvertent impacts to an active bird nest will occur, no disturbance and/or construction activities will occur within the protective buffer area(s) until the juvenile birds have fledged (left the nest), and there is no evidence of a second attempt at nesting, as determined by the qualified biologist.

Party Responsible for Implementation: Project Applicant

Party Responsible for Monitoring: Gilroy Planning Division

Monitoring Notes: _____

Mitigation Measure BIO-4.

Prior to site disturbance, the project applicant shall fully comply with measures required by Section 30.38.270 of the Gilroy City Code. Pruning and/or removal of protected trees shall be undertaken only under the direction of a certified arborist hired at the applicants' expense, and subject to the review and approval of the Community Development Director. An approved tree removal permit is required prior to removal of any protected tree(s); the project developer shall obtain a tree removal permit, and shall comply with any tree protection measures or replacement plantings stipulated by the city.

Party Responsible for Implementation: Project Applicant

Party Responsible for Monitoring: Gilroy Planning Division

Monitoring Notes: _____

Mitigation Measure BIO-5.

Prior to and during construction, the project applicant shall implement all retained tree protection measures recommended for the site by the certified arborist's tree assessment report and permit approvals.

Party Responsible for Implementation: Project Applicant

Party Responsible for Monitoring: Gilroy Planning Division

Monitoring Notes: _____
